

IPENZ ENGINEERING UPDATE October 2010



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Management/Leadership/Strategic Planning/Recruitment/Training and Development/Project Management/Corporate Responsibility

√IPENZ40/01 L'Aquila, Italy: The next lesson.

Poland, C. et al. Civil Engineering, Volume 79, Issue 11 (November 2009)
Pages 46-53.

Observations of earthquake damage after the earthquake in L'Aquila, Italy in April 2009. Four engineers from Degenkolb give their first hand account.



√IPENZ40/02 Procurement – the rarely used value improving practice.

Jacobson, S. Cost Engineering, Volume 51, Issue 8 (August 2009) Pages 32-33.

√IPENZ40/03 Construction contract risk management: A study of practices in the United Kingdom.

Adams, F. K. Cost Engineering, Volume 50, Issue 1 (January 2008) Pages 22-33.

√IPENZ40/04 Change for change's sake.

Vermeulen, F., Puranam, P. and Gulati, R. Harvard Business Review, Volume 88, Issue 6 (June 2010)
Pages 70-76.

The article examines the idea of organizational change from the perspective that shifting social dynamics within an organization can lead to corporate restructuring which then disrupts informal networks of collaboration, improves communication, and fosters creativity. Topics include matrix organizations, the effect of organizational power structures on resource allocation, the formation of silos, and routines that can prevent innovation. Examples of successful reorganizations include Cisco Systems Inc. which reorganized its business units by function in 2001 and the reorganization of GE Healthcare by chief executive officers Jeffrey Immelt and Joe Hogan

√IPENZ40/05 Multi-criteria decision-making selection model with application to chemical engineering management decisions.

Pirdashti, M. et al. Proceedings of World Academy of Science: Engineering & Technology, Volume 37 (February 2008) Pages 54-

√IPENZ40/06 Seven powerful words.

Rauseo, P. J. Industrial Management, Volume 52, Issue 5 (September 2010) Pages 25-29.

The article discusses the importance of business intelligence, data warehousing, and key performance indicators (KPIs) for business owners in improving their business operations.

√IPENZ40/07 Constructing integrated project delivery.

Furst, P. G. Industrial Management; Jul2010, Volume 52 Issue 4, p19-24.

√IPENZ40/08 Engineers as visionaries.

Stabbert, N. J. Mechanical Engineering, Volume 132, Issue 6 (June 2010) Pages 24-29.

√IPENZ40/09 **Job burnout among construction engineers working within consulting and contracting organizations.**

Yip, B. and Rowlinson, S. Journal of Management in Engineering, Volume 25, Issue 3 (July 2009) Pages 122-130.

√IPENZ40/10 **"Eco-Logical" Engineering: A teaching-research model to foster students' paradigm thinking of wastes as commodities.**

O'Sullivan, A. D. Australian Journal of Engineering Education, Volume 16, Issue 1 (2010) Pages 21-33.

√IPENZ40/11 **Competing on talent analytics.**

Davenport, T. H., Harris, J. and Shapiro, J. Harvard Business Review, Volume 88, Issue 10 (October 2010) Pages 52-58.

Do investments in your employees actually affect workforce performance? Who are your top performers? How can you empower and motivate other employees to excel? Leading-edge companies such as Google, Best Buy, Procter & Gamble, and Sysco use sophisticated data-collection technology and analysis to answer these questions, leveraging a range of analytics to improve the way they attract and retain talent, connect their employee data to business performance, differentiate themselves from competitors, and more. The authors present the six key ways in which companies track, analyze, and use data about their people—ranging from a simple baseline of metrics to monitor the organization's overall health to custom modeling for predicting future head count depending on various "what if" scenarios. They go on to show that companies competing on talent analytics manage data and technology at an enterprise level, support what analytical leaders do, choose realistic targets for analysis, and hire analysts with strong interpersonal skills as well as broad expertise



√IPENZ40/12 **How to measure the effectiveness of risk management in engineering design projects? Presentation of RMPASS: a new method for assessing risk management performance and the impact of knowledge management—including a few results.**

Kloss-Grote, B. and Moss, M. Research in Engineering Design, Volume 19, Issue 2/3 (November 2008) Pages 71-100.

√IPENZ40/13 **Good choices: Making better decisions by knowing how best to decide.**

Musselwhite, C. Leadership in Action, Volume 29, Issue 4 (September/October 2009) Pages 3-7

√IPENZ40/14 **Return on experience: A mind-set for learning leadership at work.**

Yip, J. Leadership in Action, Volume 29, Issue 4 (September/October 2009) Pages 13-17.

√IPENZ40/15 **Fighting corruption in the Australian construction industry: The national code of practice.**

Hartley, R. Leadership & Management in Engineering, Volume 9, Issue 3 (July 2009) Pages 131-135.

√IPENZ40/15 Credit to the bicycle.

Wicks, F. Mechanical Engineering, Volume 132, Issue 7 (July 2010) Pages 40-44.

The article provides a brief overview of the history and contributions of bicycles in the design and construction of other vehicles.

**Technical Aspects of Engineering
Abstracts for most available on request.****√IPENZ40/16 Design of a simple steel truss.**

Heyman, J. Proceedings of the Institution of Civil Engineers: Structures and Buildings, Volume 163, Issue SB1 (February 2010) Pages 53-56

√IPENZ40/18 Allowing traffic over mainshock-damaged bridges.

Franchin, P. and Pinto, P. E. Journal of Earthquake Engineering, Volume, 13, Issue 5 (June 2009) Pages 585-599.

√IPENZ40/19 Performance and design issues for high strength steel in structures.

Bjorhovde, R. Advances in Structural Engineering, Volume 13, Issue 3 (June 2010) Pages 403-411.

√IPENZ40/20 Remaining life estimation by fatigue damage sensor.

Nihei, K. et al. Proceedings of the Institution of Civil Engineers: Bridge Engineering, Volume 163, Issue BE1 (March 2010) Pages 3-11.

√IPENZ40/21 Action of individual bouncing on structures.

Duarte, E. and Ji, T. Journal of Structural Engineering, Volume 135, Issue 7 (July 2009) Pages 818-827.

√IPENZ40/22 Study on the earthquake action of old masonry structures.

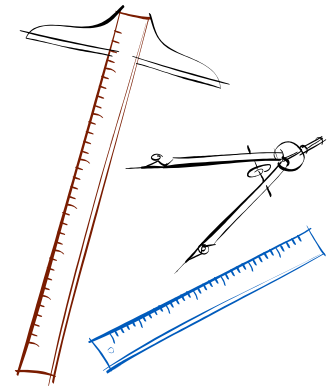
Mihai, P., Gosav, I. and Rosca, B. Journal of Applied Sciences, Volume 10, Issue 3 (2010) Pages 157-165.

√IPENZ40/23 Earthquake resistant design and rehabilitation of masonry historical structures.

Asteris, P. G. et al. Practice Periodical on Structural Design & Construction, Volume 10, Issue 1 (February 2005) Pages 49-55.

√IPENZ40/24 Strengthening of a historic unreinforced masonry church tower.

Mason, J. A. Practice Periodical on Structural Design & Construction, Volume 13, Issue 1 (February 2008) Pages 31-38.



√IPENZ40/25 Field survey of desiccation fissuring of flood embankments.

Dyer, R., Utili, S. and Zielinski, M. Proceedings of the Institution of Civil Engineers: Water Management, Volume 162, Issue WM3 (June 2009) Pages 221-232.

√IPENZ40/26 Overview of New Orleans levee failures: Lessons learned and their impact on national levee design and assessment.

Sills, G. L. et al. Journal of Geotechnical & Geoenvironmental Engineering, Volume 134, Issue 5 (May 2008) Pages 556-565.

√IPENZ40/27 The value of coastal wetlands for hurricane protection.

Costanza, R. et al. Journal of the Human Environment, Volume 37, Issue 4 (June 2008) Pages 241-248.

**√IPENZ40/28 Geotube reinforced sand dunes to buffer Louisiana Barrier Island from hurricanes.**

Cardno, C. A. Civil Engineering, Volume 79, Issue 10 (October 2009) Pages 20-21.

√IPENZ40/29 New installation method offers alternative to driven piles, drilled shafts.

Landers, J. Civil Engineering, Volume 80, Issue 6 (June 2010) Pages 22-27.

√IPENZ40/30 From incineration to advanced fluid-bed gasification of waste.

Yassin, L. Proceedings of the Institution of Civil Engineers: Waste and Resource Management, Volume 162, Issue WR3 (August 2009) Pages 169-177.

√IPENZ40/31 Biosolids burning.

DeWolf, B. C. Civil Engineering, Volume 79, Issue 11 (November 2009) Pages 54-76.

√IPENZ40/32 CFB refractory improvements for biomass co-firing.

Rau, A. Power Engineering, Volume 114, Issue 7 (July 2010) Pages 36-44.

√IPENZ40/33 The growing role of technology in boiler inspection.

Kleva, S. Heating/Piping/Air Conditioning Engineering: HPAC, Volume 82, Issue 6 (June 2010) Pages BSE17-BSE19

√IPENZ40/34 A simple dynamic model and stability analysis of a steam boiler drum.

Bracco, S., Troilo, M. and Trucco, A. Proceedings of the Institution of Mechanical Engineers: Part A Journal of Power and Energy, Volume 223, Issue A7 (November 2009) Pages 809-820.

√IPENZ40/35 Microtunnelling the future for pipeline construction?

Curran, B., McCabe, B. and Ward, M. Engineers Journal, Volume 64, Issue 1 (January/February 2010) Pages 16-20.

√IPENZ40/36 Decoding pressure vessel design.

Kachelhofer, K. Chemical Engineering, Volume 117, Issue 6 (June 2010) Pages 28-35.

√IPENZ40/37 Estimating carbon dioxide emission for aggregate use.

Thomas, A. et al. Proceedings of the Institution of Civil Engineers: Engineering Sustainability, Volume 162, Issue ES3 (September 2009) Pages 135-144.

√IPENZ40/38 A 100% renewable electricity generation system for New Zealand utilising hydro, wind, geothermal and biomass resources.

Mason, I. G., Page, S. C. and Williamson, A. G. Energy Policy, Volume 38, Issue 8 (August 2010) Pages 3973-3984.

√IPENZ40/39 Setting SMART targets for industrial energy use and industrial energy efficiency.

Rietbergen, M. G. and Blok, K. Energy Policy, Volume 38, Issue 8 (August 2010) Pages 4339-4354.

√IPENZ40/40 Parabolic-trough solar collectors and their applications.

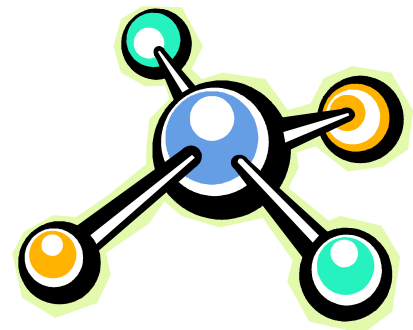
Fernandez-Garcia, A. et al. Renewable and Sustainable Energy Reviews, Volume 14, Issue 7 (September 2010) Pages 1695-1721.

Special focus One– Liquefaction

√IPENZ40/41 Geotechnical earthquake engineering practice : module 1 : Guidelines for the identification, assessment and mitigation of liquefaction hazards. New Zealand Geotechnical Society. July 2010.

Link to document online:

<http://www.nzgs.org/wp-content/uploads/GeoEarthquakeEngineer.pdf>

**√IPENZ40/42 Failure mechanisms of pile foundations in liquefiable soil: Parametric study.**

Haldar, S. and Babu, G. L. S. International Journal of Geomechanics, Volume 10, Issue 2 (April 2010) Pages 74-84.

√IPENZ40/43 Seismic hazard assessment - a holistic microzonation approach

Nath, S. and Thingbaijam, K. Natural Hazards & Earth System Sciences, Volume 9, Issue 4 (2009) Pages 1445-1459.

√IPENZ40/44 **Pile drag load and downdrag in a liquefaction event.**

Fellenius, B. and Siegel, T. Journal of Geotechnical & Geoenvironmental Engineering, Volume 134, Issue 9 (September 2008) Pages 1412-1416.

√IPENZ40/45 **Centrifuge modelling of inclined micro-piles for liquefaction remediation of existing buildings.**

Mitrani, H. and Madabhushi, S. P. G. Geomechanics & Geoengineering, Volume 3, Issue 4 (December 2008) Pages 245-256.

√IPENZ40/46 **Earthquake-induced liquefaction around marine structures.**

Sumer, B. M. et al. Journal of Waterway, Port, Coastal & Ocean Engineering, Volume 133, Issue 1 (January 2007) Pages 55-82.

√IPENZ40/47 **Evaluation of liquefaction potential for building code.**

Nunziata, C., De Nisco, G. and Panza, G. F. AIP Conference Proceedings, Volume 1020, Issue 1 (7 August 2008) Pages 370-377.

√IPENZ40/48 **Liquefaction and deformation analyses using a total stress approach.**

Beaty, M. H. and Byrne, P. M. Journal of Geotechnical & Geoenvironmental Engineering, Volume 134, Issue 8 (August 2008) Pages 1059-1072.

√IPENZ40/49 **Liquefaction risk assessment using geostatistics to account for soil spatial variability.**

Baker, J. W. and Faber, M. H. Journal of Geotechnical & Geoenvironmental Engineering, Volume 134, Issue 1 (January 2008) Pages 14-23.

√IPENZ40/50 **Numerical simulation of mitigation for liquefaction-induced soil deformations in a sandy ground improved by cement grouting.**

Huang, Y. et al. Environmental Geology, Volume 55, Issue 6 (May 2008) Pages 1247-1252.

√IPENZ40/51 **A potential cost effective liquefaction mitigation countermeasure: induced partial saturation.**

Bian, H., Jia, Y. and Shahrour, I. AIP Conference Proceedings, Volume 1020, Issue 1 (7 August 2008) Pages 427-433.

√IPENZ40/52 **Performance of heterogeneous earthfill dams under earthquakes: optimal location of the impervious core.**

López-Querol, S. and Moreta, P. J. M. Natural Hazards & Earth System Sciences, Volume 8, Issue 1 (2008) Pages 9-18.

√IPENZ40/53 Possibility of postliquefaction flow failure due to seepage.

Sento, N. et al. Journal of Geotechnical & Geoenvironmental Engineering, Volume 130, Issue 7 (July 2004) Pages 707-716.

√IPENZ40/54 Remediation of liquefiable soils for port structures in Japan – analysis, design and performance.

Iai, S. Journal of Earthquake Engineering, Volume 9, Special Issue 1 (2005) Pages 77-103.

√IPENZ40/55 Survey of recent remediation techniques in Japan, and future applications.

Yasuda, S. Journal of Earthquake Engineering, Volume 9, Special Issue 1 (2005) Pages 151-186.

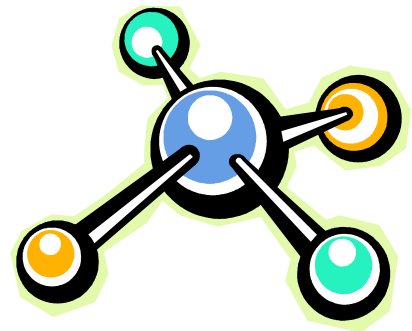
√IPENZ40/56 Soil improvements limit liquefaction during seismic activity.

Cardno, C. A. Civil Engineering, Volume 77, Issue 8 (August 2007) Pages 40-41.

Special focus Two– Snow loads**√IPENZ40/57 AS/NZS 1170 : 2003 Snow loads review 2 parts.**

Hendrikx, Jody. Report prepared for Dept of Building and Housing. 2006-2007.

(NIWA Project DBH0750 1 and NIWA Project DBH07502)

**√IPENZ40/58 AS/NZS 1170.3 SUPP1:2003**

Structural design actions - Snow and ice actions - Snow and ice actions - Commentary (Supplement to

√IPENZ40/59 AS/NZS 1170.3:2003

Structural design actions - Snow and ice actions

√IPENZ40/60 NZS 4223.4:2008

Code of practice for glazing in buildings - Wind, dead, snow, and live actions

√IPENZ40/61 Physical vulnerability of reinforced concrete buildings impacted by snow avalanches.

Bertrand, D., Naaim, M. and Brun, M. Natural Hazards & Earth System Sciences, Volume 10, Issue 7 (2010) Pages 1531-1545.

√IPENZ40/62 Snow loads in a changing climate: new risks?

Strasser, U. Natural Hazards & Earth System Sciences, Volume 8, Issue 1 (2008) Pages 1-8.

√IPENZ40/63 **Collection and analysis of climatic measurements for the assessment of snow loads on structures.**

Sadovský, Z. et al. International Journal of Reliability, Quality & Safety Engineering, Volume 14, Issue 6 (December 2007) Pages 603-615.

√IPENZ40/64 **Increased snow loads and wind actions on existing buildings: Reliability of the Norwegian building stock.**

Melosund, V. et al. Journal of Structural Engineering, Volume 132, Issue 11 (November 2006) Pages 1813-1820.

√IPENZ40/65 **Site-specific snow load models and hazard curves for probabilistic design.**

Kyung Ho Lee and Rosowsky, D. Natural Hazards Review, Volume 6, Issue 3 (August 2005) Pages 109-120.

√IPENZ40/66 **Unbalanced snow loading and the structural integrity of circular arched roofs.**

Southward, R. E. and Dzekic, S. Practice Periodical on Structural Design & Construction, Volume 10, Issue 4 (November 2005) Pages 209-216.

√IPENZ40/67 **A climatological measure of extreme snowdrift loading on building roofs.**

Degaetano, A. T. and O'rourke, M. J. Journal of Applied Meteorology, Volume 43, Issue 1 (January 2004) Pages 134-144.

√IPENZ40/68 **A climatological measure of extreme snowdrift loading on building roofs.**

Degaetano, A. T. and O'rourke, M. J. Journal of Applied Meteorology, Volume 43, Issue 1 (January 2004) Pages 134-144.

√IPENZ40/69 **Retrofitting building frames for snow loads.**

Yazdani, S., Henrichs, R. and Osten, R. Practice Periodical on Structural Design & Construction, Volume 7, Issue 3 (August 2002) Pages 122.

√IPENZ40/70 **Discussion of "Retrofitting building frames for snow loads."**

Longinow, A. et al. Practice Periodical on Structural Design & Construction, Volume 9, Issue 3 (August 2004) Pages 175-180.

√IPENZ40/71 **Behavior of pair of leaning arch-shells under snow and wind loads.**

Molloy, S. J. and Plaut, R. H. Journal of Engineering Mechanics, Volume 125, Issue 6 (June 1999) Pages 663-667.

√IPENZ40/72 **Snow loads on gable roofs.**

O'Rourke, M. and Auren, M. Journal of Structural Engineering, Volume 123, Issue 12 (December 1997) Pages 1645-1651.

√IPENZ40/73 Discussion of Snow loads on gable roofs.

Tobiasson, W. Journal of Structural Engineering, Volume 125, Issue 4 (April 1999) Pages 470-472.

√IPENZ40/74 Combining snow and earthquake loads for limit states design.

Ellingwood, B. and Rosowsky, D. Journal of Structural Engineering, Volume 122, Issue 11 (November 1996) Pages 1364-1368.

SPECIAL TOPICS IN PREVIOUS IPENZ ENGINEERING UPDATES

<ul style="list-style-type: none"> ➤ Geo-engineering ➤ Corrosion in the marine environment ➤ Compressed air: Pt 2 Energy storage ➤ River management ➤ Solar energy ➤ Infrastructure development/investment ➤ Drinking water ➤ Energy from wastes –gasification of municipal solid wastes ➤ Infrastructure condition monitoring ➤ Bridges ➤ Wind energy ➤ Life cycle costing ➤ Women in engineering 	<ul style="list-style-type: none"> ➤ Dairy wastes ➤ Smart cities/smart growth ➤ Tunnels and tunnelling ➤ Noise-pollution measurement and control ➤ Risk management ➤ Electric vehicles ➤ Environmental management systems ➤ Biofuels ➤ Peak oil ➤ Rail transportation ➤ Planning aspects of wind farms ➤ Water reuse/greywater/graywater ➤ Disaster and emergency planning and management
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