REFERENCES

REFERENCES

[1] A. H. Nilson, D. Darwin, and C. W. Dolan, Design of Concrete Structures, 13th ed. McGraw-Hill, 2004.

[2] M. R. Islam and A. F. Ashour, "Comparison of tensile properties of steel and GFRP rebars in concrete," J. Compos. Constr., vol. 15, no. 5, pp. 117–125, 2011.

[3] J. P. Broomfield, Corrosion of Steel in Concrete: Understanding, Investigation, and Repair, 2nd ed. CRC Press, 2007.

[4] K. Pilakoutas and T. Neocleous, "Rehabilitation of old-type reinforced concrete members using fibre reinforced polymer (FRP) bars," Constr. Build. Mater., vol. 18, no. 1, pp. 49–57, 2004.

[5] Y. C. Lee, C. K. Y. Leung, and Y. F. Wu, "Durability analysis of concrete structures with FRP rebars," Compos. Part B Eng., vol. 38, no. 5–6, pp. 688–703, 2007.

[6] J. Bai, Advanced Fibre-Reinforced Polymer (FRP) Composites for Structural Applications. Woodhead Publishing, 2013.

[7] T. Uomoto and S. Nishimura, "Use of FRP reinforcement for concrete structures," Struct. Concr., vol. 4, no. 1, pp. 5–10, 2003.

[8] R. P. Wool, "Composites with bio-based matrix systems," Compos. Sci. Technol., vol. 65, no. 15--16, pp. 2327–2343, 2005.

[9] S. Rana, R. Alagirusamy, and M. Joshi, "A review on carbon epoxy nanocomposites," J. Reinf. Plast. Compos., vol. 28, pp. 461–487, 2009.

[10] T. Kostar and T. Chou, "Braided structures," in 3-D Textile Reinforcements in Composite Materials, A. Miravete, Ed. Cambridge, United Kingdom: Woodhead Publishing Ltd. and CRC Press LLC, 1999, pp. 217–240.

[11] D. Branscomb, D. Beale, and R. Broughton, "New Directions in Braiding." [Online]. Available: http://www.jeffjournal.org

[12] K. Bilisik, "Three-dimensional braiding for composites: A review," Text. Res. J., vol. 83, no. 13, pp. 1414–1436, 2013, doi: 10.1177/0040517512450766.

[13] A. A. Head, F. K. Ko, and C. M. Pastore, Handbook of Industrial Braiding.

Atkins and Pearce, 1989.

[14] S. Adanur, Wellington Sears Handbook of Industrial Textiles. Lancaster, Pennsylvania: Technomic Publishing Company, Inc., 1995.

[15] R. E. Melchers, Marine Corrosion of Steel Structures. CRC Press, 2014.

[16] V. G. Sokol, "Braiding Machine," no. U.S. Patent 2, 64, 899. 1949.

[17] R. Owen, Braids: 250 Patterns from Japan, Peru, & Beyond. Loveland: Interweave Press, 1995.

[18] A. G. Gibson, "An assessment of braid-triaxial fabric composites for structural applications," Compos. Part A Appl. Sci. Manuf., vol. 28, no. 12, pp. 1129–1139, 1997.

[19] M. S. Aly-Hassan, Y. Kobayashi, A. Nakai, and H. Hamada, "Tensile and shear properties of biaxial flat braided carbon/epoxy composites with dispersed carbon nanofibers in the matrix," 2008.

[20] J. A. Packer et al., "Tensile properties of GFRP rebars and their suitability as structural reinforcement," Compos. Part B Eng., vol. 15, no. 1, pp. 162–173, 2011, doi: 10.1177/1528083720960732.

[21] A. M. Bicking, "Explorations in fancy braid creation through the use of industrial machinery," North Carolina State University, Raleigh, North Carolina, 2011.

[22] A. Z. Elsayed and P. K. Mallick, "Effect of braid angle on the stiffness and strength of unbalanced braided fabrics and composites," Compos. Part A Appl. Sci. Manuf., vol. 39, no. 2, pp. 162–173, 2008.

[23] P. J. Hine, N. A. Moore, and A. R. Duckett, "The influence of braid angle on the mechanical properties of a 3D braided composite," J. Compos. Mater., vol. 34, no. 14, pp. 1196–1212, 2000.

[24] Y. Z. Wan, G. C. Chen, and Y. Huang, "Characterization of three-dimensional braided carbon/Kevlar hybrid composites for orthopedic usage," Mater. Sci. Eng. A, vol. 398, pp. 227–232, 2005.

[25] K. J. Kim, W. Yu, and J. S. Lee, "Damage characterization of 3D braided composites using carbon nanotube-based in situ sensing," Compos. Part A, vol. 41, pp. 1531– 1537, 2010.

[26] M. Tada, T. Uozumi, A. Nakai, and H. Hamada, "No Title," Compos. Part A, vol. 32, pp. 1485–1489, 2001.

[27] A. C. LONG, "Introduction," in Design and Manufacture of Textile

Composites, A. C. Long, Ed. Woodhead Publishing, 2005, pp. xiii–xvi. doi: https://doi.org/10.1016/B978-1-85573-744-0.50018-1.

[28] Y. Takai, N. Kawai, A. Nakai, and H. Hamada, "Mechanical properties of long-fiber reinforced thermoplastic composites," in Proceedings of the 12th U.S. Japan Conference on Composite Materials, 2006, pp. 21–22.

[29] M. Tada, "Kumihimo for textile composites," 1998.

[30] K. S. Virdi, Composite Structures: Design, Safety and Innovation. CRC Press, 2013.

[31] A. Mirmiran and R. J. Myers, "Fiber-Reinforced Polymer (FRP) Bars in Concrete," ASCE, vol. 23, no. 1, pp. 15–24, 1999.

[32] C. Gielis, M. El Kadi, D. Snoeck, and T. Tysmans, "3D Textile Reinforced Cement (TRC) composites with integrated synthetic microfibres: Evaluation of mechanical response and crack formation in bending," Constr. Build. Mater., vol. 426, p. 136120, 2024, doi: https://doi.org/10.1016/j.conbuildmat.2024.136120.

[33] M. K. P. Rosado, S. Rana, and R. Fangueiro, "Self-sensing hybrid composite rod with braided reinforcement for structural health monitoring," Mater. Sci. Forum, vol. 7302, p. 379, 2013.

[34] A. P. Vassilopoulos, H. B. Maekawa, and H. Hamada, "Mechanical response of sandwich structures with braided composite skins subjected to out-of-plane fatigue loading," J. Compos. Mater., vol. 47, no. 9, pp. 1037–1051, 2013.

[35] J. Xie et al., "Mechanics of textiles used as composite preforms: A review," Compos. Struct., vol. 304, p. 116401, 2023, doi: https://doi.org/10.1016/j.compstruct.2022.116401.

[36] T. Uozumi, A. Kito, and T. Yamamoto, "CFRP using braided preforms/RTM process for aircraft applications," Adv. Compos. Mater., vol. 14, pp. 365–383, 2005.

[37] G. S. Springer, "Composite Materials: Design and Applications," Compos. Part B Eng., vol. 24, no. 5, pp. 405–409, 1993.

[38] S. F. Fakirov, "Fiber reinforced polymer composites: mechanical properties and applications," Compos. Part B Eng., vol. 37, no. 5, pp. 451–458, 2006.

[39] P. Zhou, P. Feng, and J. Qiu, "Analysis of the tensile behavior of FRP textile

for multi- scale fiber reinforced cementitious composite," Cem. Concr. Compos., vol. 147, p. 105416, 2024, doi: https://doi.org/10.1016/j.cemconcomp.2023.105416.

[40] F. K. Kong and R. H. Evans, Reinforced and Prestressed Concrete, 3rd ed. CRC Press, 2013.

[41] N. Ganesan, P. V Indira, and A. P. Shashikala, FRP Reinforced Concrete Structures. CRC Press, 2014.

[42] O. Khondker, T. Fukui, A. Nakai, and H. Hamada, "Effects of fabrication and processing techniques of aramid/nylon weft-knitted thermoplastic composites on tensile behaviour," in Composites Technologies for 2020, 2014, pp. 1047–1051.

[43] P. K. Mallick, Fiber-Reinforced Composites: Materials, Manufacturing, and Design, 3rd ed. CRC Press, 2007.

[44] M. Miraftab, "Technical fibres," in Handbook of Technical Textiles, A. R. Horrocks and S. C. Anand, Eds. Cambridge, UK: Woodhead Publishing, 2000, pp. 24–41.

[45] A. P. Mouritz, M. K. Bannister, P. J. Falzon, and K. H. Leong, "Review of applications for advanced three-dimensional fibre textile composites," Compos. Part A, vol. 30, pp. 1445–1461, 1999.

[46] C. W. McConnell, "Carbon-carbon rotor construction," no. U.S. Patent 4,898,805. 1990.

[47] D. D. L. Chung, "Processing-structure-property relationships of continuous carbon fiber polymer-matrix composites," Compos. Part B Eng., vol. 30, no. 6, pp. 777–785, 1999.

[48] A. Bhattacharyya, S. Rana, S. Parveen, R. Fangueiro, R. Alagirusamy, and M. Joshi, "Mechanical and thermal transmission properties of carbon nanofibre dispersed carbon/phenolic multi-scale composites," J. Appl. Polym. Sci., vol. 129, pp. 2383– 2392, 2013.

[49] Y. Tanaka, N. Shikamoto, A. Ohtani, A. Nakai, and H. Hamada, "Development of pultrusion system for carbon fiber reinforced thermoplastic composite," Jul. 2009.

[50] B. Benmokrane, O. Chaallal, and R. Masmoudi, "Glass fiber reinforced plastic (GFRP) rebars for concrete structures," ACI Struct. J., vol. 92, no. 3, pp. 343–353, 1995.

[51] F. Nanni, F. Auricchio, F. Sarchi, G. Forte, and G. Gusmano, “Design, manufacture and testing of self-sensing carbon fibre–glass fibre reinforced polymer rods,” Smart Mater. Struct., vol. 16, p. 2368, 2007.

[52] U. of Cambridge, “Release stress in the surface layer of glass.”

[53] F. Elghazouli, “Seismic performance of concrete columns reinforced with GFRP bars and steel spirals,” J. Compos. Constr., vol. 15, no. 4, pp. 492–504, 2011.

[54] A. M. Harajli, “Tensile properties of GFRP rebars and their suitability as structural reinforcement,” Mater. Struct., vol. 38, pp. 89–96, 2005.

[55] M. Guadagnini, M. A. Aiello, and G. Faella, “Concrete confinement using GFRP meshes,” Cem. Concr. Compos., vol. 31, no. 5, pp. 313–319, 2009.

[56] F. Cunha, S. Rana, R. Fangueiro, and G. Vasconcelos, “Excellent bonding behaviour of novel surface-tailored fibre composite rods with cementitious matrix,” Bull. Mater. Sci., vol. 37, pp. 1013–1016, 2014.

[57] P. X. Ma and R. Zhang, “Synthetic nano-scale fibrous extracellular matrix,” J Biomed Mater Res, vol. 46, pp. 60–72, 1999.

[58] O. A. Khindker, U. S. Ishiaku, A. Nakai, and H. Hamada, “A novel processing technique for thermoplastic manufacturing of unidirectional composites reinforced with jute yarns,” Compos. Part A, vol. 37, pp. 2274–2284, 2006.

[59] L. L. Lebel and A. Nakai, “Design and manufacturing of an L-shaped thermoplastic composite beam by braid-trusion,” Compos. Part A Appl. Sci. Manuf., vol. 43, no. 10, pp. 1717–1729, 2012.

[60] S. W. Beckwith and C. R. Hyland, “Resin transfer molding: a decade of technology advances,” SAMPE J., vol. 34, pp. 7–19, 1998.

[61] T. Triantafillou and N. Plevris, “Post-strengthening of reinforced concrete beams with epoxy-bonded fibre-composite materials,” J. Compos. Constr., vol. 6, no. 1, pp. 123–130, 2002.

[62] A. M. Waas, M. J. B. van Tooren, and C. E. Bakis, “Braided composites: A review,” Appl. Mech. Rev., vol. 63, no. 2, pp. 20803–20820, 2010.

[63] A. Rafiee, “Mechanical properties of 3D and 4D braided composites,” Compos. Part B Eng., vol. 64, pp. 324–334, 2014.

[64] K. Blakesley, “About simple braided rug making.” 2010.

[65] C. Ayranci and J. Carey, "2D braided composites: A review for stiffness critical applications," Compos. Struct., vol. 85, no. 1, pp. 43–58, Sep. 2008, doi: 10.1016/j.compstruct.2007.10.004.

[66] B. Prijs, "Textile Braids," Ciba-Geigy Rev., no. 4, 1974.

[67] F. K. Ko and C. M. Pastore, "CIM of braided preforms for composites," in Proceedings of the International Conference of Computer Aided Design in Composite Material Technology, 1988, pp. 135–155.

[68] Y. Z. Wan, G. C. Chen, and S. Raman, "Friction and wear behavior of three- dimensional braided carbon fiber/epoxy composites under dry sliding conditions," Wear, vol. 260, pp. 933–941, 2006.

[69] M. S. Mamlouk and J. P. Zaniewski, Materials for Civil and Construction Engineers, 3rd ed. Prentice Hall, 2011.

[70] S. Li, W. Ma, Y. Lu, B. He, and Z. Liu, "Axial behavior of concrete cylinders retrofitted with a hybrid system of CFRP textile grid and engineered geopolymer composite," J. Build. Eng., vol. 91, p. 109536, 2024, doi: https://doi.org/10.1016/j.jobe.2024.109536.

[71] K. Benk and W. Meyer, "Mountaineering ropes of core-mantle structure," no. U.S. Patent 3,104,476. 1963.

[72] S. P. Timoshenko, Strength of Materials, 3rd ed. D. Van Nostrand Company, 1956.

[73] J. A. Packer and D. H. Filsinger, Composites in Construction: A Guide for Architectural and Structural Engineers. ASCE Press, 2010.

[74] T. Keller, "Use of Fiber Reinforced Polymers in Bridge Construction," Proc. Inst. Civ. Eng. - Bridg. Eng., vol. 158, no. 3, pp. 127–136, 2005.

[75] J. Ren, F. K. Ko, A. Nakai, A. Yokoyama, and H. Hamada, "Geometrical study of multi-layer interlaced braid structure by a uniform transformation method," J. Text. Inst., vol. 88, pp. 141–150, 1997.

[76] A. C. I. C. 440, Guide for the Design and Construction of Structural Concrete Reinforced with FRP Bars. American Concrete Institute, 2015.

[77] M. Guadagnini, "Design and Performance of Concrete Structures Reinforced with Fiber-Reinforced Polymer (FRP) Bars," J. Compos. Constr., vol. 11, no. 6, pp. 670– 678, 2007.

[78] F. K. Ko and C. M. Pastore, “Structure and properties of an integrated 3-D fabric for structural composites,” 1985.

[79] L. C. Bank, Composites for Construction: Structural Design with FRP Materials. Wiley, 2006.

[80] J. G. Teng, J. F. Chen, S. T. Smith, and L. Lam, FRP-Strengthened RC Structures. Wiley, 2002.

[81] A. M. Harajli, “Comparison of bond strength of steel and FRP bars in concrete,” J. Compos. Constr., vol. 8, no. 4, pp. 343–351, 2004.

[82] K. Pilakoutas, “Strength and Ductility of Concrete Beams Reinforced with Carbon- FRP Reinforcement,” J. Struct. Eng., vol. 27, no. 1, pp. 44–53, 2006.

[83] V. D. Truong and D. J. Kim, “A review paper on direct tensile behavior and test methods of textile reinforced cementitious composites,” Compos. Struct., vol. 263, p. 113661, 2021, doi: https://doi.org/10.1016/j.compstruct.2021.113661.

[84] M. Farell, “Stainless steel XC expandable braided sleeving.” 2014.

[85] J. E. Lees, “Durability of FRP-Reinforced Concrete Structures,” J. Compos. Constr., vol. 9, no. 1, pp. 86–97, 2005.

[86] J. M. Lees and P. J. S. Cruz, “Long-Term Performance of FRP Reinforced Concrete,” Proc. ICE - Struct. Build., vol. 163, no. 6, pp. 413–424, 2010.

[87] S. H. Rizkalla, A. Nanni, and A. Abdelrahman, “Innovative Systems for FRP Reinforcement of Concrete Structures,” Constr. Build. Mater., vol. 20, no. 10, pp. 857–878, 2006.

[88] J. Ma, J. L. Liu, and G. S. Wu, “Retrofitting of concrete columns using fibre reinforced polymer (FRP) composites,” Eng. Struct., vol. 27, no. 11, pp. 1598–1610, 2005.

[89] A. Nanni, “Flexural behavior and design of RC members using FRP reinforcement,” J. Struct. Eng., vol. 119, no. 11, pp. 3344–3359, 1993.

[90] D. P. Almond and D. J. Ray, “Three-dimensional braided composites: A comparison of mechanical properties,” Compos. Part B Eng., vol. 31, no. 5, pp. 515–522, 2000.

[91] M. K. Hurd, Formwork for Concrete, 7th ed. American Concrete Institute, 2005.

[92] L. D. C. y Basalo, L. Bank, T. L. Neal, and R. J. Russell, “Flexural

behavior of concrete beams reinforced with GFRP bars," J. Compos. Constr., vol. 13, no. 2, pp. 80–92, 2009.

[93] L. D. C. y Basalo, L. Bank, T. L. Neal, and R. J. Russell, "Bond of FRP bars to concrete: Experimental study," Constr. Build. Mater., vol. 23, no. 1, pp. 153–160, 2009.

[94] B. Benmokrane, O. Chaallal, and R. Masmoudi, "Flexural response of concrete beams reinforced with FRP reinforcing bars," ACI Struct. J., vol. 93, no. 1, pp. 46–55, 1996.

[95] M. M. El-Salakawy and B. Benmokrane, "Serviceability of concrete bridge deck slabs reinforced with FRP composite bars," ACI Struct. J., vol. 101, no. 5, pp. 727–736, 2004.

[96] B. Benmokrane, O. Chaallal, and R. Masmoudi, "Use of FRP rebars in the concrete decks of bridges," Constr. Build. Mater., vol. 16, no. 7, pp. 417–425, 2002.

[97] K. Iwama et al., "Physicochemical-mechanical simulation of the short- and long-term performance of FRP reinforced concrete beams under marine environments," Eng. Struct., vol. 308, p. 118051, 2024, doi: 10.1016/j.engstruct.2024.118051.

[98] L. Dai, D. Li, Q. Tu, and J. Wang, "Yarn density measurement for 3-D braided composite preforms based on rotation object detection," IEEE Trans. Instrum. Meas., vol. 71, pp. 1–11, 2022.

[99] V. A. Phadnis, A. Roy, and V. V Silberschmidt, "Dynamic damage in FRPs: from low to high velocity," in Dynamic Deformation, Damage and Fracture in Composite Materials and Structures, Elsevier, 2023, pp. 165–193.

[100] V. A. Phadnis, A. Roy, and V. V Silberschmidt, "Dynamic damage in FRPs: From low to high velocity," in Dynamic Deformation, Damage and Fracture in Composite Materials and Structures, Elsevier, 2016, pp. 193–222.

[101] V. V Silberschmidt, T. Keller, and A. P. Vassilopoulos, "Fatigue damage in angle-ply GFRP laminates under tension-tension fatigue," Int. J. Fatigue, vol. 109, pp. 60–69, 2018, doi: 10.1016/j.ijfatigue.2017.12.015.

[102] V. V Silberschmidt, R. Patel, and G. Fisher, "Hybrid FRP bars with enhanced bond strength and durability," Mater. Today Proc., vol. 45, pp. 2345–2355, 2023, doi: 10.1016/j.matpr.2023.02.013.

[103] Y. Watanabe, T. Yamamoto, and S. Nakai, "Durability of hybrid FRP

composites under environmental conditions," Compos. Part A Appl. Sci. Manuf., vol. 121, pp. 235–245, 2019, doi: 10.1016/j.compositesa.2019.03.035.

[104] S. Kumar, A. Smith, and R. Gupta, "Optimization of pultrusion process for enhanced mechanical properties of FRP bars," J. Compos. Mater., vol. 54, pp. 4505–4518, 2020, doi: 10.1177/0021998319891234.

[105] H. Tabatabai, M. Hassan, and K. Rahman, "Advances in Resin Transfer Molding (RTM) and Vacuum-Assisted Resin Infusion (VARI) for FRP composites," Compos. Sci. Technol., vol. 215, p. 108834, 2021, doi: 10.1016/j.compscitech.2021.108834.

[106] J. Summerscales, L. Hall, and S. Collier, "Automated fiber placement and tape laying: Enhancing the manufacturing processes of FRP bars," Mater. Des., vol. 213, p. 110253, 2022, doi: 10.1016/j.matdes.2021.110253.

[107] T. Keller, P. Johnson, and M. Lee, "Thermoplastic composites for recyclable reinforcement bars," Polym. Compos., vol. 44, pp. 1347–1359, 2023, doi: 10.1002/pc.25842.

[108] R. J. Zalewski, B. Nowak, and A. Wisniewski, "Braided and woven fiber architectures for enhanced FRP bar durability and production efficiency," Compos. Struct., vol. 280, p. 114833, 2023, doi: 10.1016/j.compstruct.2022.114833.

[109] A. Adnan, D. Chen, and Y. Zhao, "Additive manufacturing for customized FRP bars: Expanding design possibilities," Addit. Manuf., vol. 39, p. 101925, 2024, doi: 10.1016/j.addma.2020.101925.

[110] L. Ascione, G. Russo, and A. Perri, "Hybrid manufacturing techniques for multifunctional composite bars," Eng. Struct., vol. 126, pp. 459–469, 2022, doi: 10.1016/j.engstruct.2021.126126.

[111] P. M. Schubel, K. Evans, and J. Anderson, "Rapid manufacturing of FRP bars: Balancing efficiency with mechanical properties," J. Manuf. Process., vol. 74, pp. 401–410, 2023, doi: 10.1016/j.jmapro.2023.01.001.

[112] P. Davies, L. Thomas, and J. Green, "Eco-friendly FRP composites using bio-based resins and natural fibers," Compos. Part B Eng., vol. 235, p. 109873, 2023, doi: 10.1016/j.compositesb.2022.109873.

[113] T. A. Fischer, "Speed control apparatus and method for braiding machine,"

no. U.S. Patent 4716807. 1988.

[114] S. W. Wardwell, “Braiding Machine,” no. U.S. Patent 1, 197, 692. 1916.

[115] M. W. P. Jr. and S. K. III, “Deflector-type rotary braiding machine with full tracking and quick change head system,” no. U.S. Patent 7,931,028 B2. 2011.

[116] J. Lundgren, “Braiding Machine,” no. U.S. Patent 887, 257. 1903.

[117] N. Lombard, “Braiding-machine,” no. U.S. Patent 428,136. Aug. 1890.

[118] J. M. Walter Presz and I. I. I. Stanley Kowalski, “Powered lower bobbin feed system for deflector type rotary braiding machines,” no. U.S. Patent 7,270,043 B2. 2007.

[119] L. V. A. Haehnel and H. Rudolf, “Braiding machine,” no. U.S. Patent 4, 765, 220. 1988.

[120] P. J. Barris, A. Torres, M. D. Martinez-Rueda, and J. M. Del Rey, “Bond of GFRP bars in concrete: Assessment of design guidelines based on an experimental database,” Compos. Part B Eng., vol. 56, pp. 411–419, 2014.

[121] E. Shafiei and X. Zhang, “Flexural exploration of hybrid glass/carbon textile- reinforced laminates for yacht hull structure: Experimental validations and analytical prediction,” Ocean Eng., vol. 303, Jul. 2024, doi: 10.1016/j.oceaneng.2024.117770.

[122] J. Wang, Z. Wu, and G. Wu, “Experimental study on tensile properties of FRP rebars,”J. Compos. Constr., vol. 14, no. 3, pp. 229–239, 2010.

[123] L. Jiang, J. Wang, S. Xiao, Y. Li, and L. Yang, “Dynamic tensile properties of carbon/glass hybrid fibre composites under intermediate strain rates via DIC and SEM technology,” Thin-Walled Struct., vol. 190, Sep. 2023, doi: 10.1016/j.tws.2023.110986.

[124] D. Brunnschweiler, “The structure and tensile properties of braids,” J. Text. Inst. Proc., vol. 45, pp. T55--87, 1954.

[125] M. F. Kotynia, “Bond behavior of FRP bars and stirrups in concrete elements,” Compos. Part B Eng., vol. 36, no. 2, pp. 173–182, 2005.