

GS 6 : 1999



MINISTRY OF DEVELOPMENT  
NEGARA BRUNEI DARUSSALAM

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## GENERAL SPECIFICATION

# General Specification for Road - Reinforced Concrete

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Construction Planning and Research Unit  
 Ministry of Development  
 Old Airport, Jalan Berakas  
 Bandar Seri Begawan BB 3510  
 Negara Brunei Darussalam.

**General Specification for Road - Reinforced Concrete**

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**GENERAL SPECIFICATION FOR ROADS AND BRIDGES**

**PREFACE**

Brunei Darussalam is a fast developing country. Infrastructure needs such as roads and bridges are continually expanding. The network of roads in Brunei Darussalam, in relation to its land mass and population, is one of the most extensive and finest in this part of the world.

Authority for the planning and implementation of the road network is vested in the Public Works Department, Ministry of Development. A consistently high standard of design, construction and maintenance is a standing objective of the Public Works Department. Towards this objective, it is necessary for a uniform set of specification to be developed and used by consultants and contractors alike.

The Specification and guideline published by the Construction Planning and Research Unit (CPRU), Ministry of Development, are based on established and current practices in this region. They are further modified to suit the conditions peculiar to Brunei Darussalam.

Throughout the specification, there are references to standards and tests of the British Standard (BS), code of Practice (CP) of the United Kingdom; American Association State Highway and Transportation Officials (AASHTO), American Society for Testing and Materials (ASTM), United States of America; and these shall mean the latest issue of these standards and practices.

The specifications contained here form part of the General Specification for Roads and Bridges developed and compiled by CPRU. They will be continually updated or amended to keep abreast of changes and modern advances in construction technology and materials.

## COMMITTEE REPRESENTATION

The Technical Committee on General Specification for reinforced concrete for roadworks was entrusted by the Ministry of Development for the preparation of this Brunei Darussalam Standard. The members of the Technical Committee are as follows:-

- |    |  |   |   |
|----|--|---|---|
| 1. | Mr. Yong Teck Chin (Chairman)                            | - | Department of Roads<br>Public Works Department                        |
| 2. | Mr. Lim Lam Keong/Zahari Hj Abd. Karim                   | - | Construction Planning and<br>Research Unit<br>Ministry of Development |
| 3. | Hj Suhaimi Hj Abd. Gafar/Mr. Yee Kok On/<br>Mr. Lee T.C. | - | Department of Roads<br>Public Works Department                        |
| 4. | Mr. Gaston Ouellette                                     | - | Bolton Hennessey Sdn. Bhd.  |
| 5. | Mr. Khor Wei Chee  | - | Petar Perunding Sdn. Bhd.   |
| 6. | Mr. Lou Chi Tong/Dr. S.A. Sultan/<br>Mr. Wee Hong Joo    | - | Associates Consultants Sdn.<br>Bhd.                                   |
| 7. | Mr. Anil Ramachandren/Mr. T. Maheswaran-                 |   | Baharuddin & Associates   |
| 8. | Mr. S. Suresh/Mr. Tsang Chee Wah/<br>Mr. Yip Wai Woon    | - | Jurutera Tempatan   |

**GENERAL SPECIFICATIONS  
FOR  
ROAD - REINFORCED CONCRETE**

**6.1 GENERAL**

This specification shall be read in conjunction with the latest version of BS8110 and of the Brunei Darussalam Standard Documents:-

- a) PBD 6 : Part 1. Guide to specifying concrete.
- b) PBD 6 : Part 2. Methods for specifying concrete mixes.
- c) PBD 6 : Part 3. Specification for the procedures to be used in producing and transporting concrete.
- d) PBD 6: Part 4. Specification for the procedures to be used in sampling, testing and assessing compliance of concrete.

All specifications in the PBD documents which are relevant to reinforced concrete shall be deemed part of this specification. If there are any conflicts between this specification and the PBD 6 documents, this specification shall take precedence.

**6.2 SCOPE**

This specification covers the requirements for reinforced concrete to be used in roadwork structures and associated ancillary works. It describes the constituent materials of concrete, the properties of fresh and hardened concrete, design mix requirements, prescribed mix requirements, production, transportation, sampling and testing, formwork and reinforcement for concrete for roadwork structures.

**6.3 DEFINITIONS**

Reference is made to BS6100 Glossary of Building and Civil Engineering Terms and to PBD 6 : Part 1, Section 2 for definitions of terms used in this specification.

**6.3.1**

The following abbreviations are used in this specification:-

**Abbreviations**

ggbs	Ground granulated blastfurnace slag
HAC	High alumina cement
LASRPC	Low-alkali sulphate resisting Portland Cement
LHPC	Low-heat Portland cement
LHPBFC	Low-heat Portland blastfurnace cement
OPC	Ordinary Portland cement
PBFC	Portland blastfurnace cement
pfa	Pulverized-fuel ash
PPFAC	Portland pulverized fuel ash cement
RHPC	Rapid hardening Portland cement
SRPC	Sulphate-resisting Portland cement
SSC	Supersulphated cement

**6.4**

**CONSTITUENT MATERIALS OF CONCRETE**

Reference is made to PBD 6 : Part 1, Section 3 for specifications of constituent materials of concrete.