CONSTRUCTION INDUSTRY COUNCIL
建造業議會

STATUS REPORT

UPDATE ON THE REVIEW OF LOCAL CONSTRUCTION STANDARDS 2012

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Purpose

This report, prepared by the Committee on Environment and Technology of the Construction Industry Council (CIC), provides an update on the status of migrating from British Standards in structural designs to Eurocodes in the construction industry of Hong Kong.

Terminology

In this document, unless the context otherwise requires:

1. "Construction Standards"	Collectively mean Design Codes, Material Standards or Process Standards and Specifications.
2. "Design Codes"	A document that describes the standards of good practice for the design and construction of works. Examples are BS7121: Code of Practice for Safe Use of Cranes, and BS8110: Structural Use of Concrete. They are also occasionally referred to as "design standards".
3. "Material Standard" or "Process Standard"	Means a document that describes the key characteristics of basic materials, products or processes. It facilitates the mass production and flexibility of supply sources and conveniently forms the basis for quality assurance and product certification. Examples of standards are ASTM C33: Concrete Aggregates, and BS812: Testing Aggregates.
4. "Specification"	An organisation-specific or project-specific document that describes characteristics of basic materials and products used, as well as the works components constructed from them and/or the process of construction. Descriptions of characteristics are frequently made with reference to Material Standards and Process Standards. An organisation-specific specification is commonly referred to as the general specification of that organisation, an example of which is the General Specification for Civil Engineering Works of the Government of the HKSAR.

1. Background

The Summary Report on the Review of Local Construction Standards was published by the CIC in October 2010 to address concerns surrounding the impact of the withdrawal of British Standards for structural design, effective March 2010. Due consideration was given to determining the readiness of the industry for adopting alternative standards as replacements. The report concluded that such a move would not pose major problems to the construction industry of Hong Kong.

As a follow-up to the aforementioned summary report, a review on the status of adopting Eurocodes to replace British Standards was conducted to determine whether a smooth transition would be achievable, and with no major impact on the local construction industry as stated in the summary report.

2. Introduction

Ten British Standards covering 58 Parts for structural design were withdrawn on 31 March 2010 and replaced with Eurocodes.

The Committee on Environment and Technology of the CIC conducted a quick review to ascertain the status of the transition from British Standards to Eurocodes.

This report also summarises concerns from industry stakeholders regarding the readiness of the local industry for adopting the Eurocodes from the perspectives other than structural design such as the material specification and production, material testing and accreditation, design and analysis software, and training for technicians and design engineers in the construction industry (not limited to those in the Government).

3. Perspectives

The design of building structures and geotechnical structures is unaffected by the withdrawal of British Standards for structural design, as they are carried out in accordance with the local standards prepared by the Buildings Department for private buildings, the Housing Authority for public housing and the Geotechnical Engineering Office of the Civil Engineering and Development Department for geotechnical works.

The design of port works structures is unaffected, as the related British Standard (BS 6349) is not included in the list of structures being withdrawn from British Standards.

This review therefore focuses on the progress of implementation from within Works Departments of the Government – specifically for civil engineering infrastructural work – such as the Highways Department, the Drainage Services Department and the Water Supplies Department.

The target dates for the Government Works Departments to switch to the adoption of Eurocodes are as follows:

- End of 2012 – start adopting Eurocodes-based standards, but continue to accept existing design standards; and

- End of 2014 and onwards – accept Eurocodes-based standards only.

To this end, there are a number of updating projects being carried out by Government departments in relation to the migration to Eurocodes, such as:

- The Structures Design Manual for Highways and Railways by the Highways Department;

- The Stormwater Drainage Manual and Sewage Design Manual by the Drainage Services Department; and

- The Civil Engineering Design Manual by the Water Supplies Department.

4. Implementation Strategy for Eurocodes Migration in the Highways Department

a. Review and Study

Since 2010, the Highways Department has engaged Atkins China Ltd. as a consultant to carry out studies on the adoption of the Eurocodes.

This includes:

- Carrying out studies on the application and implementation of Eurocodes and UK National Annexes in Hong Kong for the design of highway structures;
- Updating the Highway Department's Structures Design Manual for Highways and Railways (SDMHR) to incorporate Eurocodes and UK National Annexes in Hong Kong; and
- Carrying out trial designs based on the updated SDMHR draft.

b. Implementation Plan for Migration

Implementation activities are listed below, along with a timeline:

No.	***Implementation Activities***	***Timeline***
1	Finalise major study reports on the application of Eurocodes. The studies cover the following key actions: • Wind action • Traffic action • Seismic action	By Q4 2011
2	Prepare updated SDMHR draft	By Q1 2012
3	Carry out trial designs based on the updated SDMHR. The trial design projects are on one existing steel footbridge and one existing pre-stressed vehicular	By Q3 2012

No.	*Implementation Activities*	*Timeline*
	bridge	
4	Circulate the updated SDMHR draft to relevant parties	By Q3 2012
5	Finalise the updated SDMHR	By Q4 2012
6	Carry out briefing session(s) with departmental staff on the updated SDMHR during the transition period	By Q4 2014

c. Schedule of Major Activities

The transition period for the optional use of the updated SDMHR in conjunction with Eurocodes and the UK National Annexes is from early 2013 to the end of 2014, while the mandatory use of the updated SDMHR will begin in early 2015.

d. Pilot Project

The pilot project will be determined in due course.

5. Implementation Strategy for Eurocodes Migration in the Drainage Services Department

a. Review and Study

Since March 2010, the Drainage Services Department has engaged Black and Veatch Hong Kong Ltd. as a consultant to carry out studies on the adoption of the Eurocodes.

This includes:

- Investigating and carrying out preliminary designs for the project under Public Works Programme 4331DS – 'Outlying Islands Sewerage Stage 2 – South Lantau Sewerage Works';

- Carrying out structural designs for a selected sewerage structure (Cheung Fu Street sewage pumping station in South Lantau) and one drainage structure (box culvert of Fuk Man Road nullah in Sai Kung) using Eurocodes and UK National Annexes;

- Developing detailed design guidelines on the use of Eurocodes and UK National Annexes; and

- Providing training to staff from the Drainage Services Department on the use of Eurocodes and UK National Annexes in design.

b. Implementation Plan for Migration

Implementation activities are listed below, along with a timeline:

No.	***Implementation Activities***	***Timeline***
1	Carry out consultancy studies	By Q2 2010
2	Carry out design of pilot structures	By Q3 2011
3	Prepare draft of design guides/manuals	By Q3 2012

Implementation Strategy for Eurocodes Migration in the Drainage Services Department

No.	*Implementation Activities*	*Timeline*
4	Circulate and approve the design guides/manuals	By Q4 2012
5	Carry out training for departmental staff	By Q4 2014

c. Schedule of Major Activities

The transition period from the optional use of the updated Stormwater Drainage Manual and Sewerage Manual to the Eurocodes and UK National Annexes will occur in 2013, while the mandatory use of the updated Stormwater Drainage Manual and Sewerage Manual will begin in Q4 2014.

d. Pilot Project

The pilot project that adopted Eurocodes and UK National Annexes is the Public Works Programme 4331DS – 'Outlying Islands Sewerage Stage 2 – South Lantau Sewerage Works' for the box culvert and sewage pumping station. This project is now complete.

6. Implementation Strategy for Eurocodes Migration in the Water Supplies Department

a. Review and Study

Since May 2010, the Water Supplies Department has engaged AECOM Asia Co. Ltd. as a consultant to carry out studies on the adoption of the Eurocodes.

This includes:

- A review of the compatibility of the design manual – Civil Engineering Design Manual – with the use of Eurocodes and UK National Annexes in design;
- Recommending modifications/revisions to the design manual as necessary for incorporating the use of the Eurocodes and UK National Annexes for designs within the Water Supplies Department;
- Preparing a guidance document on the use of the Eurocodes and UK National Annexes in design; and
- Providing advice, training, technology transfer workshops and presentations to the staff of the Water Supplies Department on the use of the Eurocodes and UK National Annexes in design.

b. Implementation Plan for Migration

Implementation activities are listed below, along with a timeline:

No.	***Implementation Activities***	***Timeline***
1	Carry out consultancy studies	By Q2 2010
2	Carry out design of pilot structures	By Q3 2011
3	Prepare draft of design guides/manuals	By Q3 2012

Implementation Strategy for Eurocodes Migration in the Water Supplies Department

No.	***Implementation Activities***	***Timeline***
4	Circulate and approve the design guides/manuals	By Q4 2012
5	Carry out training for departmental staff	By Q4 2014

c. Schedule of Major Activities

The transition period for the optional use of the updated Civil Engineering Design Manual to the Eurocodes and UK National Annexes is from the end of 2012 to the end of 2014, while the mandatory use of the updated Civil Engineering Design Manual will begin at the end of 2014.

d. Pilot Project

The pilot project that adopted the Eurocodes and UK National Annexes in design is Contract No. B126WC – 'Water Supply to Housing Development at Anderson Road' for a service reservoir and pump house. The consultancy of this contract commenced in May 2010, and the corresponding construction works commenced in December 2011.

7. Industry-wide Readiness

While the migration from British Standards to Eurocodes is currently well taken care in respect of the design stage, the industry may need to prepare in regards to the following areas:

a. Availability of Construction Materials

A large portion of construction materials used in Hong Kong are imported from Mainland China, which follows British Standards and Chinese Standards (Guo Biao), such as aggregates used in concrete and steel reinforcement. The need to adjust material specifications, test methods, test equipment and acceptance criteria may require further study.

b. Testing and Accreditation

The current laboratories in Hong Kong have been accredited in accordance with British Standards. Testing laboratories and equipment may need to be re-accredited to provide the necessary support to construction projects adopting the Eurocodes if migration to the corresponding Eurocodes on material specifications and test methods is pursued.

c. Software

The current structural analysis and design software are based on British Standards. An industry-wide update of the software from British Standards to Eurocodes may be necessary.

d. Training

Technicians and designers are currently well equipped with design knowledge and construction experience for projects under British Standards. To facilitate a smooth transition in the industry, industry-wide training is necessary at various levels of construction, including frontline supervision and inspection, laboratory testing, and production and supply of materials.