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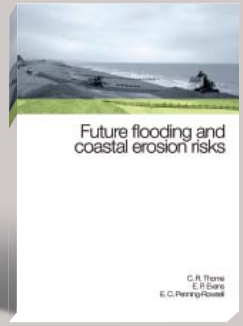

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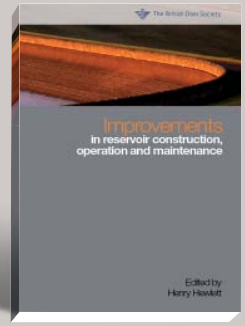
Future Flooding and Coastal Erosion Risks

C. Thorne, *University of Nottingham*; E. Evans, *University of Glasgow*; E. Penning-Rowsell, *Middlesex University*

This book presents the previously unpublished science and engineering behind the Foresight Project of Flood and Coastal Defence performed by a multidisciplinary team of engineers, scientists and social scientists who worked on the project between 2002 and 2004. It presents a forward look at the way risks associated with flooding and coastal erosion are likely to increase during the 21st century. It also examines the integrated measures necessary to manage future increases in risk.

Contents include

- Drivers of flood risk
- Assessment of flood risk drivers
- Coastal erosion drivers and risks
- Responses to future flood risks
- Assessment of flood risk responses
- Responses to coastal erosion
- Sustainability and governance
- Synthesis



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Improvements in Reservoir Construction, Operation and Maintenance

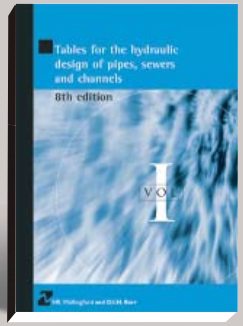
British Dam Society

This book contains peer-reviewed papers from the 14th conference of the British Dam Society held at the University of Durham in September 2006 which covers a wide selection of issues surrounding Improvements in reservoir construction, operation and maintenance. Recent changes to reservoir legislation in England and Wales relating to enforcement of the Reservoirs Act 1975 and the requirement to prepare flood plans are discussed along with the introduction of the Controlled Activities Regulations in Scotland.

Following the upgrading of many spillways in the last 30 years, internal erosion is increasingly seen as the greatest threat to UK reservoirs. In response to this problem, a number of methods for the early detection of internal erosion are explained.

Conference Topics:

- Risk assessment and risk management
- Implementation and operation of UK reservoir legislation
- Hydraulics and hydrology
- Internal erosion
- Planning and design
- Risk assessment and dam break analysis
- Refurbishment, construction and maintenance



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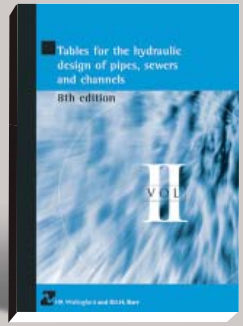
Tables for the Hydraulic Design of Pipes, Sewers and Channels,

8th edition Volume I

HR Wallingford and D. I. H. Barr

This book is the first of two self-supporting volumes that make up the 8th edition of *Tables for the Hydraulic Design of Pipes, Sewers and Channels*. It presents Tables A to provide a comprehensive range of solutions of the Colebrook-White equation, covering standard diameters from 20 mm to 4000 mm plus 4500 mm. These tables are in the format established in previous editions, with sequences of tables for incrementally varying roughness sizes.

Also included is a comprehensive list of adjustment factors for discharges, for non-tabulated standard diameters including standard sizes in imperial units. There is comprehensive treatment of the effect of temperature variations from 15° C within the normal range for water resources and drainage, i.e. 0° C–35° C.



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Tables for the Hydraulic Design of Pipes, Sewers and Channels,

8th edition Volume II

HR Wallingford and D. I. H. Barr

This book is the second of two self-supporting volumes that make up the 8th edition of *Tables for the Hydraulic Design of Pipes, Sewers and Channels*. It provides an alternative solution system for the Colebrook-White equation. Also included is a comprehensive list of adjustment factors for discharges for non-tabulated standard diameters, including standard sizes in imperial units.

Supporting material is provided, such as expanded explanations of the significance and use of the tables. In addition, there are assessments for fluids with viscosities significantly different from that of water at 15° C. Treatments for uniform, gradually varied and rapidly varied conditions in the crosssections are covered in Tables C. There is appropriate material on typical roughness sizes and on additional losses.

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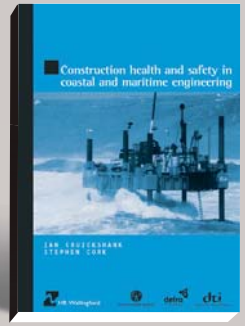

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Construction Health and Safety in Coastal and Maritime Engineering

I. Cruickshank and S. Cork

This guidance document has been produced to cover best practice in safety management of coastal and maritime design and construction work. The document identifies and analyses the principal causes of accidents in the coastal/maritime engineering sector and contains relevant guidelines for good practice to assist all stakeholders to understand and address the real safety risk issues and promote best practice in the coastal/maritime engineering sector.

Contents

- The regulatory environment
- Review of accidents in coastal and maritime construction
- Key hazards and other risk issues in coastal and maritime engineering
- Plant and operational issues
- Protecting the operatives, users and public
- Good practice principles to be applied during each project phase

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Coastlines, Structures and Breakwaters 2005

Harmonising scale and detail

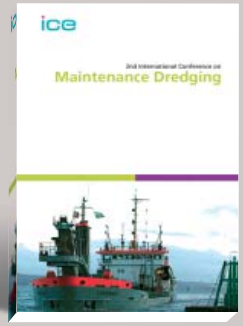
Edited by N. W. H. Allsop

Institution of Civil Engineers

The Coastlines, Structures and Breakwaters conference series is internationally recognised for its balanced spread of presentations between research, design and construction, with a strong emphasis on practical application. It promotes forthright discussion in order to highlight the importance of recent advances and to identify areas of uncertainty or disagreement requiring further research. The 8th conference in this very successful series continues the high standard set by previous events and the proceedings include detailed information on the topics below.

Contents

- Flooding and overtopping
- Beaches
- Wave loads
- Hazards
- Research and theory
- Schemes and construction
- Site experience
- Breakwater design and analysis
- Armour units



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2nd International Conference on Maintenance Dredging

Institution of Civil Engineers

This volume presents the proceedings of the 2nd International Conference on Maintenance Dredging in 2004. The purpose of the conference was to provide a comprehensive update on all aspects of maintenance dredging including regulation, dredging methods, dredged material treatment and beneficial use, contract management, and environmental impact assessment and mitigation.

These papers provide state-of-the-art guidance on what is necessary to comply with regulation and what is possible in terms of current dredging practice.

All those who are involved in the planning and execution of maintenance dredging, both coastal and inland, will find these conference papers informative and rewarding.

Contents

The papers relate to the following key areas:

- Regulation
- The practicalities of dredging
- Inland projects
- Contract management
- Environmental aspects

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Risk and Uncertainty in Dam Safety

D. N. D. Hartford and G. B. Baecher,
Dam Safety Interest Group

Sponsored by the CEA Technologies Dam Safety Interest group '*risk*' is a combined measure of the probability and severity of an adverse event and is often estimated by the product of the probability of the event occurring and the expected consequences. The International Commission on Large Dams (ICOLD) advocates the use of risk assessment in dam safety management. *Risk and Uncertainty in Dam Safety* is an authoritative, comprehensive and valuable contribution to dam safety practices.

This book, written by experts in their field, contains a thorough review of how state-of-the-art 'the industry' has become, provides lessons from first hand practical experience, and includes significant new contributions that will enhance understanding of the risk assessment and management process and how to apply it effectively, increasing awareness and reducing complacency regarding dam safety issues. The book consists of three integrated parts, each covering the topic with an increasing degree of detail. Part I 'Guiding Principles' refers to Part II for guidance and illustrative examples, which in turn refers to Part III for theoretical background. The approach combines the philosophical underpinnings of risk and uncertainty with the techniques available to characterise their engineering and scientific dimensions in the physical performance of dams operating in the natural environment.

Risk and Uncertainty in Dam Safety presents a wide-ranging view of risk and uncertainty as they arise in dam safety in a practical way that will appeal not only to industry specialists, but also to readers outside the dam engineering community, due to its excellent treatment of the various topics in the integrated process of risk assessment.

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536 pages
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Guidelines for the Assessment and Planning of Estuarine Barrages

N. Burt and A. Rees

These important guidelines embrace the principles of sustainable development to provide best-practice design and operational solutions to mitigate or overcome potential problems and, where possible, to enhance the aquatic and riparian environments. This invaluable book details information and guidance with the assistance of case studies on the Cardiff, Tees, Tawe, Usk and LaVilaine Barrages, and the Lagan Weir, these case studies reinforce the issues raised within the book.

Guidelines for the assessment and planning of estuarine barrages is a vital resource for developers, local authorities, and consulting and contracting engineers involved in estuarine engineering and development.

CONTENTS

- Planning
- Fisheries and conservation
- Water quality
- Hydrodynamics
- Morphology
- Flood defence
- Ground water
- Navigation
- References
- Tables
- Figures

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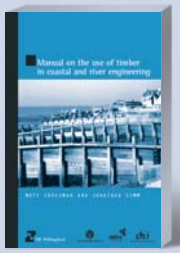
Hydraulic Design of Side Weirs

R. W. P. May, B. C. Bromwich, Y. Gasowski and C. E. Rickard

Side weirs are used widely in order to divert flows from rivers, canals, sewers and reservoirs. However, the hydraulic behaviour of this type of weir is complex and difficult to predict accurately by simple methods. This invaluable book presents a new design procedure that was developed by analysing published data on the performance of side weirs and using the results to calibrate a predictive numerical model. Presented in the form of graphs and simplified equations, this new method enables the flow rate discharged by a side weir to be determined by direct calculation.

Hydraulic design of side weirs provides practical guidance, leading the designer through the whole hydraulic design process to ensure that the structure operates as intended. The introductory chapters of the book describe alternative methods of flow regulation in natural and artificial channels, the factors that need to be considered when establishing design parameters for side weirs, and the hydraulic principles that underlie their performance. Useful guidance on the layout and construction of side weirs is illustrated by many practical examples, and detailed information is given for side weirs installed in rivers, navigable canals, irrigation canals, wastewater facilities and storm sewer overflows. Also included are worked examples demonstrating the use of the design procedure in practice.

This book will be essential reading for consultants and contractors and all those involved in the design, planning and construction of side weirs forming key components of hydraulic systems. It will also be a valuable reference tool for engineering students.



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Manual on the Use of Timber in Coastal and River Engineering

M. Crossman and J. Simm

This informative manual has been designed to provide guidance on the principal issues surrounding the use of timber in coastal and river engineering.

Timber has traditionally been used for the construction of a wide range of coastal and river structures including: groynes, jetties, lock gates, navigation aids and riverbank protection. It is an attractive choice of construction material because it is renewable, easy to use, repair and recycle, has a high strength/weight ratio and is visually appealing. Many timbers used in coastal and river engineering are also highly durable, resisting abrasion and tolerating impacts well.

If timber is to be used, its potential drawbacks must also be addressed. These include: variability in its properties, limited availability of large, strong and durable species in Europe and the limited renewability of many of the durable tropical hardwood species. Despite these limitations, when recycled or obtained from sustainably managed forests, timber has the potential to be an environmentally responsible choice of material.

This manual addresses all of these issues by providing:

- an introduction to the use and properties of timber
- a framework for responsible selection and procurement of timber materials
- discussion of design and construction issues and maintenance practices
- documentation of the most widely used types of structures.

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Piers, Jetties and Related Structures Exposed to Waves

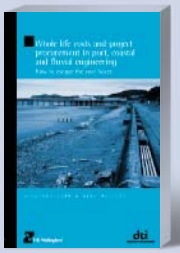
Guidelines for hydraulic loadings

K. McConnell, W. Allsop and I. Cruickshank

Piers, jetties and other marine structures constructed in exposed locations require careful assessment of their hydraulic loads. Increasingly trade economics are leading to larger ship sizes, with existing and new port locations requiring longer jetties in significantly deeper water for these vessels. In these instances construction of protective breakwaters becomes substantially more expensive, so in some cases jetties, or their approach trestles, are being constructed in exposed locations without breakwater protection.

Until now, there has been limited guidance on appropriate design methods for exposed LNG/LPG, coastal and other similar jetties. This book not only brings together existing guidance on hydraulic design, including wave conditions, prediction of scour and vessel mooring loads, but also presents new methods (developed from extensive laboratory testing) for the prediction of wave loading, including forces on the underside of jetty decks. The book also includes new model tests undertaken as part of the research project to develop these guidelines that have measured wave forces on deck and beam elements. These guidelines discuss the results and present new guidance for predicting wave forces on horizontal elements.

Guidelines for the hydraulic design of exposed jetties will help maritime and civil engineering design consultants to optimise jetty designs, and are an essential reference resource to providing new guidance on design principles and design wave loads for exposed jetty structures where information has not previously been available.



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Whole Life Costs and Project Procurement in Port, Coastal and Fluvial Engineering

How to escape the cost boxes

J. Simm and N. Masters

Whole life costing is not a new concept. However, thinking about costs has traditionally been segregated into 'boxes' of capital, maintenance, operational and disruption costs, a split often emphasised by divisions of responsibility within organisations. This guide provides the necessary advice and data to break down the barriers between cost boxes so that costs can be considered holistically. This leads to more informed project decisions and can reduce costs over the life of an asset.

This guide provides detailed information, including a database containing historic maintenance cost information, to facilitate the use of whole life costing. Case studies are presented showing the application of whole life costing at various stages in numerous port, coastal and fluvial engineering projects. The guide is divided into three main sections. Part A provides an overview of whole life costing and its application to port, coastal and fluvial engineering, this is supported by Appendices giving information on particular techniques and on maintenance cost data.

Finally, a number of case studies are described in Part B and the lessons learned from applying whole life cost analysis in each case study are identified. *Whole life costs and project procurement in port, coastal and fluvial engineering* is essential reading for all those who are involved in the estimation and calculation of project costs for port, coastal and fluvial engineering schemes. It is designed to inform the needs of owners and project funders (e.g. DEFRA (formerly MAFF), Environment Agency, local authorities, port authorities and internal drainage boards), consulting engineers and contractors.

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P. Skipworth, *SEAMS* and a *Visiting Fellow at the University of Sheffield*, M. Engelhardt, *SEAMS*, A. Cashman, and A. Saul, *University of Sheffield*, D. Savic and G. Walters, *Centre for Water Systems, University of Exeter*

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Interim Guide to Quantitative Risk Assessment for UK Reservoirs

A. J. Brown and J. D. Gosden

The society we live in is calling for a more transparent approach to decision-making in evaluating the tolerability of risks from high hazard installations. This *Interim Guide to Quantitative Risk Assessment for UK* reservoirs provides a tool for the management of reservoir safety by experienced dam professionals. It comprises a screening level assessment of the risk of failure of a dam, i.e. the uncontrolled sudden large release of water from the reservoir it retains.

In particular the guide provides for:

- estimating the annual probability of failure of a dam
- assessing the consequences if the dam failed, both in terms of the likely loss of life and direct third party damage
- evaluating the risk posed by the dam, in terms of both £/annum and the risk of loss of life /annum
- determining whether the risk posed by the dam is tolerable, in that the cost of reducing the risk would be disproportionate to the reduction in risk achieved
- it also provides an opportunity for the user to decide whether there are any other threats that may constitute a significant probability of failure and should therefore be quantified
- later sections provide for the estimation of the consequences of failure

The guide also contains a CD-Rom with Microsoft excel workbooks, proforma calculations, and accompanying text. This forms part of either a periodic safety review or a portfolio risk assessment. Where application of this guide identifies potential concerns a more detailed assessment is likely to be appropriate.

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Long-Term Benefits and Performance of Dams

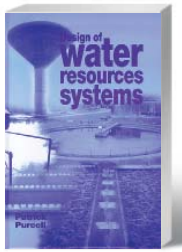
Edited by H. Hewlett, *British Dam Society*

Long-term benefits and performance of dams, consists of the proceedings of the 13th British Dam Society Conference held at the University of Kent, Canterbury, in June 2004.

This book contains 55 papers covering a wide variety of topics including:

- the benefits and social impact of dams
- lessons learned from historical incidents
- refurbishment and replacement of various elements of dams
- discontinuance and abandonment of dams
- the use and performance of synthetic materials in dams
- recent flood events and climate change
- rehabilitation case histories
- Research
- Risk assessment
- Instrumentation and monitoring

The papers include discussion on the benefits that reservoirs can provide in terms of water supply and recreation and also on the environmental impact they can have. The use of new materials in reservoir construction is discussed, in particular the use of geomembranes to provide water tightness. Several papers describe portfolio risk assessments undertaken both in the UK and overseas, and various other issues related to reservoir management are covered, including changes in the enforcement of UK reservoir safety legislation.



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Design of Water Resources Systems

P. Purcell, *University College Dublin*

Water resources engineering entails the assessment, development and management of water resources – such as rivers, lakes, reservoirs, groundwater, estuaries and coastal waters – for the benefit of mankind.

This essential book presents a comprehensive coverage of the design fundamentals of key elements of water resources engineering infrastructure. Through coverage of the basic principles and by using fully-worked examples illustrating the application of the basic theory, the book follows a typical engineered water cycle for the provision of wholesome drinking water to an urban environment and the collection, treatment and disposal of the municipal wastewater generated.

This book will be invaluable to civil and environmental engineers, students in related disciplines, and as a reference work for design engineers and water industry technical personnel.

CONTENTS

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- Applied hydrology
- Development of water resources
- Water treatment
- Water distribution
- Sewerage systems
- Wastewater treatment
- Index

2003
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Design of Linear Drainage Systems

M. Naqvi, *University of Bradford*

This book guides the reader through the hydraulic design of drainage channels in which the volume of flow increases linearly from one end of the channel to the other. This situation is very common in roof gutters and highway drainage channels, both of which receive water from the adjoining surfaces at an almost uniform rate. Design of linear drainage systems begins with an introduction of the basic hydraulic parameters, covering topics required in channel flow theory. It then progresses to explain a procedure for answering the fundamental design requirement of finding the length of a drainage channel or the outlet spacing, and the capacity of a channel with specified cross-sectional dimensions. Any problem areas, such as the location of the control section, which need to be considered during the course of development of the procedure have been highlighted. The equations presented are followed by practical examples. The book concludes with a chapter on the design of an urban highway drainage scheme using the varied-flow theory.

CONTENTS

- Flow in drainage systems
- Basic properties of channel flow
- Equations of channel flow
- Resistance to flow in open channels
- Laws of resistance to flow
- Critical flows in channels
- Computation of varied flow I (flow profiles)
- Computation of varied flow in channels II (location of control section)
- Design of channels carrying linearly varied flow I (spacing of outlets)
- Design of channels carrying linearly varied flow II (capacity of channel systems of outlets)
- Design of urban highway drainage channel
- Index

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Rural and Urban Hydrology

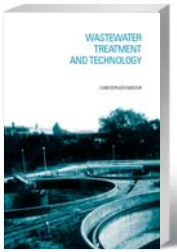
M. Mansell, *University of Paisley*

This important book attempts to make the link between urban and rural hydrology. Essentially the same hydrological processes of attenuation, evaporation, infiltration and other losses occur in both urban and rural areas. Rural and urban hydrology provides a description of the various techniques in the *Flood Estimation Handbook*, which has now superseded the *Flood Studies Report* as the standard method of estimating flood discharges in UK rivers. Described in detail is the method of estimating low flows recommended for the United Kingdom, and following on from this the method of estimating potential evapotranspiration recommended by the Food and Agricultural Organization (the FAO Penman Monteith Method) is discussed. Another factor which is becoming increasingly important is climate change and so a chapter is devoted to describing the background to climate change, the latest predictions and the likely impacts.

All those involved with urban and rural hydrology will find this book invaluable. It will also be a useful reference tool for young practising engineers as well as undergraduate students.

CONTENTS

- Climate change
- Statistical tools
- Precipitation
- Rainfall losses
- Natural flow processes
- Hydrological models
- The analysis and prediction of flow using flow records
- Hydrological management



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Wastewater Treatment and Technology

C. Forster, *University of Birmingham*

Wastewater Treatment and Technology examines the processes available for the various stages of treatment of wastewater, beginning with the preliminary processes of screening, grit removal and storm water separation and ending with tertiary treatment and sludge disposal.

There is considerable emphasis on the biological processes that are used for the oxidation of BOD and the removal of nitrogen and phosphorous. Options for the treatment of industrial wastewater, including anaerobic digestion, physico-chemical processes and enhanced oxidation are also discussed. Wastewater Treatment and Technology concludes by Examining what the future may bring and how this may affect the technology of wastewater treatment.

Wastewater Treatment and Technology will be invaluable for the engineer or technologist who is beginning a career in wastewater treatment as well as for established engineers who want to refresh their memories.

CONTENTS

- Pre-treatment
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- Activated Sludge process
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- Anaerobic digestion of wastewaters
- Industrial wastewater treatment
- The future

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2nd edition

Edited by H. Agershou, *Planning and Engineering Consultant*

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- Dredging and disposal of contaminated sediment
- Marpol
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Port Designers' Handbook

Guidelines and recommendations

C. A. Thoresen, *Norconsult AS*

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The book provides an evaluation of different designs and construction methods for port and berth structures, and recommendations given by the different international harbour standards and recommendations. Practising harbour and port engineers and students will find the handbook an invaluable source of information.

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- Container terminals
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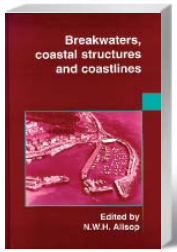

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Institution of Civil Engineers
Edited by N. W. H. Allsop, *HR Wallingford Ltd*

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