



# 8

Capítulo

# Referencias



## 8 Referencias

### 8.1 Bibliografía

- A.A.S.H.T.O., 1977, "*Standard Specifications for Highway Bridges*", Washington, 1977.
- A.A.S.H.T.O., 1989, "*Guide Specifications for Design and Construction of Segmental Concrete Bridges*", Washington, 1989.
- A.T.E.P., 1970, "*Puente sobre el río Almarail, Soria*", Realizaciones españolas, Madrid 1970, pp. 4-5.
- A.T.E.P., 1996, "*Proyecto y construcción de puentes y estructuras con pretensado exterior*", Madrid, Septiembre, 1996.
- ACI 318-77., 1977, "*Building Code Requirements for Reinforced Concrete*", American Concrete Institute, Detroit, 1977.
- ACI 440F, 1999, "*Guidelines for the selection, design and installation of fiber reinforced polymer (FRP) systems for externally strengthening concrete structures*", American Concrete Institute, ACI Committee 440, Sub Committee 440F, February.
- ACI 440R-96, 1996, "*State of the art report on fiber reinforced plastic reinforcement for concrete structures*", ACI Committee 440, American Concrete Institute, Farmington Hills, Michigan.
- AIRE, C., 2002, "*Estudio experimental del comportamiento del hormigón confinado sometido a compresión*", ETSECCPB, Universidad Politécnica de Cataluña (UPC)
- ALARCON, A., RAMOS, G., CASAS, J. R., 1999, "*Reparación y refuerzo de puentes de dovelas con fibras de carbono*", Comunicaciones del 1er Congreso de ache, Sevilla, España, pp. 497-505.
- ALARCÓN, A., RAMOS, G., CASAS, J. R., 2001, "*Characterization of CPRPs for strengthening segmental structures*", Proceedings of Composites in Construction CCC2001, Oporto, Portugal, pp. 547-551.

ALARCON, A., RAMOS, G., CASAS, J. R., 2001, “*The Segmental Effect on Shear and Flexural Strengthening Using CFRPs*”, Proceedings of CONSEC 01, Vancouver, Canada, pp. 1707-1714.

ALARCÓN, A., RAMOS, G., CASAS, J. R., 2002, “*Flexural Strengthening of Precast Segmental Bridges Using CFRP*”, Proceedings of First International Conference on Bridge Maintenance, Safety and Management IABMAS 2002, Barcelona, Spain, pp. 273-274

AMERICAN SOCIETY FOR TESTING AND MATERIALS, 1989, “*Standard Test Method for Tensile Properties of Fiber-Resin Composites*”, D 3039 –76.

ANLLO, M., 1996, “*Análisis experimental hasta rotura de vigas de hormigón con pretensado exterior*”, Tesina de especialidad, E.T.S. Ingenieros de Caminos de Barcelona, UPC, Barcelona, España.

APARICIO, A. C. y RAMOS, G., 1993, “*Estado actual de la técnica del pretensado exterior aplicada a puentes de carretera*”, MOPTMA, Madrid, 1993.

APARICIO, A. C., 1995, “*Presente y futuro de los puentes con pretensado exterior*”, Cemento-Hormigón nº 748, IECA, Barcelona, Agosto 1995, pp. 840-865.

APARICIO, A. C., RAMOS, G., CASAS, J. R., GOMEZ, D., 1998, “*Ensayos a rotura de vigas de hormigón con pretensado exterior*”, Primera parte: vigas isostáticas, Hormigón y Acero, nº 209, Madrid, 1998.

ARDUINI, M., D’AMBRISI, A., AND DITOMMASO, A., 1994, “*Shear failure of concrete beams reinforced with FRP plates*”, Infrastructure: New Mat. And Methods of Repair, Proc., Mat. Engrg. Conf., Am. Soc. of Civ. Engrs., New York, N. Y., pp. 123-130.

ARDUINI, M., DI TOMMASO, A., and NANNI, A., 1997, “*Brittle Failure in FRP Plate and Sheet Bonded Beams*”, ACI Structural Journal, 94(4), pp. 363-369.

BARROS, J., FORTES, A., CRUZ, J., 2002, “*Concrete Beams Reinforced with Carbon Laminate Strips Bonded into Slits*”, V Congreso de Métodos Numéricos en Ingeniería, SEMNI, Madrid, pp. 209.

BERSET, J. D., 1992, “*Strengthening of reinforced concrete structures for shear using composite materials*”, MS thesis, MIT, Cambridge, Mass.

BIZINDAVYI, L. & NEALE, K.W., 1999, "*Transfer Lengths and Bond Strengths for Composites Bonded to Concrete*", Journal of Composites for Construction, ASCE, vol. 3, No. 4, pp. 153-160.

BPEL-91., 1992, "*Règles techniques de conception et de calcul des ouvrages et constructions en béton précontraint suivant la méthode des états-limites*", Groupe de coordination des textes techniques, Paris, abril, 1992.

BREEN, J., RAMIREZ, G., MACGREGOR, R., 1993, "*Shear Strength of Segmental Structures*", Proceedings of the Workshop AFPC External Prestressing in Structutres, Saint-Rémy-lès-Chevreuse, June, 1993, pp. 287-296.

BRESSON, J., 1971, "*Nouvelles recherches et applications concernant l'utilisation des collages dans les structures*", Annales de l'Institut Technique du Batiment et Travaux Publics-nº. 278., série: Béton. Béton armé, Paris, Francia

BRITO, M., 1986, "*Caracterização do comportamento dos plásticos reforçados com vista a aplicaçoes estruturais*", LNEC, Departamento de materiais de construção, núcleo de cerâmica e plásticos, Proc. 23/11/7460, Vols. I, II e III, Outubro, Lisboa.

BROSENS, K. & VAN GEMERT, D., 1997, "*Anchoring Stresses between Concrete and Carbon Fibre Reinforced Laminates*", Non-Metallic (FRP) Reinforcement for Concrete Structures, Vol. 1, Japan Concrete Institute, Japan, pp. 271-278.

BROSENS, K. & VAN GEMERT, D., 1999, "*Stress analysis in the anchorage zones of externally bonded CFRP laminates*", proceedings of the Int. Conf. of Infrastructure Regeneration and Rehabilitation, Improving the Quality of Life Through Better Construction, a vision for the Next Millenium, University of Sheffield, Sheffield, June, pp. 931-940.

BRUGGELING, A.S.G., 1990, "*External Prestressing-a State of the Art. External Perstressing in Bridges*", ACI. SP-120.

BURNSSELL, A. R. 1989, "*Long-term degradation of polymeric matrix composites*", Concise encyclopedia of composite materials, A. Kelly, cd., Pergamon Press, pp. 165-73.

BUYUKOZTURK & HEARING, B., 1998, "*Failure Behavior of Precracked Concrete Beams Retrofitted with FRP*", Journal of composites for Const., Aug., pp. 138-144.

CARTER L., 1987, "*Deviator Behavior in Externally Post-tensioned Bridges*", Masters Thesis, University of Texas at Austin, August, 1987.

CCC2001, 2001, "*Composites in constructions*", Proceedings of the international conference", edited by Figueiras, J., et al., October.

CHAJES, M. J., FINCH, W. W. J. R., JANUSZKA, T. F., & THOMSON, T. A., 1996, "*Bond and Force Transfer of Composite Material Plates Bonded to Concrete*", ACI Structural Journal, ACI, Vol. 93, No. 2, pp. 295-303.

CHAJES, M. J., JANUSZKA, T. F., MERTZ, D. R., THOMSON, T. A., & FINCH, W. W., 1995<sup>b</sup>, "*Shear strengthening of reinforced concrete beams using externally applied composite fabrics*", ACI Struct. J., (92)3, pp. 295-303.

CHAJES, M. J., KARBHARI, V. M., MERTZ, D. R., KALIAKING, V. N., FAQUIRI, A., & CHAUDRI, M., 1993, "*Rehabilitation of cracked adjacent box beam bridges*", proceedings of the NSF Symposium on practical solutions for bridge strengthening and rehabilitation, sponsored by NSF, Des Moines, Iowa, April, pp. 265-274.

CHAJES, M., THOMSON, T., & FARSCHMAN, C., 1995<sup>a</sup>, "*Durability of concrete beams externally reinforced with composite fabrics*", Constr. And Buid. Mat., 9(3), pp. 141-148.

CHAJES, M., THOMSON, T., JANUSZKA, T., & FINCH, W. W., 1994, "*Flexural strengthening of concrete beams using externally bonded composite materials*", Constr. And Built. Mat., 8(3), pp. 191-201.

CRUZ, J. M. S., BARROS, J. A. O., 2002, "Caracterização experimental da ligação de laminados de CFRP inseridos no betão de recobrimento", Relatório técnico 02-DEC/E-15, Departamento de Engenharia Civil, Universidade do Minho, Portugal.

D0128, 1995, "*Nachträgliche verstärkung von bauwerken mit CFK-Lamellen*", structure reinforcement using CFRP, SIA, Zurich, September.

DESKOVIC, N., 1991, "*Innovative method of prestressing structures with externally bonded FRP*", M. Sc. Thesis, MIT, Cambridge, Massachusetts, USA, February.

DEURING, M., 1993, "*Verstärken von Stahlbeton mit gespannten Faserverbundwerkstoffen*", Ph. D. Thesis, ETH, Eidgenössischen Technischen Hochschule, Diss. ETH n° 10199, Zurich.

DEWIMILLE, B., & BUMSELL, A. R., 1983, “Accelerated aging of a glass fiber reinforced epoxy resin in water”, Composites, pp. 14-35.

DOS SANTOS, A. C., 2002, “Study of the bond failure between carbon fibers and concrete under shear”, ETSECCPB, Universidad Politécnica de Cataluña (UPC)

DUSSEK, I. J., 1974, “Strengthening of bridge beams and similar structures by means of epoxy-resin-bonded external reinforcement”, Transport Research Record, National Research Record, nº. 785, Washington, USA, pp. 21-24.

DUTTA, P. K., 1992, “Tensile strength of unidirectional fiber composites at low temperatures”, Proceedings, Sixth Japan-U.S. Conference on Composite Materials, June 22-24, Orlando, pp. 782-792.

DUTTA, P. K., 1994, “Low-temperature compressive strength of glass-fiber-reinforced polymer composites”, Journal of Offshore Mechanics and Arctic Engineering, pp. 167-172.

ECT, 2000, <http://www.new-technologies.org/ECT/Civil/civil.htm>, Emerging Construction Technologies.

EH-91, 1991, “Instrucción para el proyecto y la ejecución de obras de hormigón en masa o armado”, Comisión Permanente del Hormigón, Ministerio de Fomento, Madrid.

EMMONS, P. H., VAYASBURD, A. M., THOMAS, J. & VADOVIC, M., 1997, “Strengthening of concrete structures-state of the art and future needs”, proceedings of the int. composites EXPO’97, session rebars, reinforcements and repairs: Composites to the rescue, Nashville, Tennessee, EUA, January, pp. 1-12.

EMPA, 1994, “Verstärken von stahlbeton mit gespannten faserverbundwerkstoffen”, Film.

EUROCÓDIGO 2, 1996, “UNE-ENV 1992-1-5 Reglas generales estructuras con tendones de pretensado exteriores o no adherentes”, AENOR, Abril, 1996.

EUROCOMP, 1996, “Structural design of polymer composites-EUROCOMP design code and handbook”, the European Structural Polymeric Composites Group, edited by John L. Clarke, E&FN Spon, ISBN 0419194509, London, UK.

FALKNER, H. et al, 1993, “Prestressed Segmental Box Girders with Unbonded Tendons under Combined Torsion, Bending and Shear”, Proceedings of the Workshop AFPC External Prestressing in Structures, Saint-Rémy-lès-Chevreuse, June, pp. 323-334.

FINCH, W. W., CHAJES, M. J., MERTZ, D. R., KALIAKIN, V. N., AND FAQIRI, A., 1994, "*Bridge rehabilitation using composite materials*", Infrastructure: New materials and Methods of Repair, Proc., Materials Engineering Conference, Am. Soc. of Civ. Engrs., New York, N. Y., pp. 1140-1147.

FOURÉ, B. et al., 1993, "*Flexural Behaviour of Externally Prestressed Concrete Beams, Monolithic or Made of Precast Segments*", Proceedings of the Workshop AFPC External Prestressing in Structures, Saint-Rémy-lès-Chevreuse, June, pp. 163-174.

FREYSSINET, 1998, "*Refuerzo del hormigón por encolado de tejido de fibras de carbono procedimiento TFC*", Pliego de cláusulas técnicas, Freyssinet, Francia.

FRPRCS-2, 1995, "*Non metallic (FRP) reinforcement for concrete structures-2*", proceedings of the 2nd Int. RILEM Symp. FRPCS-2, Belgium, August, pp. 714.

GLASTER, R. E., MOORE, R. L., & CHIAO, T. T., 1983, "*Life estimation of an S-glass/epoxy composite under sustained tensile loading*", Composite Technology Review, 5 (21).

GLASTER, R. E., MOORE, R. L., & CHIAO, T. T., 1984, "*Life estimation of an S-glass/epoxy composite under sustained tensile loading*", Composite Technology Review, 6 (26).

GOMEZ, D., 1995, "*Ensayos a rotura de vigas de hormigón con pretensado exterior*", tesina de especialidad, trabajo de investigación bajo la supervisión de Aparicio A. C., E.T.S. Ingenieros de Caminos de Barcelona, UPC, Barcelona, España.

HAHN, H. T., & KIM, R. Y., 1978, "*Swelling of composite laminates*", Advanced composite materials environmental effects. J. R. Vinson, cd., ASTM-STP 658, American Society for Testing and Materials, Philadelphia, PA, pp. 98-130.

HAMELIN, P., VARASTEHPOUR, H. & LAGARDE, G., 1995, "*Le renforcement des ouvrages d'art par des armatures composites*", Journées Européennes sur des Matériaux Composites, Paris, France, April.

HEGER, F. J., 1981, "*Structural plastics design manual*", Section 10.6, American Society of Civil Engineers.

HILTI, 2002, "*Manual Técnico de Anclajes*", Hilti Española, S.A., Madrid, España, pp. 251-271.



HOLZENKÄMPFER, P., 1994, "*Ingenieurmodelle des verbundes geklebter bewehrung für betonbauteile*", Ph. D. Thesis, TU Braunschweig, Helf 108, Germany.

HORIGUCHI, T. & SAEKI, N., 1997, "*Effect of Test Methods and Quality of Concrete on Bond Strength of CFRP Sheet*", Non-Metallic (FRP) Reinforcement for Concrete Structures, Vol. 1, Japan Concrete Institute, Japan, pp. 265-270.

HUANG, J. et al., 1993, "*Design of Segmental Bridges under Combined Bending, Shear and Torsion FE-study*", Proceedings of the Workshop AFPC External Prestressing in Structures, Saint-Rémy-lès-Chevreuse, June, 1993, pp. 335-347.

HULL, D., 1981, "*An introduction to composite materials*", Cambridge University Press, Cambridge England.

ICCI'98, 1998, "*Fiber composites in infrastructure*", proceedings of the 2<sup>nd</sup> Int. Conf. on Composites in Infrastructure-ICCI'98, University of Arizona, Tucson, USA, January, pp. 1506.

IYER, S.L., y ANIGOL, M., 1991, "*Testing and evaluation fiber glass, graphite and steel cables for pretensioned beams*", proceedings of the speciality conference on advanced composite materials in civil engineering structures, ASCE, Las Vegas, February, pp. 44-56.

JCI, TC952, 1998, "Continuous fiber reinforced concrete", Japan Concrete Institute, Tokyo, Japan.

JONES R., SWAMY, R. N. & SALMAN, F. A. R., 1985, "*Structural implications of repairing by epoxy bonded steel plates*", proceedings of 2<sup>nd</sup> Int. Conf. on Structural Faults & Repair, London, April-May, pp. 75-79.

JSCE, 1997, "*Recommendation for design and construction of concrete structures using continuous fiber reinforcing material*", JSCE, Concrete Engineering Series, n°. 23, Tokyo Japan, pp. 325.

JUVANDES, L., 1998, "*Comportamento experimental de vigas de betão armado reforçadas com laminados de CFRP*", 1º relatório experimental, Faculdade de Engenharia de Universidade do Porto (FEUP), DECivil, Porto, May, pp. 164.

JUVANDES, L., 1999, "*Reforço e Reabilitação de Estruturas de Betão usando Materiales Compósitos de CFRP*", Dissertação para obtenção do Grau de Doctor em Engenharia Civil, Departamento de Engenharia Civil, Faculdade de Engenharia, Universidade do Porto, Setembro de 1999, Porto, Portugal.

KAISER, H. P., 1989, "*Bewehren von stalbeton mit Kohlenstoffaserverstärkten epoxidharzen*" Tech. Rep., Eidgenössische Technische Hochschule (ETH) Dissertation, No. 8418., Zürich, Switzerland.

KARAM, G., 1992, "*Optimal design for prestressing with FRP sheets in structural members*", Advanced composite materials in bridges and structures, Canadian Soc. of Civ. Engrg.

KARBHARI, V. M., ENGINEER, M., AND ECKEL II, D. A., 1997, "*On the durability of composite rehabilitation schemes for concrete: Use of a peel test.*", J. Mat. Sci., 32(1), 147-156.

KOSEKI, K. & BREEN, J., 1983, "*Exploratory Study of Shear Strength of Joints for Precast Segmental Bridges*", Texas State Department of Highways and Public Transportation, September, 1983.

L'HERMITE, R., 1967, "*L'application des colles et resines dans la construction*", La beton a coffrage portant, Annales l'Institut Technique, n°. 239.

L'HERMITE, R., 1977, "*Use of bonding techniques for reinforcing concrete and masonry structures*", Materiaux et Constructions, vol. 10, n°. 56, March-April, pp. 85-89.

LADNER, M & WEDER, CH., 1981, "*Concrete structures with bonded external reinforcement*", report n°. 206, EMPA-Swiss Federal Laboratories for Materials Testing and Research, Dübendorf, pp. 60.

LANDA, G., 2002, "*Estudio experimental sobre el refuerzo a cortante de estructuras de hormigón mediante materiales compuestos*", Tesis doctoral, ETSECCPB, Universidad Politécnica de Cataluña (UPC), Febrero, Barcelona, España.

LARSSON, F., 1988, "*The effect of ultraviolet light on mechanical properties of Kevlar 49 composites*", Environmental effects on composite materials. G. Springer, cd., Technomic Publishing Co., pp. 132-35.

LOMNZO, L., AND HAHN, H. T., 1986, "*Fatigue failure mechanisms in unidirectional composites*", Fatigue and Fracture, ASTM STP 907, pp. 210.

- LORD, H. W., & DUTTA, P. K., 1988, "*On the design of polymeric composite structures for cold regions applications*", Journal of Reinforced Plastics and Composites 7, pp. 435-450.
- MAEDA, T., ASANO, Y., SATO, Y., UEDA, T., AND KAKUTA, Y., 1997, "*A Study on Bond Mechanism of Carbon Fiber Sheet*", Non-Metallic (FRP) Reinforcement for Concrete Structures, Vol. 1, Japan Concrete Institute, Japan, pp. 279-286.
- MALEK, A. M., 1997, "*Analytical study of reinforced concrete beams strengthened with fiber reinforced plastic plates (fabrics)*", Ph. D. Thesis, University of Arizona, Dep. Eng. Civil and Eng. Mec., Tucson, Arizona, pp. 163.
- MALLICK, P. K., 1988, "Fiber reinforced composites", Marcel Dekker, Inc., New York, pp. 215-48.
- MAYS, G. C. & RAITHBY, K. D., 1985, "*Bonded external reinforcement for strengthening concrete bridges*", Transport and Road Research Laboratory, Crowthorne, Berkshire, pp. 70.
- MEIER, U., & KAISER, H., 1991, "*Strengthening of structures with CFRP laminates*", Advanced composites materials in civil engineering structures, S. L. Iyer ed., Am. Soc. of Civ. Engrs, New York, N. Y., pp. 224-232.
- MEIER, U., 1992, "*Carbon fiber-reinforced polymers: Modern materials in bridge engineering*", Structural Engineering Int., 2(1), pp. 7-12.
- MEIER, U., 1995, "*Strengthening of structures using carbon fiber/epoxy composites*", Constr. And Build. Mat., 9(6), pp. 341-351.
- MEIER, U., 1997<sup>a</sup>, "*Repair using advanced composites*", proceedings of the International Conference of Composite Construction-Conventional and Innovative, IABSE, Innsbruck, Austria, September, pp. 113-124.
- MEIER, U., 1997<sup>b</sup>, "*Post strengthening by continuous fiber laminates in Europe*", proceedings of the 3<sup>rd</sup> Int. Symp. on Non-Metallic (FRP) Reinforcement for Concrete Structures (FRPRCS-3), Japan Concrete Institute, Sapporo, Japan, October, pp. 41-56.
- MONAGHAN, M. R. & BRINSON, L. C., 1994, "*Analysis of variable stress history on polymeric composite materials with physical aging*", Composite Engineering.

MONTEIRO, L. y GOMES, A., 1996, "*Reforço à flexão de vigas de betão armado-modelos de dimensionamiento e verificação de segurança*", Betão Estructural 1996, 6º Encontro Nacional do Grupo Português de Pré-esforçado, LNEC, Novembro, pp. 2,161-2,174.

MORIN, C. R., 1997, "*The application of composite laminates in strengthening concrete cross ties*", MS thesis, Cambridge, Mass.

MULLER, J., 1980, "*Construction of the Long Key Bridge*", Journal of the Prestressed Concrete Institute, November-December 1980, pp. 97-111.

MULLER, J., 1993, "*Some Recent International Projects with External Prestressing*", Proceedings of the Workshop AFPC External Prestressing in Structures, Saint-Rémy-lès-Chevreuse, June, 1993, pp. 71-83.

NANNI, A., 1993, "*Fiber reinforced plastic (FRP)-reinforcement for concrete structures: properties and applications*", Elsevier Science Publishers B.V., Vol. 42, Amsterdam, Holland, pp. 450.

NANNI, A., 1995, "*Concrete repair with externally bonded FRP reinforcement*", Concrete Int., 17(6), pp. 22-26.

NEUBAUER, U. & ROSTASY, F. S., 1997, "*Design aspects of concrete structures strengthened with externally bonded CFRP plates*", proceedings of Int. Conf. on Structural Faults & Repair 97, vol. 2, Edinburgh, U.K., June, pp. 109-118.

NEWS-RECORD, 1979, "*Epoxy Blamed for Crack in Bridge*", Engineering News-Record, 26 de July, 1979, p.13.

NSAMBU, R. & GOMES, A., 1998, "*Ensaio experimentais de vigas de betão armado reforçadas à flexão com adição de laminado de fibras de carbono*", actas das Jornadas Portuguesas de Engenharia de Estruturas, JPEE 98, LNEC, Lisboa, Novembro, pp. 469-478.

OEHLERS D.J., and MORAN J.P., 1990, "*Premature Failure of Externally Plated Reinforced Concrete Beams*", Journal of Structural Engineering, ASCE, 116(4), pp. 978-995.

OLLER, E., 2002, "*Flexural strengthening of reinforced concrete beams with externally bonded CFRP laminates*", Tesis doctoral en proceso, ETSECCPB, Universidad Politécnica de Cataluña (UPC).

PCI, 1978, "*PCI Design Handbook*", Prestressed Concrete Institute, Chicago, 1978.

- PETERSEN, C. G., & POULSEN, E., 1997, "*In-situ testing of near-to-surface layer of concrete and epoxy-bonded CFRP strips*", proceedings of the US-Canada-Europe Workshop on Bridge Eng., Dubendorf, Zurich, Swiss, April.
- PLEVRIS, N., TRIANTAFILLOU, T. C., & VENEZIANO, D., 1995, "*Reliability of R/C members strengthened with CFRP laminates*", J. Struct. Engrg., ASCE, 121(7), pp. 1037-1044.
- POULSEN, E., 1996, "*Epoxy bonded flat slab structure of precast concrete elements – presentation of the anchorage-problems*" and "*Anchorage of CFRP laminates to concrete – a proposal for a test series supported by international founds*", documents of personal information of Ervin Poulsen, the AE Claboratory, AEC Consulting Engineers Ltd and Sika-Beton A/S, Denmark.
- POULSEN, E., JENSEN, A. P. & OTTOSEN, C., 1997, "*On the anchorage to concrete of Sika Carbodur CFRP strips with particular reference to anchorage devices*", US-Canada-Europe Workshop on Bridge Eng., Dubendorf, Zurich, Swiss, July.
- PRIESTLEY, M. J. N., SEIBLE, F., & FYFE, E., 1992, "*Column seismic retrofit using fibreglass/epoxy jackets*", Proceedings of the 1<sup>st</sup> Int. Conf. on Advanced Composite Materials in Bridges and Structures, ACMBS-I, Sherbrooke, Canada, pp. 287-298.
- RAMÍREZ AGUILERA, G., 1989, "*Behavior of Unbonded Post-tensioning Segmental Beams with Multiple Shear Keys*", Master Thesis, University of Texas at Austin, January.
- RAMOS, G., 1994, "*Estudio del comportamiento en servicio, prerotura y rotura de puentes de hormigón con pretensado exterior*", Tesis doctoral, E.T.S. Ingenieros de Caminos de Barcelona, UPC, Barcelona, España.
- RANISCH, E. H., 1982, "*Zur tragfähigkeit von verklebungen zwischen baustahl und beton-geklebte bewehrung*", Ph.D. thesis, Institut für Baustoffe Massivbau unb Brandschutz der Technischen Universität Braunschweig, iBMB, FET 54.
- RITCHIE, P. A., THOMAS, D. A., LU, LE-WU & CONELLY, G. M., 1991, "*External reinforcement of concrete beams using fiber reinforced plastic*", ACI Structural Journal, Vol. 88, n°. 4, July-August, pp. 490-500.
- ROBERTS, C. L., 1993, "*Measurement Based Revisions for Segmental Bridge Design and Construction Criteria*" Ph. D. Dissertation, The University of Texas at Austin, December, 1993.

ROBERTS, T. M., 1989, “*Approximate analysis of shear and normal stress concentrations in the adhesive layer of plated RC beams*” Struct. Engrg., 67(12), pp. 229-233.

RODRIGUES, C. M. C., 1993, “*Comportamento da ligação aço-resina-betão em elementos estruturais*”, Master of Science, Engenharia de Estruturas, Instituto Superior Técnico (IST), Universidade Técnica de Lisboa, Lisboa, Junho, pp. 209.

ROSTASY F. S., 1998, “*Assesment of suitability of CRP plates from the S&P CRP system for use as adhesive-bonded reinforcement to strengthen concrete constructional elements and bases of assessment for their general approval by the construction supervisory authorities*”, expert opinion no. 98/0322, S&P Reinforcement, TU Braunschweig.

ROSTASY, F. S., 1997<sup>a</sup>, “*Beurteilung der eignug von CFK lamellen des systems Sika Carbodur als Klebewehrung für die verstärkung von betonbauteilen sowie bemessungsgrundlagen für die allgemeine bauaufsichtliche zulassung*”, Gutachen Nr. 97/0250, 14.01.1997, Sika, TU Braunschweig.

ROSTASY, F., HANKERS, C., & RANISH, E., 1992, “*Strengthening of R/C and P/C structures with bonded FRP plates*”, Advanced composite materials in bridges and structures, Canadian Soc. for Civil. Engrg., pp. 253-263.

SAADATMANESH H., and EHSANI M. R., 1991, “*RC Beams Strengthened with GFRP Plates. I: Experimental Study*”, Journal of Structural Engineering, ASCE, 117(11), pp. 3417-3433.

SAADATMANESH, H., & EHSANI, M. R., 1989, “*Application of fiber composites in civil engineering*”, structural materials, ed. J. Orofino.

SAADATMANESH, H., & EHSANI, M. R., 1990, “*Fiber composite plates can strengthen beams*”, Concrete Int., 12(3), pp. 65–71.

SALAVERRIA, J., 2002, “*Utilización de nuevos materiales para la reparación y refuerzo de puentes*”, Tesis doctoral en proceso, trabajo, ETSECCPB, Universidad Politécnica de Cataluña (UPC).

SALAVERRÍA, J., CASAS, J. R., 1998, “*Aramid fibers used for bridge repair and strengthening*”, Symposium on Long-span and high-rise structures, Kobe, Japan, pp. 381-382.

SALAVERRÍA, J., CASAS, J. R., APARICIO, A. C., 1997, “*Experimental Study on the Use of Aramid Composites for Repair and Strengthening of existing bridges*”, Structural Faults and Repair 97, Edinburgh, pp. 215-221.

SALAVERRÍA, J., CASAS, J. R., APARICIO, A. C., 1997<sup>a</sup>, “*Estudio experimental sobre el uso de fibras aramidas para reparación y refuerzo de puentes existentes*”, CONPAT –97, IV Congreso Iberoamericano de Patología das Construções, Porto Alegre, Brasil, pp. 191-198.

SALAVERRÍA, J., CASAS, J. R., RAMOS, G., APARICIO, A. C., 1999, “*Refuerzo a flexión de puentes mediante encolado de bandas flexibles de fibra de carbono. Verificación experimental*”, Jornadas sobre nuevas técnicas de evaluación estructural, rehabilitación y refuerzo de estructuras, Madrid, España, pp. 187-197.

SALAVERRÍA, J., CASAS, J. R., RAMOS, G., APARICIO, A. C., 1999<sup>a</sup>, “*Refuerzo a flexión de puentes mediante pretensado exterior y encolado de bandas rígidas de aramida. Verificación experimental*”, Jornadas sobre nuevas técnicas de evaluación estructural, rehabilitación y refuerzo de estructuras., Madrid, España, pp. 199-208.

SCHERER J., 1998, “*Sistema de refuerzo de estructuras con laminados de fibra de carbono S&P*”, Pliego de cláusulas técnicas, S&P Cleaver Reinforcement Company, Brunnen, Suiza.

SCHERER, J., 1999, “*Fibre reinforced polymer (FRP) systems for externally strengthening concrete structures*”, ACI spring convention, Chicago, USA.

SCHÖNBERG, M. et al., 1939, “*Die Adolf Hitler Brücke in Aue (Saxen)*”, Die Bautechnik 1939, Vol. 8, pp. 97-104.

SEIBLE, F., 1998, “*US perspective of advanced composites bridge technology in Europe and Japan*”, proceedings of the 2nd Int. Conf. on Composites in Infraestructure, ICC’98, pp. 605-636.

SHARIF, A., AL-SULAIMANI, G. J., BASUNBUL, I. A., BALUCH, M. H., & GHALEB, B. N., 1994, “*Strengthening of initially loaded reinforced concrete beams using FRP plates*”, ACI Struct. J., 91(2), pp. 160 –168.

SPENA, F. R. et al., 1995, “*L’uso di materiali composite per il consolidamento delle structure*”, Centro Internazionale di Studi di Archtettura Andrea Palladio, Vicenza, Italia.

TAERWE, L., 1997, "*FRP activities in Europe: survey of research and applications*", proceedings of the 3<sup>rd</sup> Int. Symp. On Non-Metallic (FRP) Reinforcement for Concrete Structures (FRPRCS-3), Japan Concrete Institute, Japan, October, pp. 59-74.

TÄLJSTEN, B., 1994, "*Plate bonding-strengthening of existing concrete structures with epoxy bonded plates of steel or of fiber reinforced plastics*", Ph. D. Thesis, Division of Structural Engineering, Lulea University of Technology, Lulea, Sweden, November.

TÄLJSTEN, B., 1997, "*Defining Anchor Lengths of Steel and CFRP Plates Bonded to Concrete*", Int. Journal of Adhesion and Adhesives, Vol. 17, No. 4, pp. 319-327.

TALY, N., 1998, "*Design of modern highway bridges*", Department of Civil Engineering, California State University, McGraw-Hill, EUA.

THOMPSON, M. K., 1998, "*Measured Behavior of a Balanced Cantilever Erected Curved Segmental Concrete Bridge*", Master Thesis, The University of Texas at Austin, May, 1998.

TRIAANTAFILLOU, T. C. & FARDIS, M. N., 1993, "*Advanced composites for strengthening of historic structures*", proceedings of IABSE Symp. on structural preservation of the architectural heritage, Rome, Italy, pp. 541-548.

TRIAANTAFILLOU, T. C., 1996, "*Innovative strengthening of masonry monuments with composites*", proceedings of the 2<sup>nd</sup> Int. Conf. on Advanced Composite Materials in Bridges and Structures (ACMBS-II), Montreal, Canada, August, pp. 473-480.

TRIAANTAFILLOU, T., & DESKOVIC, N., 1991, "*Innovative prestressing with FRP sheets: Mechanics of short-term behaviour*", Journal of Engineering Mech., 117(7), 1652-1672.

TRIAANTAFILLOU, T., DESKOVIC, N., & DEURING, N., 1992, "*Strengthening of concrete structures with prestressed fiber reinforced plastic sheets*", ACI Struct. J., 89(3), pp. 235-244.

VAN GEMERT, D., 1980, "*Force transfer in epoxy bonded steel-concrete points*", Int. Journal of Adhesion and Adhesives, n<sup>o</sup>. 1, January, pp. 67-72.

VARASTEHPUR, H. & HAMELIN, P., 1995, "*Structural behaviour of reinforced concrete beams strengthened by epoxy bonded FRP plates*", proceedings of the 2<sup>nd</sup> International RILEM Symposium of Non-Metallic (FRP) Reinforcement for Concrete Structures (FRPCS-2), Ghent, Belgium, August, pp. 559-567.



- VARASTEHPUR, H. & HAMELIN, P., 1996, "*Analysis and study of failure mechanism of RC beam strengthened with FRP plate*", proceedings of the 2<sup>nd</sup> Int. Conf. ACMBS/MCAPC, Montreal, Canada, August, pp. 527-536.
- VARASTEHPUR, H. & HAMELIN, P., 1997, "*Strengthening of concrete beams using fiber-reinforced plastics*", Materials and Structures, Scientific Reports, vol. 30, April, pp. 160-166.
- VICHIT-VADAKAN, W., 1997, "*Shear behavior of pre-cracked, reinforced concrete beams retrofitted with glass fiber reinforced plastic sheet*", MS thesis, MIT, Cambridge, Mass.
- VIRLOGEUX, M., 1990, "*External Prestressing: from Construction History to Modern Technique and Technology*", External Prestressing in Bridges, ACI, SP-120, 1990.
- VIRLOGEUX, M., 1993a, "*External Prestressing Historical and Modern Applications*". Proceedings of the Workshop AFPC External Prestressing in Strucutres, Saint-Rémy-lès-Chevreuse, June 1993, pp. 13-35.
- VIRLOGEUX, M., 1993c, "*Some Elements for a Codification of External Prestressing and of Precast Segments*", Proceedings of the Workshop AFPC External Prestressing in Strucutres, Saint-Rémy-lès-Chevreuse, June, 1993, pp. 449-466.
- VIRLOGEUX, M., M'RAD, A., 1993b, "*Flexural Behavior of Externally Prestressed Structures for Ultimate Loads*", Proceedings of the Workshop AFPC External Prestressing in Strucutres, Saint-Rémy-lès-Chevreuse, June, 1993, pp. 185-206.
- VOLKERSON, O., 1983, "*Die nietkraftverteilung in zugbeanspruchten nietverbindungen mit konstanten laschenquerschnitten*", Luftfahrtforschung, 15, PP. 41-47.
- VOLNYI, V.A., & PANTELIDES, C.P., 1999, "*Bond Length of CFRP Composites Attached to Precast Concrete Walls*", Journal of Composites for Construction, ASCE, Vol. 3, No. 4, pp. 168-176.
- WEAVER, A., 1995, "*Carbon plates stop the cracks*", Reinforced plastic, Elsevier Science Publishers, July-August, pp. 34-37.
- XIE, M., & KARBHARI, V.M., 1997, "*Peel Test for Characterization of Polymer Composite/Concrete Interface*", Journal of Composite Materials, Vol. 31, No. 18, pp. 1806.

YOSHIZAWA, H., MYOJO, T., OKOSHI, M., MIZUKOSHI, M., & KLIGER, H. S., 1996, “*Effect of Sheet Bonding Condition on Concrete Members Having Externally Bonded Carbon Fiber Sheet*”, Fourth Materials Engineering Conference, ASCE Annual Convention, Washington D. C.

Z-36.12-29, 1997, “*Verstärkung von stahlbeton-und Spannbetonbauteilen durch schubfest aufgeklebte kohlefaserlamellen-SIKA Carbodur*”, Deutsches Institut für Bautechnik (DIBt), Berlin, November, pp. 28.

Z-36.12-54, 1998, “*Verstärkung von stahlbetonbauteilen durch mit dem baukleber ispo concretin SK 41 schubfest aufgeklebte S&P kohlefaserlamellen*”, Deutsches Institut für Bautechnik (DIBt), Berlin, October, pp. 31.

ZARNIC R., GOSTIC S., BOSILJKOV V. and BOKAN-BOSILJKOV V., 1999, “*Improvement of Bending Load-Bearing Capacity by Externally Bonded Plates*”, Proc. Creating with Concrete, Ed. Dhir R.K. and Henderson N.A., Telford Pub., London, pp. 433-442.

ZIRIBA, & N., BALUCH, M. H., BASUNBAL, I. A., SHARIF, A. M., AND AL-SULAIMANI, G. J., 1994, “*Guidelines toward the design of reinforced concrete beams with external plates*”, ACI Struct. J., 91(6), pp. 639-646.