

Construction Methods for Civil Engineering

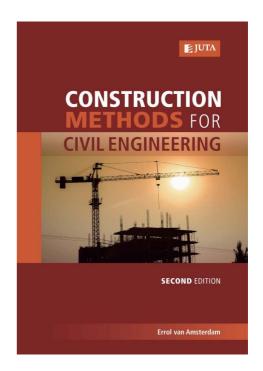
Edition: 2nd Edition

Publication date: 2014

Author/Editors: van Amsterdam, E eISBN: 9781485104131

Format: eBook Number of Pages: 260

Retail price: R563.00 (incl. VAT)
Website Link: juta.co.za/pdf/23852/



About this Publication:

Construction Methods for Civil Engineering explains, in plain language, the fundamentals of civil engineering through practical examples and everyday concepts. It has in-depth explanations of various civil engineering concepts and acknowledges the major shift of focus toward Expanded Public Works Programmes and employment creation. It encourages students to access virtual information through recommended websites and other sources of information. Civil engineering concepts are related to situations encountered in the field to enhance understanding of these concepts.

Key Features

- Uses clear language which aids in explaining technical terminology and concepts
- Assumes no prior knowledge of construction methods
- Covers essential basic information
- Includes self-evaluation questions with answers in each chapter for immediate practice and feedback
- Uses a methodology that is suitable for both contact and distance education

Contents Include:

CHAPTER 1 EARTHWORKS 1

- 1.1 Introduction
- 1.1.1 Site clearance
- 1.1.2 Setting out the site
- 1.2 Definitions
- 1.3 Foundations
- 1.4 Foundation types
- 1.5 Choosing foundation types
- 1.5.1 Determining the nature and bearing capacity of soil
- 1.6 Excavations
- 1.7 Timbering
- 1.8 Basic timbering excavation terminology
- 1.9 Trench excavation safety
- 1.9.1 Causes of collapses
- 1.10 Excavating basements
- 1.11 Retaining walls
- 1.12 Construction plant
- 1.13 Excavation plant
- 1.14 Earth-moving plant
- 1.15 Compaction plant

CHAPTER 2 STRUCTURES

- 2.1 Introduction
- 2.2 Structural forms
- 2.3 Structural steel forms
- 2.4 Precast concrete forms
- 2.5 Scaffolding
- 2.6 Formwork
- 2.7 Concrete placing and compaction
- 2.8 Brickwork bonding
- 2.9 Summary

CHAPTER 3 ROAD ENGINEERING

- 3.1 Introduction
- 3.2 Road terminology
- 3.4 Geometric design of roads
- 3.5 Pavement construction
- 3.6 Rigid concrete pavements
- 3.7 Road drainage
- 3.8 Accommodating services

CHAPTER 4 DAMS

- 4.1 Introduction
- 4.2 Definitions
- 4.3 The reason dams are built
- 4.4 Dam feasibility study
- 4.5 Dam types
- 4.6 Embankment (earth) dam design
- 4.7 Concrete dam design
- 4.8 Dam construction
- 4.9 Water conservation
- 4.10 Summary

CHAPTER 5 BRIDGES

- 5.1 Introduction
- 5.2 Types of bridges
- 5.3 Bridge design components
- 5.4 Criteria for designing a bridge
- 5.5 Bridge materials
- 5.6 Reinforced concrete vs structural steel
- 5.7 Prestressed concrete

5.8 Foundations

CHAPTER 6 TUNNELS

- 6.1 Introduction
- 6.2 Definitions
- 6.3 Tunnelling
- 6.4 Summary
- **CHAPTER 7 HARBOURS**
- 7.1 Introduction
- 7.2 Definitions
- 7.3 Functions of a harbour
- 7.4 Types of harbours
- 7.5 Harbour structures and facilities

CHAPTER 8 RAILWAYS

- 8.1 Introduction
- 8.2 The permanent way
- 8.3 Definitions
- 8.4 Rails
- 8.5 Sleepers
- 8.6 Fastenings
- 8.7 Ballast
- 8.8 Formation
- 8.9 Turnouts and crossings
- 8.10 Grades
- 8.10.1 Grade requirements
- 8.11 Track maintenance
- 8.12 Summary

CHAPTER 9 AIRPORTS

- 9.1 Introduction
- 9.2 Definitions
- 9.3 Airport master plan
- 9.4 Airport structure
- 9.5 Pavement structure
- 9.6 Drainage

CHAPTER 10 SAFETY 202

- 10.1 Introduction
- 10.2 Machinery and Occupational Safety Act
- 10.3 Protective clothing
- 10.4 Workman's Compensation Amendment Act 206
- 10.5 National Occupational Safety Association (NOSA)

CHAPTER 11 DRAINAGE

- 11.1 Introduction
- 11.2 Definitions
- 11.3 Drainage materials
- 11.4 Surface drainage (rain water)
- 11.5 Pipe and gutter sizing
- 11.6 Private sewers
- 11.7 Pipe connections
- 11.8 Soak-aways
- 11.9 Principles of good drainage
- 11.10 Sub-surface drainage
- 11.11 Channels
- 11.12 Culverts
- 11.13 Water supply and sewerage systems
- 11.14 Summary

CHAPTER 12 LABOUR-ENHANCED CONSTRUCTION (LEC)

- 12.1 Introduction
- 12.2 Labour-enhanced construction (LEC)
- 12.3 Summary