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Honorary Professor in the School of Civil Engineering

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About

Honorary Professor in the School of Civil Engineering, Ravindra Dhir is actively pursuing research in the area of sustainable and durable construction, reuse/recycling/reconstitution of waste materials and low energy and low emission cements for use in concrete. This is underpinned by the basic principles of appropriate use of materials and application of performance based specifications. The emphasis of his research is on innovation, but incremental developments leading to potential improvements in current practices are also considered equally important.

Operating nationally and internationally, under the name of Applying Concrete Knowledge Consultancy (**www.concreteknowledge.co.uk (http://www.concreteknowledge.co.uk)**), he specialises in mentoring companies in the area of concrete science, technology, design and construction, with the aim to give them a cutting edge in a competitive market.

He serves on the Editorial Board of the Magazine Concrete Research, advises government departments on concrete construction matters. He is the chairman of UKIERI (UK-India Education and Research Initiative) Concrete Congress and Ireland-India Concrete Research Initiative to develop collaborative research between Indian academic institutions and their counterparts in UK and Ireland.

Qualifications

- Honorary Fellow, Indian Concrete Institute, 2009
- Order of the British Empire (Officer), OBE,1998
- Honorary Fellow, Institute of ConcreteTechnology,1994
- Chartered Engineer, 1978
- Institution of Materials, Minerals and Mining, 1970
- Fellow of Geological Society, 1969
- PhD, Engineering, University of Sheffield, 1966
- BSc, Applied Science, University of Durham, 1962

Biography

Ravindra Dhir qualified with BSc in Applied Science in 1962 from the University of Durham, followed by PhD in Engineering from Sheffield University in 1965. After 2 years of Engineering Management training with the industry, he joined the University of Dundee in August 1967 as Lecturer in Civil Engineering and was promoted to personal chair in concrete technology 1992.

In 1988 he established Concrete Technology Unit with a start up grant of £15k which as Founding Director he developed into a £15m internationally acknowledged multi-disciplinary Centre of Excellence having state of the art research facilities. He remained as CTU Director until his retirement in August 2008.

His research was undertaken in close collaboration with industry with clear emphasis on dissemination and this won him many awards/honours/recognisitions.

1994, Honour. Honorary Fellowship of the Institute of Concrete Technology, for outstanding services to Concrete Technology and ability to relate research to industry.

1998 and 1999, Awards. Secretary of State for Trade & Industry, for innovative partnership with industry, with particular emphasis on sustainability, industrial innovation and quality of life, as well as dissemination of knowledge.

1998, Honour. Order of the British Empire, Officer, (OBE) for services to concrete technology.

2001, Award. British Cement Association, for targeted technology transfer.

2003, Award. Beacon Award from the RMC Environmental Fund, for sustainability programme.

2008, Recognition. Canadian Society of Civil Engineers, for outstanding contributions to Concrete Science and Technology, Durability of Concrete, Sustainability and Novel Construction Applications.

2008, Recognition. Lord Provost of Dundee, for lifetime academic excellence and commitment to the University and City of Dundee.

2008, Recognition. British Cement Association, British Precast Concrete Federation, British Ready Mixed Concrete Association and the Concrete Centre, for lifetime's work for the Cement and Concrete Industry.

2009, Honour. Honorary Life-time Fellowship of the Indian Concrete Institute.

2011, Honour. Honorary Member of Construction Chemicals Manufacturers Association.

Emeritus Professor of Concrete Technology of the University of Dundee, he has also since 2009 held the position of Honorary/Adjunct Professor at Trinity College Dublin and Expert for Establishing the Centre for Concrete Construction at National Institute of Technology Jalandhar, Punjab, India.

Teaching

- MSc in Construction Management
- CPD Courses in Concrete Science, Technology, Design and Construction (worldwide)

Postgraduate supervision

Supervision of MEng, MSc and PhD students.

Interested in supervising further research projects in the area of:

- Sustainability and Recycling of Waste Materials, as Cement Component, Filler and Aggregate
- Development of Performance Based Specifications for Strength and/or Durability of Concrete using Composite Cements
- Development of Sustainable Low Energy and Low Carbon Cements
- Durability of Structural Concrete

Research

In collaboration with government departments, academic institutions and industry internationally, as means of maximising dissemination to practice, Professor Dhir has been, and is, pursuing both fundamental and practical research, specialising in:

- Sustainable concrete construction,
- Appropriate use of materials,
- Performance based specifications,
- Low energy and low emission cements
- Recycling, reuse and reconstitution of waste materials as valuable and sustainable resource,
- Durability of structural concrete in various exposures.

An advocate of zero waste, he believes that this should be achieved at zero loading of the environment impact and add value to their use.

Publications

Full publication list available at: **www.concreteknowledge.co.uk (http://www.concreteknowledge.co.uk)**

Books: Conference Proceedings

Dhir R K, Singh S P and S Goel (2013), Innovations in Concrete Construction, New Delhi, Excel India Publishers, 312p.

Dhir R K and Newlands M D (2011), New Developments in Concrete Construction, India, Shroff Publishers, 277p.

Newlands M D and Dhir R K (2011), Concrete for High Performance Sustainable Infrastructure, India, Shroff Publishers, 291p.

Dhir R K, Chana P, Caliskan S and Lavingia R (2008) Concrete for Fire Engineering, UK, IHS BRE Press, 332p.

Dhir R K, Hewlett P C, Csetenyi L and Newlands M D (2008) Role for Concrete in Global Development, UK, IHS BRE Press, 910p.

Dhir R K, Newlands M D, Dyer T D and Tang M C (2008) Designing Concrete for the Visual Environment, UK, IHS BRE BRE Press, 212p.

Dhir R K, Harrison T A, Zheng L and Kandasami S (2008), Concrete Durability: Achievement and Enhancement, UK, IHS BRE Press, 970p.

Dhir R K, Newlands M D, Jones M R and Halliday J E (2008) Precast Concrete: Towards Lean Construction, UK, IHS BRE Press, 466p.

Dhir R K, Newlands M D, McCarthy M J and Paine K A (2008), Harnessing Fibres for Concrete Construction, UK, IHS BRE Press 434p.

Peer-Reviewed Technical Reports

Dhir R K and Bai J (20110. High Volume Fly Ash Concrete: Literature Survey. Report. ACK/0611/2. UK Quality Assurance Ash, 82 p, 2011.

Dhir R K, Newlands M D, McCarthy M J, Zheng L and Halliday J E (2010), Innovative Cement Combinations for Concrete Performance. Report CTU/5009. EPSRC and Industry, 179 p.

Dhir R K (2009) Washed Copper Slag: Use as Fine Aggregate in Concrete. Report HS/ACK/103909. Holcim Ltd, 11p.

Dhir R K (2009) Newlands M D and El-Sobky N. Develop Comprehensive State of the Art Capabilities.
KTP Technical Report No KTP001698 with Ian Farmer & Associates, 13 p.

McCarthy M J, Halliday J E, Csetenyi L J and Dhir R K (2009), Alkali Silica Reaction Guidance for Recycled Aggregates in Concrete. WRAP Technical Report No MRF 108 (CTU/4909), Waste and Research Action Programme, Banbury, 58 p.

Dhir R K, Dyer T D, Tang M C, Cui Y and Wang L (2009), Realising a High-Value Sustainable Recycling Solution to the Glass Cullet Surplus – Closing the Loop. Report CTU/4809. DTI and Industry, 163 p.

McCarthy M J, Jones M R, Zheng L and Dhir R K (2009). New Approach to Fly Ash Processing and Applications to Minimise Wastage to Landfill. Defra Contract WRT 395. Report CTU/4608. DEFRA and Industry, 143 p.

Journal papers

McCarthy M J, Csetenyi L J, Sachdeva A and Dhir R K (2012). Fly ash influences on sulfate- heave in lime-stabilised soils. Proc. Institution of Civil Engineering: Ground

Improvement, Vol. 165, No. 3,147-158.

McCarthy M J, Dhir R K, Talisman S and Ashraf M K (2012). Influence of Self-compacting Concrete on the Lateral Pressure on Formwork. Proc. Institution of Civil Engineering: Structures and Buildings, Vol 165, No. 3, March, 127-138.

Dhir R K, McCarthy M J and Bai J (2012). Harnessing fly Ash potential for developing high strength and high durability concrete. Indian Concrete Journal, February, Vol. 86, No. 2, 17-25.

McCarthy M J, Csetenyi L J, Sachdeva A and Dhir R K (2012), Identifying the role of fly ash Properties for minimising sulphate-heave in lime stabilised soils. Fuel, Vol. 92, 27-36.

McCarthy, M J, Csetenyi, L.J., Sachdeva, A. and Dhir, R.K (2012). Controlling swelling in lime-stabilised sulfate-bearing soils using fly ash. Ground Engineering, January, 29-31.

Paine K A and Dhir R K (2010). Recycled aggregates in concrete: A performance related approach. Magazine of Concrete research, 62 (7), 519-530.

Dhir R K and Paine P A (2010). Value added sustainable use of recycled and secondary aggregates in concrete. Indian Concrete Journal, 84 (3), 7-26.

Paine K A and Dhir R K (2010). Research on new applications for granulated rubber in concrete. Proceedings of the Institution of Civil Engineers: Construction Materials, 163 (1), 7-17.

Dhir R K, Csetenyi L J, Dyer T D and Smith G W (2010). Cleaned oil-drill cuttings for use as filler in bituminous mixtures. Construction and Building Materials. Vol 24, 322-325.

Dhir R K, McCarthy M J, Caliskan S and Ashraf M K (2009). Concrete pressure on formwork: Influence of cement combinations and Superplasticizing admixtures. Magazine of Concrete Research, Vol 61, No 6, 407-417.

Dhir R K, Dyer T D, and Tang M C (2009). Alkali-silica reaction in concrete containing glass. Materials and Structures, Vol 42, 1451-1462.

Dhir R K, Newlands M D and Koorapaty R B (2009). Measuring the compressive Strength of Concrete to BS EN 12390-3. Concrete, Vol 43, No 1, 44-46.

Newlands M D, Paine K A, Vemuri N A and Dhir R K (2008). A linear test method for determining early-age shrinkage of concrete. Magazine of Concrete Research, Vol 60, No 12, 747-757.

Dhir R K and Hewlett P C (2008). Cement: A question of responsible use. Concrete, Volume 42, Number 7, 40-42, plus correspondence, Concrete, Vol 42, October, 11-12.

Peer-Reviewed Conference Papers

Dhir R K Closing Paper (2013) Viewing high performance cement and concrete research through a wide angle lens. Proc. Int. Conf. Fine, Ultra-fine and Nano-based materials in concrete, NIT Jalandhar, India, March, 317p.

Dhir R K, Paine K A, de Brito J M C L, Etxeberria M, Ho N Y, Poon C S and Tam V W Y (2011). Use of recycled and secondary aggregates in concrete: An overview. New developments in Concrete Construction. Shroff Publishers, March,157-186.

Paine K A, Dhir R K, Halliday J E, Zheng L, Collery D J and Rai H S (2011).Use of recycled and secondary aggregates in concrete: Engineering and environmental considerations. Concrete for High performance Sustainable Infrastructure, Shroff Publishers, March, 77-86.

Newlands M D, McCarthy M J, Dhir R K and Singh S P (2011). Cement combinations and performance: Effects of cement type on carbonation. New Developments in Concrete Construction, Shroff Publishers, March, 85-98.

Newlands M D and Dhir R K (2011). Barriers to progressing concrete fit for the 21st Century. New Developments in Concrete Construction, Shroff Publishers, March, 125-134.

Dhir R K, McCarthy M J and Bai J (2011). Use of fine fly ash in developing high performance concrete. New Developments in Concrete Construction, Shroff Publishers, March, 183-196.

McCarthy M J, Dhir R K and Newlands M D (2011). Combining durability and sustainability in material selection for concrete. Concrete for High performance Sustainable Infrastructure, Shroff Publishers, March, 277-291.

Jones M R, McCarthy M J, Newlands M D and Dhir R K (2010). Green concrete: Balancing performance and embodied CO2. Institute of Concrete Technology, ICT Yearbook, 39-50.

Vemuri, N. A., Newlands, M. D., Paine, K. A. and Dhir, R. K (2009). Early-age shrinkage of CEM I and fly ash combinations using a new linear test method. International RILEM Workshop on Concrete Durability and Service Life Planning (ConcreteLife'09), Haifa, Israel, September.

Paine, K. A., Collery, D J and Dhir R K (2009). Strength and deformation characteristics of concrete containing coarse recycled and manufactured aggregates. Proc. 11th International Conference on Non-conventional Materials and Technologies (NOCMAT 2009), Bath, UK. Paper No. 84. BRE CICM, September.

Dhir R K. Keynote Paper (2008) Specifying concrete durability: Are we getting there? Proc. Joint Symp. Concrete and Bridge and Infrastructure Research in Ireland. NUI Galaway 4-5 December.