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Dear Sir/Madam

## **STANDARDS ON THE USE OF STEEL CASTINGS AS STRUCTURAL ELEMENTS**

### **Objective**

This circular is to inform the industry on the appropriate standards to be complied with when using steel castings as structural elements. The applicable standards will be included in the 1 Oct 2014 update to the Approved Document.

### **Background**

2 Cast steel components are commonly used in building and civil engineering works. The British Standards on the use of steel castings have been available for the past several years. However, it should be noted that the design and selection of these components require special care. Therefore, this circular aims to raise awareness of industry practitioners on the relevant standards governing the use of steel castings.

### **Steel castings for structural elements**

3 Steel casting is increasingly used to form volumetrically complex shapes as structural cast components in applications such as bridge bearings, cable hangers, node junctions in steel trusses and other similar parts.

4 However, each designed cast is unique and ensuring the integrity of the final cast product requires specialist skills in design, material specification, control of the casting process, machining, construction and assembly on site. As the technology involved usually requires specialised skills, it is essential that proper specialist advice is sought on product procurement.

5 Qualified Persons should also be aware that the cast components may be subject to internal flaws, and appropriate non-destructive examination (NDE) regime should be specified to detect these imperfections. In addition, test specimens should also be selected for examination of chemical and mechanical properties. Therefore, it is vital that the requirements in relation to NDE and material properties are considered and covered in the procurement specification in order to ensure the performance of the cast components.

6 The Singapore National Annex to SS EN 1993-1-1 has provision for the use of steel castings conforming to BS EN 10293 "Steel castings for general engineering uses". For structural uses, please note that there is now a newer standard, namely **BS EN 10340 "Steel castings for structural uses"**. BS EN 10340 is intended to be used in conjunction with BS 1559-1 and BS 1559-2. These standards (i.e. BS EN 10340, BS 1559-1 and 2) together with the relevant standards on test methods are now incorporated in the Approved Document.

### **Standards added to Approved Document**

7 The standards added to the 1 Oct 2014 update to the Approved Document are as follows:

- a) BS EN 10340 Steel castings for structural uses;
- b) BS EN 1559-1 Founding - Technical conditions of delivery - General;
- c) BS EN 1559-2 Founding - Technical conditions of delivery - Additional requirements for steel castings;
- d) BS EN 1369 Founding - Magnetic particle testing;
- e) BS EN 12680-1 Founding - Ultrasonic examination - Steel castings for general purposes;
- f) BS EN 12680-2 Founding - Ultrasonic examination - Steel castings for highly stressed components; and
- g) BS EN 12681 Founding - Radiographic examination.

8 These standards should be referenced when specifying steel castings in the structural plans submitted to the Commissioner of Building Control for approval.

9 I would appreciate it if you could bring to the attention of your members the contents of this circular. Please contact Mr Jonathan Kok J Y at Tel: 63252103, or email: [jonathan\\_kok@bca.gov.sg](mailto:jonathan_kok@bca.gov.sg) if you need further clarification.

Yours faithfully

A handwritten signature in black ink, appearing to read 'Clement Tseng', with a long horizontal stroke extending to the right.

CLEMENT TSENG  
DIRECTOR, BUILDING ENGINEERING GROUP  
for COMMISSIONER OF BUILDING CONTROL

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