Content

rart 1 Vuinerability of industrial racintles	
Earthquake Damage and Fragilities of Industrial Facilities	3
Part II Seismic Risk of Industrial Facilities	
Seismic Risk Analysis of an Oil-Gas Storage Plant	17
Site-Specific Seismic Hazard Assessment	27
Critical Industrial Facilities: Simply Applying Current Importance Factors γ ₁ is not Enough! Martin G. Koller and Ehrfried Kölz	37
Part III International Building Codes and Guidelines	
Overview of Seismic Regulations for French Industrial Facilities Pecker Alain	55
Seismic Design of Industrial Facilities in Germany Christoph Butenweg, Britta Holtschoppen	63
Precast Industrial Buildings in Italy Current Building Code and New Provisions Since the 2012 Earthquake	75
Part IV Seismic Safety Evaluation and Retrofitting	
Earthquake Assessment of Existing Chemical Production Facilities	89

ΙX

Probabilistic Seismic Analysis of Existing Industrial Facilities	101
Uncertainty Propagation in Engineering Systems: Probability Density Evolution Theory and Its Recent Developments	113
Elliptical Response Envelopes for the Design of Reinforced Concrete Structures: New Developments and Application to Nuclear Power Plant Buildings	131
Quang Sang Nguyen, Silvano Erlicher, François Martin	
Improvement of Seismic Response of an Industrial Structure Milan Sokol, Rudolf Ároch	143
Part V Innovative Seismic Protection Systems	
International Fusion Reactor Tokamak Complex Seismic Isolation Stéphane Cazadieu, Laurent Patisson, Sébastien Diaz	157
Strategies for the Seismic Protection of Power Plant Equipment Peter Nawrotzki, Daniel Siepe	169
MARMOT – A Certified Seismic Monitoring System for Vulnerable Industrial	177
Andreas Stiegler, Hans-Jürgen Nitzpon, Werner Bolleter	
Automatic or Manual Safe Shutdown of Industrial Facilities on Earthquake Signal, Guidelines to Meet the New French Regulation: Seismological	
and Instrumental Aspects	187
Experimental Study on Seismic Behaviour and Vibration Control of Wind Turbine and Electrical Transmission Tower Bin Zhao, Taixiu Cui, Zhuang Xu, Yilong Cao	197
Part VI Seismic Design of Secondary Structures	
Systemic Seismic Vulnerability and Risk Analysis of Urban Systems, Lifelines and Infrastructures	209
Kyriazis Pitilakis, Sotiris Argyroudis	

Floor Response Spectra Considering Influence of Higher Modes and	
Dissipative Behaviour	235
Marius Pinkawa, Benno Hoffmeister, Markus Feldmann	
Application and Distinction of Current Approaches for the Evaluation of	
Earthquake-Response of Secondary Systems	247
Wehr, Franziska, Bach, Andreas, Zahlten, Wolfhard	
Seismic Design of Mechanical and Electrical Components According to Safety	
Standard KTA 2201 of the German Nuclear Safety Standards Commission	259
Matthias Wacker	
Seismic Qualification of Equipment in Industrial Facilities	271
Carsten Block, Thomas Bauer, Fritz-Otto Henkel	2,1
Shake Table Test on the 1:30 Model Structure of A Large Cooling Tower for	
Fire Power Plant	281
J. W. Dai, X. R. Wengand Y. Hu	
Seismic Qualification of Electrical Cabinets	295
Marcus Ries, Helmut Kennerknecht, Philipp Moor, Fritz-Otto Henkel	
Seismic Design of Fastenings with Anchors in Nuclear Power Plants	305
Rüdiger Meiswinkel, Franz-Hermann Schlüter	
New European Seismic Regulations Provide Guidance for the Qualification and	
Design of Post-installed Anchoring	315
J. Gramaxo, M. Di-Sario	
Fastenings for Use in Concrete - Seismic Actions	327
Wolfgang Roeser	
Part VII Seismic Design of Primary Structures	
Reliability Analysis on Capacity Design Rules for Steel Frames	337
Max Gündel, Benno Hoffmeister, Markus Feldmann	
Dissipative Devices for Vulnerability Reduction of Precast Buildings	349
Marco Mezzi, Fabrizio Comodini, Leonardo Rossi	
Seismic Performance of Concrete-Filled Steel Tubular (CFST) Structures	361
Lin-Hai Han, Wei Li	
System Identification of Industrial Steel Building Based on Ambient Vibration	
Measurements and Short Time Monitoring	369
Sergey Churilov, Simona Markovska, Elena Dumova-Jovanoska, Goran Markovski	

Collapse Simulation of Building Structures Induced by Extreme Earthquakes Xinzheng Lu, Xiao Lu and Linlin Xie	381
Part VIII Seismic Design of Silos, Tanks and Vessels	
The Eurocode Approach to Seismic Design of Liquid-Filled Steel Storage Tanks	391
Margarita Chasapi	
Lateral Free Vibration of Liquid-Storage Tanks Konstantinos Mykoniou, Britta Holtschoppen	403
Seismic Design of Spherical Pressure Vessels	417
Seismic Isolation of Cylindrical Liquid Storage Tanks	429
A Comparison of Piping Stress Calculation Methods Applied to Process Piping System for Seismic Design	441
Seismic Analysis of Pressure Vessels in Correspondence to the VCI-Guideline Jörg Habenberger, Sebastian Villiger	451
Seismic Assessment of Horizontal Cylindrical Reservoirs	461
Part IX Soil-Structure Interaction: Applications	
The Significance of Site Effect Studies for Seismic Design and Assessment of Industrial Facilities	475
Soil Liquefaction: Mechanism and Assessment of Liquefaction Susceptibility Roberto Cudmani	485
Seismic Design and Verification of a Nuclear Power Plant Structure for the Storage of Radioactive Waste Components	499
Seismic Analysis of Onshore Wind Turbine Including Soil-Structure Interaction Effects	511

XIII

Part X Soil-Structure Interaction: Scientific Approaches	
Dynamic Impedance of Foundation on Multi-Layered Half-Space	525
The Scaled Boundary Finite Element Method for Transient Wave Propagation Problems	547
Carolin Birk, Denghong Chen, Chongmin Song and Chengbin Du	
Attenuation of Ground-borne Vibrations Induced by Underground Dynamic Excitation	557
Tong Jiang	557
Boundary Effects on Seismic Analysis of Multi-Storey Frames Considering Soil Structure Interaction Phenomenon	
Kemal Edip, Mihail Garevski, Christoph Butenweg, Vlatko Sesov, Julijana Bojadjieva and Igor Gjorgjiev	
Response Analysis of a Long-span Arch Bridge under the Seismic Travelling Wave Excitation	577
Menglin Lou, Qiang Li and Shan Gao	
A 3D Dynamic Impedance of Arbitrary-Shaped Foundation on Anisotropic Multi-Layered Half-Space	591
Gao Lin, Zejun Han	
Two Parameters to Improve the Accuracy of the Green's Functions Obtained via the Thin Layer MethodLin Chen	603
Time Domain Analysis of Dynamic Response for 3D Rigid Foundation on Multi-layered Soil	615
Eta-based Conditional Mean Spectrum, a New Design Spectrum for Industrial Facilities	627
Alireza Azarbakht Trade Exhibition SeDIF-Conference	637
HAUG PARIDRIOR SCOTT-CURICIERCE	057