

CURRICULUM VITAE

Name : Hiroshi Shima

Date of Birth : July 1st, 1958

Nationality : Japanese

Educational Background :

B.Sc. Saginaw State University, Saginaw, MI, U.S.A., 1981

B.Eng. University of Tokushima, Tokushima, Japan, 1982

M.Eng. University of Tokushima, Tokushima, Japan, 1984

D.Eng. University of Tokyo, Tokyo, Japan, 1987

Employment Record :

1987 to 1988 : Assistant Lecturer

1988 to 1989 : Lecturer

1989 to 1997 : Associate Professor

Department of Civil Engineering,
Faculty of Engineering,
University of Tokushima, Tokushima, Japan

1997 to present Professor

Department of Infrastructure Systems Engineering,
Faculty of Engineering,
Kochi University of Technology, Kochi, Japan

Society Memberships :

Fellow, Japan Society of Civil Engineers

Member, Architectural Institute of Japan

Member, Japan Concrete Institute

Trustee, Japan Society of Material Science

Current Professional Activity :

Member, International Committee on Concrete Model Code for Asia

Director, Japan Construction Machinery and Construction Association

Chairman, Editorial Committee for Journal of JSCE A1, JSCE

Chairman, Committee on quality control supervision, Kochi ready-mixed concrete association

Chairman, Hybrid structure committee, JSCE

Member of Steering committee, Concrete committee, JSCE

Chairman, Shikoku branch, Japan Concrete Institute

Member, Environmental assessment judging committee, Kochi Prefecture

Field of Research :

- 1) Bond models such as post yield behavior, time dependent behavior, bond of corroded steel bar, tension stiffness model.
- 2) Seismic design such as ductility of reinforced concrete structures and dynamic response of reinforced concrete structures under earthquake loading.
- 3) Durability evaluation method such as chloride ion concentration at concrete surface and corrosion cracking
- 4) Steel-concrete composite structures
- 5) Construction contract

International Journal Publications :

- 1) Shima, H., Mizuguchi, H. and Nishio, T.: "The effect of amount of fine particles on segregation of flowing concrete," Transactions of the Japan Concrete Institute, Vol.5, 1983, pp.15-22.
- 2) Shima, H., Mizuguchi, H., Wada, T.: "Properties of hardened concrete affected by segregation of super-plasticized concrete," Transactions of the Japan Concrete Institute, Vol.6, 1984, pp.1-8.
- 3) Shima, H., Tangtermsirikul, S. and Ueda, T.: "Separation of flexural and shear deformation in reinforced concrete pier," Transactions of the Japan Concrete Institute, Vol.8, 1986, pp.543-550.
- 4) Shima, H., Chou, L. and Okamura, H.: "Bond stress-slip-strain relationship of deformed bars embedded in massive concrete," Concrete Library International, No.10, Japan Society of Civil Engineers, Dec. 1987, pp.79-94.
- 5) Shima, H., Chou, L. and Okamura, H.: "Bond characteristics in post-yield range of deformed bar," Concrete Library International, No.10, Japan Society of Civil Engineers, Dec. 1987, pp.113-124.
- 6) Shima, H. and Tamai, S.: "Tension stiffness model of reinforced concrete element under reversed loading," Transactions of the Japan Concrete Institute, Vol.9, 1987, pp.441-448.
- 7) Tangtermsirikul, S. and Shima, H.: "Modeling for buckling of reinforcement in reinforced concrete pier," Transactions of the Japan Concrete Institute, Vol.9, 1987, pp.527-532.
- 8) Tamai, S., Shima, H., Izumo, J. and Okamura, H.: "Average stress-strain relationship in post yield range of steel bar in concrete," Concrete Library International, No.11, Japan Society of Civil Engineers, June 1988, pp.117-129.
- 9) Izumo, J., Shima, H. and Okamura, H.: "Analytical model for RC panel elements subjected to in-plane forces," Concrete Library International, No.12, Japan Society of Civil Engineers, March 1989, pp.155-181.
- 10) Rungrojsaratis, V. and Shima, H.: "Effect of confining reinforcement on the behavior of lapped splice connection between steel bar and steel plate," Proc. of Japan Concrete Institute, Vol.11, No.2, 1989, pp.637-642.
- 11) Shima, H. and Shinohara, K.: "Analysis of cracking process and tension stiffness of uniaxial reinforced concrete members," Transactions of the Japan Concrete Institute, Vol.11, 1990, pp.479-486.
- 12) Chuah, C., Shima, H. and Noritake, K.: "Strength and deformational behaviors of studs embedded in high strength prestressed concrete," Proc. of Japan Concrete Institute, Vol.13, No.2, 1991, pp.1033-1038.
- 13) Aki, R. Shima, H., Mizuguchi, H.: "Effect of second coming earthquake waveform on dynamic behavior of repaired reinforced concrete bridge piers," Transactions of the Japan Concrete Institute, Vol.13, 1991, pp.335-340.
- 14) Chuah, C., Shima, H. and Rungrojsaratis, V.: "Load-displacement relationship of plate shape shear connector in steel-concrete composite structures," Concrete Library International, No.19, Japan Society of Civil Engineers, June 1992, pp.257-264.
- 15) Yokoi, K., Shima, H. and Mizuguchi, H.: "Applicability of shear strength equations for RC beams to concrete beams

reinforced with FRP rods," Transactions of the Japan Concrete Institute, Vol.14, 1992, pp.247-252.

16) Shima, H., Suga, T. and Honma, M.: "Local bond stress-slip relationship of continuous fiber reinforcing materials obtained by pull bond tests with long embedment," Transactions of the Japan Concrete Institute, Vol.15, 1993, pp.297-304.

17) Shima, H. and Harada, N.: "Relationship between amount of shear connector and flexural strength of steel-concrete sandwich structures," Transactions of the Japan Concrete Institute, Vol.15, 1993, pp.519-526.

18) Shima, H. and Ishimoto, Y.: "Effect of loading rate on local bond stress-slip relationship of a deformed steel bar," Transactions of the Japan Concrete Institute, Vol.15, 1993, pp.589-596.

19) Shima, H. and Suga, T.: "Local bond stress-slip relationship of braided aramid fiber bar obtained from pretensioned bond test," Transactions of the Japan Concrete Institute, Vol.16, 1994, pp.191-196.

20) Shima, H. and Ishimoto, Y.: "Effect of loading rate on stretching out of anchored reinforcing bars," Transactions of the Japan Concrete Institute, Vol.16, 1994, pp.459-466.

21) Noritake, K., Shima, H. and Kohno, K.: "Proposal for new structures making the best use of high strength concrete to reduce the weight of prestressed concrete bridges," Concrete Library International, JSCE, No.25, June 1995, pp.27-43.

22) Ogawa, Y., Kaji, T., Shima, H. and Nakamura, H.: "Compressive strength and pore volume of no-fines porous concrete absorbing carbon dioxide gas," Transactions of the Japan Concrete Institute, Vol.17, pp.53-60, 1995.

23) Piyamahant, S., and Shima, H.: Shear Strength of Reinforced Concrete Beams with Small Amount of Web Reinforcement, Proceedings of Japan Concrete Institute, Vol.25, No.2, pp.1099-1104, 2003.

24) Songkram Piyamahant and Hiroshi Shima: Test Method for Cracking Resistance of Cover Concrete due to Corrosion of Reinforcement, Journal of Advanced Concrete Technology, Vol.9, No.2, pp.169-176, June 2011

25) Soty Ros and Hiroshi Shima: Formulation for shear force-relative displacement relationship of L-shape shear connector in steel-concrete composite structures, Engineering Structures, Elsevier, Vol.46, pp.581-592, 2013.1

26) Virak Han, Soty Ros and Hiroshi Shima: Effects of sand content, superplasticizer dosage and mixing time on Compressive Strength of Mortar, ACI Materials Journal, Vol.110, No.1, pp.23-32, 2013.1

27) Songkram Piyamahant, Hiroshi Shima and Soty Ros: Simulation for Corrosion Cracking of Cover Concrete in Reinforced Concrete Structures, Journal of JSCE, Vol.1, No.1, pp.162-180, 2013.

28) Soty ROS and Hiroshi SHIMA : Relationship between Splitting Tensile Strength and Compressive Strength of Concrete at Early Age with Different Types of Cements and Curing Temperature Histories, Proceedings of Japan Concrete Institute, Vol.35, No.1, pp.427-432, 2013

29) Yuichi Sato, Toshiyuki Kanakubo and Hiroshi Shima : Double-Counting Problem of FEA with Simultaneous Use of Bond Link Elements and Tension-Stiffening Model, Journal of Advanced Concrete Technology, Vol.11, pp.206-214, August 2013.

30) Virak Han, Soty Ros and Hiroshi Shima: Strength Model for Mortar based on Hydration Heat and Microstructure Developments, Journal of JSCE, Vol.1, No.1, pp.366-378, 2013

International Conference Publications (excerpts):

1) Shima, H., Chou, L., Niwa, J. and Okamura, H.: "Strain-slip relationships for a steel bar in massive concrete," International Symposium on fundamental theory of reinforced and prestressed concrete, Sept. 1986, Nanjing.

2) Shima, H. and Tamai, S.: "Tension stiffness model of reinforced concrete element under reversed loading including

post yield range," Colloquium on Computational Mechanics of Concrete Structures, IABSE, Aug. 1987, Delft.

- 3) Shima, H., Mizuguchi, H. and Kanbara, N.: "Seismic behavior of repaired reinforced concrete bridge piers with various degrees of damage," The Second East Asia-Pacific Conference on Structural Engineering & Construction, Jan. 1989, Chiang Mai.
- 4) Shima, H., Mizuguchi, H. and Kanbara, N.: "Hysteresis model of repaired reinforced concrete bridge piers damaged by earthquake," Asia-Pacific Structural Analysis Conference, Nov. 1989, Malacca.
- 5) Shima, H. Shin, H. and Okamura, H.: "A constitutive model for tension stiffness of reinforced concrete under reversed loading - post yield behavior is included," Second International Conference on Computer Aided Analysis and Design of Concrete Structures, April 1990, Zell Am See
- 6) Shima, H., Mizuguchi, H. and Kohno, K.: "Creep behavior of bond between steel bar and concrete," Residual Stresses III, Vol.1, Elsevier Science Publishers, 1992, pp.423-428.
- 7) Shima, H. and Suga, T.: "Local bond stress-slip relationship of braided aramid fiber bar," Proc. of The Fifth East Asia-Pacific Conference on Structural Engineering & Construction, July 1995, pp.1041-1046.
- 8) Shima, H., Ogawa, Y. and Kohno, K.: Bond properties between no-fines porous concrete and epoxy coated steel bars, Proc. of Int.Conf. on Urban Engineering in Asian Cities in the 21st Century, Nov.20-23, 1996, Bangkok
- 9) Y.Kakuta, H.Mutsuyoshi and H.Shima: New structural design method for concrete members using continuous fiber reinforcing material, Proc. of 3rd International Conference on Fiber Reinforced Plastics for Reinforced Concrete Structures, Sapporo, Oct.1997.
- 10) K.Yokoi, H.Mizuguchi, H.Shima and Y.Yamamoto: Effect of reinforcement volume on failure of T-shaped RC bridge piers under dynamic loading, Proc. of 7th East Asia-Pacific Conference on Structural Engineering & Construction, Kochi, Aug.1999, pp.1229-1234.
- 11) Shima, H. and Noritake, K.: Strain Increase of Concrete Subjected to Sustained Compressive Stress at Early Age, Proceedings of ICCMC/IBST International Conference, 2001, Hanoi, pp.350-355.
- 12) Denpongpan, T. and Shima, H.:Effect of Reversed Loading on Shear Behavior of Reinforced Concrete, Proceedings of EASEC-8, 2001.12, Paper No.1118.
- 13) Ohno, Y. and Shima, H.: Resistance to Drying Shrinkage Crack in Self-Compacting Concrete, Proceedings of EASEC-8, 2001.12, Paper No.1182.
- 14) H.Shima: Local bond stress-slip relationship of corroded steel bars embedded in concrete, Proceeding of the third international symposium on bond in concrete, Budapest, November 2002, pp.153-158.
- 15) Yosuke Arai and Hiroshi Shima: A Proposal of Simple Formula for Ductility Evaluation of Reinforced Concrete Column Members under Reversed Cyclic Lateral Loading, Proceedings of The Ninth East Asia-Pacific Conference on Structural Engineering and Construction, Bali, Indonesia, 16-18 December 2003, pp.RCS218-225.
- 16) Piyamahant, S., and Shima, H.: Applicability of Superposition Method for Estimating Shear Strength of Reinforced Concrete Beams with Small Amount of Web Reinforcement, Proceedings of the Forth International Conference on Concrete under Severe Conditions, June 27-30, 2004, Seoul, pp.1106-1113.
- 17) S.Swatekititham and H.Shima: Chloride Concentrations on Surfaces of Concrete Structures, Proceedings of the Forth International Conference on Concrete under Severe Conditions, June 27-30, 2004, Seoul.
- 18) M.Nagamine and H.Shima : Effect of Strain Rate on Stress-Strain Curve of Reinforcing Bars after Yielding under Reversed Cyclic Load, Proceedings of the Forth International Conference on Concrete under Severe Conditions, June 27-30, 2004, Seoul.
- 19) H.Shima: Recent Earthquake Damages and Seismic Design Code of Concrete Structures in Japan, Proceedings of

the Seventh International Conference on Concrete Technology in Developing Countries, October 5-8, 2004, Kuala Lumpur

20) V.Seng, H.Shima and M.Ouchi: Possibility of Self-Compacting Concrete in Cambodia, Proceedings of the Seventh International Conference on Concrete Technology in Developing Countries, October 5-8, 2004, Kuala Lumpur

21) S.Piyamahant and H.Shima: Experimental Study on Cracking in Covering Concrete due to Pressure around Reinforcing Bars, Proceedings of the First International Conference of Asian Concrete Federation, October 28-29, 2004, Chiang Mai

22) S.Swatekititham, H.Shima and H.Okamura: Modeling on Chloride Attack in Concrete Structures under Marine Environments, Proceedings of the First International Conference of Asian Concrete Federation, October 28-29, 2004, Chiang Mai

23) Y.Wang, H.Shima, N.Fujisawa and M.Ouchi: Seismic Behavior of New CFT Structure using Self-Compacting Concrete, Proceedings of International Conference on Structural and Road Transportation Engineering, January 3-5, 2005, India

24) T.Denpongpan and H.Shima : Effect of axial load on ductility of reinforced concrete columns, 30th Conference on our world in concrete & structures, 23-24 August 2005, Singapore, pp.233-240

25) S.Vong and H.Shima : Creep and shrinkage of self-compacting concrete with different limestone powder contents, SCC2005, Oct.30-Nov.2, Chicago

26) Y.Wang, H.Shima, N.Fujisawa and M.Ouchi : Application of self-compacting concrete to CFT column-CFT beam frame structure, SCC2005, Oct.30-Nov.2, Chicago

27) Vong Seng and Hiroshi Shima : Design of Pretension Prestressed Concrete Girder Bridge for Cambodian Rehabilitation, EASEC-10, Aug.2006, Bangkok, pp.313-318.

28) Virak Han and Hiroshi Shima : Compressive Strength of Mortar with High Amounts of Super-plasticizer, EASEC-10, Aug.2006, Bangkok

29) H.Shima, Y.Wang, N.Fujisawa and M.Ouchi : Design and Construction Method of New Concrete Filled Steel Tube Frame Structure, IABSE Symposium on Responding to Tomorrow's Challenges in Structural Engineering, September 13-15, 2006, Budapest

30) R. Niraula, S. Kusayanagi and H. Shima : Changing Organizational Culture of University in a Least Developed Country, Proceedings of the International Symposium on Social Management Systems, March 9-11, 2007

31) Taiju Yoneda, Tetsuya Mishima, Vong Seng, Masahiro Ouchi, Hiroshi Shima : Production and Examination of Prestress loss of Precast Prestressed Concrete Bridge Girder Using Self-Compacting Concrete in Cambodia, Proceedings of the International Symposium on Social Management Systems, March 9-11, 2007

32) Yuya Kawatake, Hiroshi Shima, Hideki Hoshiro and Kunio Chikami : Seismic Performance of Reinforced Concrete Column using Vinylon Fiber as Tie Hoop, Proceedings of First International Symposium on Frontier Technology, pp.56-59, Aug.21-21, 2007, Shenyang

33) Hiroshi Shima and Satoru Fukuju : Bond Stress Distribution along Bar Axis in Hook Anchorage of Deformed Reinforcement, The 3rd ACF International Conference, pp.654-660, 2008

34) Hitoshi Kumagai, Hiroshi Shima, Lap Loi Chung and Shyh Jiann Hwang : Seismic Damage Assessment and Retrofit, The 3rd ACF International Conference, pp. 1202-1208, 2008

35) H. Shima and K. Hatanaka : Effect of Loading History on Softening of Load-Displacement Curve of Reinforced Concrete Columns, Eleventh East Asia-Pacific Conference on Structural Engineering & Construction, November 19-21, 2008, Taipei, TAIWAN

- 36) S. Nakamura, A. Nakajima, T. Watanabe and H. Shima : Introduction to Draft of JSCE Standard Specification for Hybrid Structures, Eleventh East Asia-Pacific Conference on Structural Engineering & Construction, November 19-21, 2008, Taipei, TAIWAN
- 37) Hiroshi Shima : Seismic Performance of Reinforced Concrete Structures, The 8th International Symposium on New Technologies for Urban Safety of Mega Cities in Asia, Oct. 15-16, 2009, Inchon, Korea (invited lecture)
- 38) Hiroshi Shima and Seiji Watanabe : Formulation for Load-Slip Relationships of Headed Stud Connector, Proceedings of the 34th IABSE Symposium, September 22-24, 2010, Venice.
- 39) Soty Ros and Hiroshi Shima: Formulation for Maximum Shear Force on L-Shape Shear Connector subjected to Strut Compressive Force at Splitting Crack Occurrence in Steel-Concrete Composite Structures, EASEC-12, January 26-28, 2011, Hong Kong (Procedia Engineering, Elsevier, Vol.14, pp.2420-2428, 2011)
- 40) Soty Ros and Hiroshi Shima : Elastic Spring Property in Rheological Model for Thermal Stress-Strain Relationship of Early Age Concrete under External Restraint, The 5th International Conference of Asian Concrete Federation, Oct. 24-26, 2012, Pattaya, Thailand
- 41) Y. Sato, H. Shima, T. Kanakubo : Japan Concrete Institute TC Activities on Bond Behavior and Constitutive Laws in RC (Part 1: Research Survey on Bond Problems), Bond in Concrete 2012, pp.89-96.
- 42) A. Yasojima, T. Kanakubo, H. Shima : Japan Concrete Institute TC Activities on Bond Behavior and Constitutive Laws in RC (Part 2: Theoretical Behavior by Bond Laws), Bond in Concrete 2012, pp.97-104.
- 43) T. Kanakubo, Y. Sato, Y. Uchida, K. Watanabe, H. Shima : Japan Concrete Institute TC Activities on Bond Behavior and Constitutive Laws in RC (Part 3: Application of Constitutive Laws for FEA), Bond in Concrete 2012, pp.105-112
- 44) R. Soty and H. Shima : Partial Interaction Mechanisms of Headed Stud Subjected to Pullout Force, 17th International Conference on Composite Structures, Porto, Portugal, June 17-20, 2013
- 45) R. Soty and H. Shima : Performances of L-Shape Shear Connector subjected to Compressive Force in Steel-Concrete Composite Structures, EASEC-13, Sapporo, September 11-13, 2013
- 46) Y. Taira, S. Saito, T. Watanabe, Y. Mizoe, H. Shima, A. Nakajima and K. Furuichi : Experimental Study on Shear Force-Slip Relationship of Headed Stud Connectors under Controlled Shear and Axial Forces, EASEC-13, Sapporo, September 11-13, 2013