

ACCREDITATION SCHEME FOR
PRODUCT CERTIFICATION BODIES

CT 24
SAC CRITERIA FOR CERTIFICATION
BODIES (ALTERNATIVE STRUCTURAL
STEEL IN BC1)

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1 Introduction

- 1.1 This document specifies the additional definitions and supplementary criteria for certification of alternative structural steel in BC1 and is to be used with ISO/IEC 17065 and the applicable IAF Mandatory Documents.

2 Abbreviations

The following abbreviations are used in this document:

CB	Certification Body
COC	Certificate of Conformity
FPC	Factory Production Control
MTC	Manufacturer Test Certificate

3 Definitions

The following definitions apply:

- 3.1 **Minor non-conformity**
Failure to meet one requirement of BC1 and which is considered not to constitute a risk to the quality of structural steel that a manufacturer is supplying.
- 3.2 **Major non-conformity**
Deviation of product from specified requirements or the absence of, or failure to implement and maintain one or more required factory production control system requirements, or a situation which would, on the basis of available objective evidence raise significant doubt as to the conformity of the structural steel that a manufacturer is supplying
- 3.3 **Alternative Structural Steel**
Alternative steel materials are steel materials not manufactured in accordance with European Standards, and therefore not covered in SS EN 1993 by default.

4 Certification Criteria

- 4.1 All certification bodies (CBs) shall be locally registered, with local offices and representatives in Singapore to issue the Certificate of Conformity (COC) and to follow up on queries/complaints and monitor the products and materials they have certified.

- 4.2 Certification bodies shall assess and certify the FPC system of structural steelworks manufacturers according the following document:
- *BC1 – Design Guide on Use of Alternative Structural Steel*
- 4.3 The FPC system shall cover a single manufacturer for all related processes, production lines and/or departments, including those outsourced or operated by subcontractor.
- 4.4 The FPC system shall only apply to steel materials in the list of certified materials (see Appendix A of BC1 and shall be check for compliance with the quality assurance requirements (see Section 3 of BC1).

Note: Alternative steel materials produced by a manufacturer's factory with a valid BC1 FPC system shall be classified as Class 1 steel materials as defined in BC1.

- 4.5 If the FPC is part of a system that has been certified to ISO 9001 by a CB accredited by SAC or an IAF MLA partner, the CB may use the accredited certificate in support of the FPC certification.

5 Certification Body Auditors

- 5.1 A CB shall appoint qualified auditors to conduct FPC assessments. Auditors shall meet the criteria specified in **Annex 1**.

6 Initial Inspection of the Manufacturer and FPC

- 6.1 The manufacturer shall demonstrate and ensure the conformity of the products to the nominal specifications listed in Section 2 of BC1. The tasks for CB performing the initial inspection are given in Section 3 of BC1.
- 6.2 During the initial inspection of the manufacturer, all processes, units, lines and departments covered by a single FPC system shall be inspected individually. This shall include those activities outsourced or operated by subcontractors.
- 6.3 During the initial inspection, the CB shall check that the manufacturer has the necessary resources (premises, personnel and equipment) to achieve conformity in the production of the structural steel material.
- 6.4 During the initial inspection of the manufacturer and FPC, the CB shall take into account of the product testing listed in Clause 3.1.4 of BC1.

6.5 The manufacturer or its subcontractors shall make available the records of the product testing. The CB shall check that the product testing is carried out as per the specified material standard and the results of product testing are consistent with the relevant material performance requirements of structural steel materials listed in Section 2 of BC1.

6.6 Certification will not be recommended if a major non-conformity or a number of systematic minor non-conformities which accumulate to indicate a major failure of the production control system and product quality. If the extent of the systems failure is considered by the auditor to require more than six months for correction then the manufacturer will be required to re-apply after a period of at least six months from the date of inspection.

Examples of major non-conformities include:

- Deficiencies in the production control process;
- Incomplete or incorrect records of product testing;
- Lack of availability of necessary standards, specifications and regulations for the production;
- Incomplete technical knowledge of the personnel;
- Significant defects in products.

6.7 FPC certificates for BC1's certified steel materials should clearly indicate the validity period of 3 years in the certificates. The FPC certificate shall be renewed subject to the conformance of continuous surveillance given in Section 7.

7 Continuous Surveillance

7.1 The frequency of surveillance visits shall be at least once a year. Every unit, line and department covered by a single FPC system shall be included in a surveillance visit at least once every 3 years.

7.2 During the surveillance inspection of the manufacturer and FPC, the CB shall check that the MTC issued by the manufacturer shall contain information given in Section 3.2 of BC1.

7.3 An additional surveillance audit may be required for one of the following reasons:

- new production lines or considerable changes to the existing ones;
- considerable change in key personnel (e.g. production manager);
- important new equipment;
- Any additions or changes to the sub-contract operation which was not in the original assessment.

7.4 Suspension of certification is recommended if there is a major non-conformity (Examples listed in Section 6.6) or a number of systematic minor non-conformities exist, which accumulate to indicate a major failure of the production control system and product quality. The

manufacturer will be required to submit a letter stating details of the proposed correction and corrective action which to the judgment of the auditor, will remove the non-conformities from the system after successful implementation. The time limit for the receipt of the letter will be two weeks from the date of inspection. Auditor shall assess the correction and corrective action to ensure proposed action(s) are effectively implemented before certification is resumed or renewed.

- 7.5 A partial or full re-inspection, as directed by the auditor, will be required within three months before reinstatement or renewal of certification can be recommended.
- 7.6 Withdrawal of certification is recommended if a major non-conformity or a number of systematic minor nonconformities have not been removed from the system after the expiry of suspension of certification.

8 Duration of Audits

- 8.1 In determining the duration of an audit, a CB shall consider the effective number of personnel in the manufacturer’s factory (including outsourced personnel and subcontractors under their single FPC system), types of structural steel materials produced, number of location(s) and the complexity of the processes.
- 8.2 The effective number of personnel is defined as all personnel within the manufacturer’s FPC system (i.e. involved in activities influencing product conformity). Considerations for determining the effective number of employees include part-time personnel and employees partially in scope, those working on shifts, administrative and office staff, and employment of transient workers etc.
- 8.3 The minimum audit time for on-site assessment of the manufacturer’s factory and FPC shall be as defined in Table 1.

Table 1 – Minimum On-Site Audit Time in Man-Days

Effective number of personnel	Initial Inspection	Surveillance
1 – 15	1.5	1
16 - 30	2	1
31 - 60	2.5	1
61 – 100	2.5	1.5
101 - 250	3.5	2
251 – 1000	4.5	3
> 1000	6.5	4

- 8.4 With reference to Table 1, the CB shall increase the on-site audit duration by 0.5 man-days for each of the following cases:
- If the FPC consists of structural steel material of two or more international material standards;
 - If one or more of the FPC processes is outsourced.
 - If the manufacturer's product testing is not conducted by an accredited laboratory (including in-house) to ISO/IEC 17025 by SAC or an equivalent ILAC MRA partner.
- 8.5 With reference to Table 1, the CB can consider the following factors to reduce the audit time:
- If the initial assessment for BC1 is carried out together with a certification audit for ISO 9001 (initial, surveillance or recertification), the initial assessment duration can be reduced by 0.5 man-day;
 - In any case, the initial assessment cannot be less than 1 man-day.

9. Certification Documents

- 9.1 The local office and representative of the CB shall issue a Certificate of Conformity (CoC) to the certified manufacturer. The certificate shall include the scope, place of production, material types and standards, and applicable standards.
- 9.2 The original date of issue (i.e. start of validity) and due date of the next surveillance shall be indicated clearly on the certificate. The certificate shall only be valid subject to continuous surveillance visits by the CB.
- 9.3 A sample of the BC1 FPC is given in **Annex 2**.

10 Records

- 10.1 The records of the CB related to all tasks performed during the assessment of factory production control shall be retained in the local office for at least 2 preceding assessments unless legal obligations require a longer period.

11 Directory of Certified Manufacturers

- 11.1 The CB shall maintain information on the certified manufacturers and this information shall be published online for easy verification. The date of which the information was last updated shall be indicated and this shall be updated every 6 months. The minimum information published shall be the following –
- (i) Name of Manufacturer;
 - (ii) Plant Address;
 - (iii) Expiry Date of Certification;
 - (iv) Product standards from BC1 for which the manufacturer has been assessed.

Criteria for FPC Auditors

The summary of the criteria for auditors of the Certification Bodies performing FPC assessments is tabulated below.

Criteria	Auditors
Personal Attributes	Demonstrate personal attributes for effective and efficient performance of audits.
Formal Education	Minimum Diploma in Building, Structural or Civil or Mechanical Engineering, or other related construction field such as Metallurgical or Material Science Engineering.
Other Qualifications	Have knowledge of steel production requirements and applicable steel material technical standards.
Work Experience	<p><u>Degree Holder</u> Minimum of 3 years relevant working experience which includes:</p> <ul style="list-style-type: none"> at least 2 years work experience in steel production or related products in a technical, professional or supervision position; OR minimum 2 years audit experience in steel production or related products. <p><u>Diploma Holder</u> Minimum of 5 years relevant working experience which includes:</p> <ul style="list-style-type: none"> at least 2 years work experience in steel production or related products in a technical, professional or supervision position; OR minimum 2 years audit experience in steel production or related products.
Training on BC1	Successfully completed relevant training on product certification, and training on BC1. Training can be conducted in-house by a personnel with audit experience in BC1 and product certification.
Audit Experience	<p><u>Auditors</u> Minimum of one Product certification audit on site of a steel material manufacturer (structural steel, rebar, bolt etc).</p> <p><u>Lead Auditors</u> Minimum of 3 Product certification audits on site of a steel material manufacturer (structural steel, rebar, bolt etc), with at least 1 audit performed in the capacity as a team leader.</p>

<p>Maintenance of qualification (every 3 years)</p>	<p><u>Auditors</u> Perform a minimum of 3 Product certification audits for steel material manufacturer (structural steel, rebar, bolt etc).</p> <p><u>Lead Auditors</u> Perform a minimum of 3 Product certification audits for steel material manufacturer (structural steel, rebar, bolt etc), with at least 1 audit performed in the capacity as a team leader.</p>
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Note: Audits can be initial, surveillance (include critical processes) or recertification audits.

❶ **Factory Production Control Certificate to BC 1:2012**

In compliance with the Factory Production Control requirements of
the Building and Construction Authority, Singapore.

This is to certify that the Factory Production Control system of:

❷ *Name of the manufacturer*

in the factory located at:

❸ *Address of factory*

has been assessed under the Factory Production Control requirements of
BC 1:2012 and conforms to its requirements for the production of:

List of product standards and, if appropriate:-

- ❹ {
- *standard for manufacturing tolerances (see Appendix A of BC 1:2012)*
 - *additional provisions to which the product conforms*
 - *particular conditions applicable to the use of the product (addendum sheet if necessary)*

❺ *Conditions and period of validity, where applicable*

This certificate is only valid when:

- ❻ {
- Certificate no.: *BC1-1234-56789*
 - First issue date: *21 February 2008*
 - Current issue date: *21 February 2018*
 - Expiry date: *20 February 2021*

❼ {



LOGO

*Name and address
of the certification
agency*

❼ {

*Authorised
signatory*

.....

Name and position
on behalf of
name of the certification agency

Type 3 certification scheme of ISO/IEC 17067, with the addition of management system auditing applied, and that the factory production control fulfils all the prescribed requirements stated therein.

The manufacturer is solely responsible for compliance of any product that has the same designation as the product type-tested. Persons relying on this Certificate should verify its validity by checking <name of CB>'s website at <CB website>.