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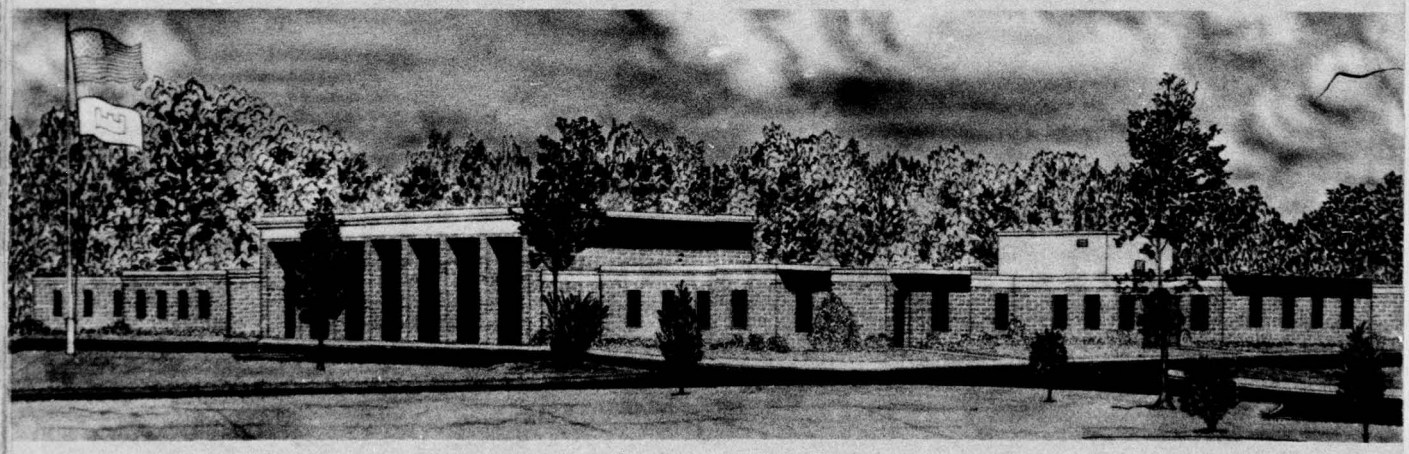
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A listing of 660 references with author index is given for fiber reinforced cement and gypsum matrices, mortars, and concretes. Fiber types include steel, glass, plastic, asbestos, organic, carbon, and others.

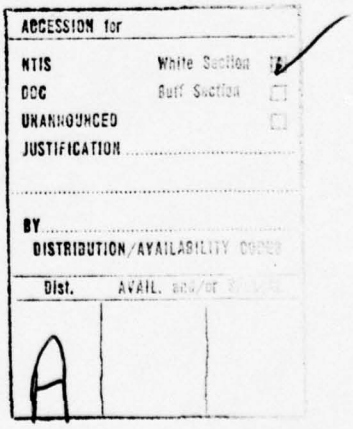
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PREFACE

This bibliography was prepared as a part of a study on the "Identification of Candidate Zero Maintenance Paving Materials" being conducted at the Concrete Laboratory, U. S. Army Engineer Waterways Experiment Station (WES), Vicksburg, Mississippi, for the Federal Highway Administration, Washington, D. C.

Funds for the publication of this bibliography were provided from those made available for operation of the Concrete Technology Information Analysis Center (CTIAC). This is CTIAC Report No. 21. The report was prepared by Mr. G. C. Hoff, Chief, Materials Properties Branch of the Concrete Laboratory, WES, under the general supervision of Messrs. Bryant Mather, Chief, Concrete Laboratory, and J. M. Scanlon, Chief, Engineering Mechanics Division. The majority of the references were gathered and documented by Ms. C. M. Fontenot and Mr. J. G. Tom.

Directors of WES during the preparation and publication of this bibliography were COL G. H. Hilt, CE, and COL J. L. Cannon, CE. Technical Director was Mr. F. R. Brown.

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SELECTED BIBLIOGRAPHY ON FIBER-REINFORCED CEMENT AND CONCRETE

INTRODUCTION

The concept of improving the strength of materials weak in tension by the addition of a reinforcing element has been known to man for thousands of years. Clay pots strengthened by asbestos fibers have been found dating back 4500 years. It is only within the last two decades, however, that very many serious attempts have been made to develop and apply a composite materials approach to building materials. Patents on the use of reinforcing elements in cement matrices exist as early as 1874[57] (by Berard and Chappellett). Porter,[450] in 1910, envisaged a structural concrete reinforced by the inclusion of short pieces of steel. Since those times, much has been written and said about the reinforcing of cements, mortars, and concretes using a variety of different types, sizes, and configurations of fibers. Considered for use have been asbestos, glass, carbon, steel, plastics, naturally occurring organic, and other fibers.

The following bibliography is a listing of 660 references pertaining solely to fiber reinforcement of cement and gypsum matrices, mortars, and concretes. The references were compiled from publications available directly to the authors and from bibliographies existing in other published works on the subject. Attempts were made to provide as much information as possible for each reference although in some instances, where the reference was obtained from another author's bibliography, the information needed to make the reference 100 percent complete could not be obtained. In general, papers solely on the theory of fiber reinforcement and composite materials that did not explicitly include fiber reinforcement of cements and concretes were not listed. The authors appreciate the fact that other references on the subject may have been omitted but offer these as a starting point for a future complete bibliography.

BIBLIOGRAPHY

1. "A Status Report on Fiber Reinforced Concretes," Concrete Construction, Vol 21, No. 1, Jan 1976, pp 13-16.

2. Abbud-Klink, S. A., Fycrete, A New Material for Structures, Ph. D. Dissertation, Rensselaer Polytechnic Institute, Troy, N. Y., Nov 1967.

3. Abolinjsh, D. S., Kravinskis, V. K., and Lagutino, G. E., "Melkozernistij beton, armirovanij oberzkami provoloki (General Properties of Fibre Reinforced Fine Aggregate Concrete)," Beton i Zhelezobeton, Vol 5, 1975, pp 8-11.

4. Abolitz, A. L., Agbim, C. C., Untrauer, R. E., and Works, R. E., Discussion on "Tensile Strength of Concrete Affected by Uniformly Distributed and Closely Spaced Short Lengths of Wire Reinforcement," by J. P. Romualdi and J. A. Mandel, Proceedings, American Concrete Institute, Journal, Vol 61, No. 12, Dec 1964, pp 1651-1656.

5. ACI Committee 544, "State-of-the-Art Report on Fiber Reinforced Concrete," Proceedings, American Concrete Institute, Journal, Vol 70, No. 11, Nov 1973, pp 729-744.

6. A. C. I. Technical Centre Pty., Ltd., "Improvements Relating to the Reinforcement of Concrete or Cement by Means of Glass Fibers," United Kingdom Patent No. 1,386,495, 5 Mar 1975.

7. "Add Fiber Wires to the Mix for Better Warehouse Floors," Materials Handling News (England), Oct 1973, pp 1-4.

8. Addington-Smith, R. B., "Glass-Fibre-Reinforced Concrete; Applications," Proceedings, Symposium on Advances in Concrete, Concrete Society (London), West Midlands Region, University of Birmingham, 28-29 Sep 1971.

9. Aflecht, K. J., "Polypropylene Fibers in Concrete," (Oy Shell Ab, Helsinki, Finland), Kem. Teollisuus, 1969, Vol 26. No. 5, pp 391-396 (Finnish) (Chemical Abstracts, Vol 71, N. 24, 11617h, 1969).

10. Agbim, C. C., "Concrete Reinforced with Glass Fibers," Magazine of Concrete Research (London), Vol 16, No. 49, Dec 1964, pp 195-202.

11. Aksoy, I. C., The Effect of Chopped Wire on Rotation Capacity of Reinforced Concrete Plastic Hinges, M.S. Thesis, Iowa State University, Ames, Iowa, 1964.

12. Alfsen, H., "Procede pour Couler le Beton ou le Beton Renforce," French Patent 485,601, 24 Jan 1918.

13. Ali, M. A. and Grimer, F. J., "Mechanical Properties of Glass Fiber-Reinforced Gypsum," Journal of Materials Science, Vol 4, No. 5, May 1969, pp 389-395.

14. Ali, M. A., Majumdar, A. J., and Rayment, D. L., "Carbon Fibre Reinforcement of Cement," Cement and Concrete Research, Vol 2, No. 2, 1972, pp 201-212; also Proceedings, Conference on the Properties of Fiber Composites, Teddington, England, 1972, pp 27-28.

15. Ali, M. A., Majumdar, A. J., and Singh, B., "Properties of Glass Fibre Cement, the Effect of Fibre Length and Content," Journal of Materials Science, Vol 10, No. 10, Oct 1975, pp 1732-1740; also BRE Report PD 93/74, Building Research Establishment, Garston, United Kingdom.

16. Allen, H. G., "The Fabrication and Properties of Glass Reinforced Cement," Composites, Vol 1, No. 1, Sep 1969, pp 19-24.

17. _____, "Fibre-Reinforced Cement-Results of Experiments," Technical Note 70, Sep 1975, Construction Industry Research and Information Association, London.

18. _____, "Glass-Fibre Reinforced Cement-Strength and Stiffness," Report 55, Sep 1975, Construction Industry Research and Information Association, London.

19. _____, "Purpose and Methods of Fibre Reinforcement," Prospects for Fibre Reinforced Construction Materials, International Building Exhibition, London, Nov 1971, pp 3-14.

20. _____, "Stiffness and Strength of Two Glass Fiber Reinforced Cement Laminates," Journal of Composite Materials, Vol 5, Apr 1971, pp 194-207.

21. _____, *Tensile Properties of Seven Asbestos-Cements*," Composites, Vol 2, No. 2, Sep 1971, pp 98-103.

22. _____, "The Strength of Thin Composites of Finite Width with Brittle Matrices and Random Discontinuous Reinforcing Fibres," Journal of Physics, D: Applied Physics, Vol 5, 1972, pp 331-343.

23. Allen, H. G. and Channer, R. S., "Some Mechanical Properties of Polymer Modified Portland Cement Sheets with and Without Glass-Fibre Reinforcement," First International Congress on Polymer Concretes, The Concrete Society (London), Session F, Paper 6, May 1975.

24. Argon, A. S. and Shack, W. J., "Theories of Fibre Cement and Fibre Concrete," Proceedings RILEM Symposium, Fibre Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 39-53.

25. Arnold, C. J., "Steel Fiber-Reinforced Concrete Overlay," Research Report No. 878, Aug 1973, Michigan Department of State Highways, Lansing, Mich.

26. Arnold, C. J. and Brown, M. G., "Experimental Steel-Fiber-Reinforced Concrete Overlay," Research Report No. R-852, Apr 1973, Michigan State Highway Commission, Lansing, Mich.

27. Ashok, K., "Tensile Strength in Concrete by Adding Wire to Plain Concrete," Vishwakarma, Vol 12, Apr 1972, pp 3-7.

28. Aufmuth, R. E., Naus, D. J., and Williamson, G. R., "Effects of Aggressive Environments on Steel Fiber Reinforced Concrete," Letter Report M-113, 1974, Construction Engineering Research Laboratory, Champaign, Ill.

29. Austerberry, R., The Use of Fibres as Reinforcement in Concrete, M.S. Thesis, University of Salford, 1973.

30. Aveston, J., "Strength and Toughness in Fibre Reinforced Ceramics," Proceedings, Conference on the Properties of Fibre Composites, National Physical Laboratory, Paper No. 5, Nov 1971, Guilford, IPC Science and Technology Press, London, 1972.

31. Aveston, J. and Kelly, A., "Theory of Multiple Fracture of Fibrous Composites," Journal of Materials Science, Vol 3, No. 8, 1973, p 352.

32. Aveston, J., Cooper, G. A., and Kelly, A., "Single and Multiple Fracture," Proceedings, Conference on the Properties of Fibre Composites, National Physical Laboratory, 4 Nov 1971, Guilford, IPC Science and Technology Press, London, 1972, pp 15-16.

33. Aveston, J., Mercer, R. A., and Sillwood, J. M., "Fibre Reinforced Cements-Scientific Foundations for Specifications," Proceedings, Conference on Composites--Standards, Testing, and Design, Natl. Physical Laboratory, IPC Science and Technology Press, Ltd., London, April 1974, pp 93-103.

34. Bailey, J. E., Barker, H. A., and Urbanowicz, C., "Alumina Filament Reinforced Cement Paste," Transactions, British Ceramics Society, Vol 71, No. 7, 1972, pp 203-210.

35. Bailey, J. H., Bentley, S., Mayfield, B., and Pell, P. S., "Impact Testing of Fibre-Reinforced Concrete Stair Treads," Magazine of Concrete Research, Vol 27, No. 92, Sep 1975, pp 167-170.

36. Bailey, L. E., Fatigue Strength of Steel Fiber Reinforced Concrete, M.S. Thesis, Clarkson College of Technology, Potsdam, N. Y., Oct 1966.

37. Bajan, R. L., Strength of Steel Fiber Reinforced Concrete, M.S. Thesis, Clarkson College of Technology, Potsdam, N. Y., 1967.

38. Ball, C. G., The Fatigue Behavior of Steel Fiber Reinforced Concrete, M.S. Thesis, Clarkson College of Technology, Potsdam, N. Y., 1967.

39. Balzano, M., "Increased Strength in Cement Concrete Reinforced with Various Fibres with Particular Reference to Use in Road Construction: First Experimental Results," Le Strade (Italy), Vol 46, No. 2, Feb 1967, pp 137-147.

40. "Banbury Buildings Bancem," Precast Concrete, Vol 6, No. 12, Dec 1975, p 665.

41. Barab, S. and Hanson, D., "Investigation of Fiber Reinforced Breakwater Armor Units," Fiber Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 415-434.

42. Barnards, Ltd., "Improvements in or Relating to Reinforcement of Concrete," United Kingdom Patent No. 1,352,203, 8 May 1974.

43. Barratt, W. C., "Process for Producing Fibrous Cement Sheets," U. S. Patent No. 3,892,623, 1 July 1975.

44. Bartos, P., "Glass Reinforced Cement," CIRIA Report, 1970.

45. Basson, M., "New Prospects for Application of Fiber Reinforced Concretes: The Fiber-Armoured Concrete," Proceedings, Eighth International Congress of the Precast Concrete Industry, BIBM (Stressa, May 12-19, 1975), Cement and Concrete Assoc., London, 1975.

46. "Batching and Mixing Fibrous Concrete," Modern Concrete, Vol 37, No. 10, Feb 1974, pp 50-53.

47. Batson, G. B., "Inflation Forming of Steel Fiber-Reinforced Concrete Domes," Interim Report M-115, Dec 1974, U. S. Army Construction Engineering Research Laboratory, Champaign, Ill.

48. _____, "Introduction to Fibrous Concrete," Proceedings, Conference M-28, Fibrous Concrete-Construction Material for the Seventies, Construction Engineering Research Laboratory, Champaign, Ill, Dec 1972, pp 1-25.

49. _____, Mechanics of Crack Arrest in Concrete with Closely Spaced Wire Reinforcement, Ph. D. Dissertation, Carnegie Institute of Technology, Pittsburgh, Pa., 1962.

50. Batson, G., Ball, C., Bailey, L., Landers, E., and Hooks, J., "Flexural Fatigue Strength of Steel Fiber Reinforced Concrete Beams," Proceedings, American Concrete Institute, Journal, Vol 69, No. 11, Nov 1972, pp 673-677.

51. Batson, G., Jenkins, E., and Spatney, R., "Steel Fibers as Shear Reinforcement in Beams," Proceedings, American Concrete Institute, Journal, Vol 69, No. 10, Oct 1972, pp 640-644.

52. Batson, G. B., Naus, D. J., and Williamson, G. R., "Inflation Forming of Steel Fibre Reinforced Concrete Domes," Proceedings, RILEM Symposium, Fibre Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 375-382.

53. Batson, G. B., and Obszarski, J. M., "Strength of Steel Fiber Reinforced Concrete Exposed to a Salt Water Environment" Proceedings, International Corrosion Forum Devoted Exclusively to the Protection and Performance of Materials, National Association of Corrosion Engineers, Houston, Tex., Mar 1976.

54. Beckett, R. E., "Developments in Steel Fiber Concrete," Civil Engineering, Vol 45, No. 8, Aug 1975, p 83.

55. Beckett, R. E., "Fibrous Concrete Bridge Decks," Civil Engineering (London), Vol 69, No. 814, May 1974, pp 32-35.

56. _____, "Handling and Placing of Fibrous Concretes," Fiber Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 337-350.

57. Berard, A. and Chappellett, F., "Artificial Stone," U. S. Patent 157,903, 15 Dec 1874.

58. Berg, O. Ia. and Nagevich, In. M., "Some Features of Destruction Process in Glass-Plastic Reinforcement," Beton i Zhelezobeton, No. 9, 1965, pp 34-36.

59. Bhargava, J. K., "Radiographic Studies of the Structure of Polymer-Impregnated Concrete," Polymers in Concrete, American Concrete Institute, Detroit, SP-40, 1973, pp 205-221.

60. Birkimer, D. L., "Critical Normal Fracture Strain of Plain and Steel Wire Fibrous-Reinforced Concrete," Technical Report M-1 (AD695719), Abstract, Oct 1969, U. S. Army Construction Engineering Research Laboratory, Champaign, Ill.

61. _____, Fibrous Concrete Under Dynamic Tension, M.S. Thesis, University of Cincinnati, Cincinnati, Ohio, 1965.

62. Birkimer, D. L., and Hossley, J. R., "Comparison of Static and Dynamic Behavior of Plain and Fibrous-Reinforced Concrete Cylinders," Technical Report No. 4-69, Dec 1969, U. S. Army Corps of Engineers, Ohio River Division Laboratory, Cincinnati, Ohio.

63. Birkimer, D. L., and Lindemann, R., "Dynamic Tensile Strength of Concrete Materials," Proceedings, American Concrete Institute, Journal, Vol 68, No. 1, Jan 1971, pp 47-49.

64. Biryukovich, K. L., "The Reinforcement of Concrete with Glass Fibers," Stroitel Materialy, Vol 3, No. 12, 1957, pp 16-17 (Chem Abs., Vol 52, No. 9, 10 May 1958).

65. Biryukovich, K. L. and Biryukovich, Yu. L., "Concrete with Glass-Fibre Reinforcement," Stroitelnaya Promyshlennost, No. 6, 1957, pp 23-27, translation available from SLA, No. 60-17150.

66. Biryukovich, K. L., Biryukovich, Yu. L., and Biryukovich, D. L., "Glass Fiber Reinforced Cement," Kiev, Budivel'nik; translated by G. L. Cairns as CERA Translation, No. 12, 1965, Civil Engineering Research Association, London.

67. Bletzacker, T. W., "Standard ASTM Fire Endu ance and Hose Stream Test on a Load Bearing Wall Assembly," May 1971, Engineering Experiment Station, Ohio State University.

68. "BlocBond-Performance and Description," Publication 1-SB-62344, Owens-Corning Fiberglas Corp., Toledo, Ohio.

69. Blood, G. W., Properties of Fiber Reinforced Concrete, M.S. Thesis, University of Calgary, Alberta, Canada, 1970.

70. Bolyachevets, V., Bobik, I., Nikonets, I., Duleba, M., and Sternyuk, I., "The Use of Glass Fibers in Asbestos Cement Products," Budiv. Mater. Konstr., Vol 8, No. 2, 1975.

71. Borovskii, N. V. and Nogin, S. I., "Investigation of Crack Formation in Ferro-Cement," Beton i Zhelezobeton, No. 9, 1961, pp 398-401.

72. Brennan, P. J. and Nemerow, N. L., "Studies of Asbestos-Cement Pipe and Plate: Selected Chemical and Mechanical Tests," Materials Research and Standards, Vol 3, No. 3, Mar 1963, p 217.

73. Briggs, A., Bowen, D. H., and Kollek, J. J., "Mechanical Properties and Durability of Carbon-Fibre-Reinforced Cement Composites," Proceedings, International Conference on Carbon Fibres--Their Place in Modern Technology, II International Carbon Fibre Conference, The Plastics Institute, London, Paper No. 17, Feb 1974.

74. Brockenbrough, T. W. and Davis, C. F., "Progress Report No. 1 on Fiber Reinforced Concrete," Jan 1970, Delaware State Highway Department and University of Delaware, Newark, Del.

75. Brockenbrough, T. W. and Iyengar, N., "Continuous Reinforced Concrete Beams Containing Chopped Fibers," Proj. No. 101, Sep 1971, University of Delaware, Newark, Del.

76. Broms, B. B. and Shah, S. P., "Discussion of 'Mechanics of Crack Arrest in Concrete,' by J. P. Romuald and G. B. Batson," Proceedings, American Society of Civil Engineers, Vol 90, Part 1, Feb 1964, pp 167-171.

77. Broniewski, T., Jamrozy, Z., and Kapko, J., "Long Life Strength Polymer Concrete," First International Congress on Polymer Concretes, The Concrete Society (London), Session E, Paper 5, May 1975.

78. Brown, J. H., "The Failure of Glass-Fibre-Reinforced Notched Beams in Flexure," Magazine on Concrete Research, Vol 26, No. 86, Mar 1974, p 16.

79. Buckley, E. L., "Accelerated Trials of Glass Fiber Reinforced Rigid Pavements," Apr 1974, Construction Research Center, University of Texas at Arlington, Tex.

80. _____, "Effects of Viscosity Agent upon Glass Fiber Reinforced Concrete in Flexure," Jan 1973, Construction Research Center, University of Texas at Arlington, Tex.

81. _____, "Impact Testing of Glass Fiber Reinforced Concrete," Aug 1974, Construction Research Center, University of Texas at Arlington, Tex.

82. _____, "Investigations of Alternative Fiber Reinforcements for Portland Cement Mortar and Concrete," Research Report TR-2-72, Nov 1972, Construction Research Center, University of Texas at Arlington, Tex.

83. Buckley, E. L. and Everard, N. J., "Prediction of the Modulus of Rupture of Fiber Reinforced Portland Cement Mortar and Concrete," Fiber-Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 163-176.

84. Budnikov, P. P., "Reaction of Lime and Hydration Products of Portland Cement and Fibres of Mineral Wool," Zhurnal Prikladnoi Khimii (Leningrad), Vol 28, 1955, p 817.

85. Budnikov, P. P., "Behavior of Synthetic Mineral Wools in Concrete," Silika Technik (Berlin), Vol 7, 1956, p 357.

86. _____, "Reciprocal Reaction Between Lime Hydration Products of Portland Cement and Mineral Fiber," Cement-Wapno-Gips (Warsaw), Vol 14, No. 23, 1958, pp 228-230.

87. Budnikov, P. P. and Goryainov, K. E., "Behavior of Synthetic Mineral Fibers in Concrete," Cemento-Hormigon (Barcelona), Vol 23, 1957, p 219.

88. Burnett, E. F. P., "Qualitative Testing of Fibre Reinforced Centrifugated Concrete," Proceedings, RILEM Symposium, Fibre Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 137-147.

89. Burnett, E. F. P., Constable, T., and Cover, P., "Centrifugated Wire Fiber Reinforced Concrete," Fiber Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 455-475.

90. Busching, H. W., Hamilton, D. H., and Goree, J. G., "Surface-Bonded Concrete-Block Panels," Journal of the Engineering Mechanics Division, American Society of Civil Engineers, Vol 100, EM 2, Apr 1974, pp 359-373.

91. Butt, Yu. M. et al., "Issledovanie Cementnogo Kamnia, Armirovannogo steklovoloknom," Trudi, MCHTI im. Mendeleeva, Moscow, Vol 72, 1973, p 148.

92. Cahn, D. S., Phillips, J. C., Ishai, O., and Aroni, S., "Durability of Fibreglass-Portland Cement Composites," Proceedings, American Concrete Institute, Journal, Vol 70, No. 3, Mar 1973, pp 187-189.

93. "Car Park at Heathrow Airport," Composites, Vol 2, No. 2, 1971, p 203.

94. "Caricrete-Polypropylene Fibers in Concrete," Chemicals in Building, CB: 68/106, Apr 1969, Second Edition, Shell Oil Co., New York.

95. Carrie, C. and Lefebvre, R., "Fibre Concretes," Les Chroniques de la Recherche, Bâtir, No. 23, Jun 1973, pp 57-60.

96. Carroll-Proczynski, C. Z., "Inorganic Fibres," London, 1958.

97. "CEM-FIL Wins the Fibre Race," International Construction, London, Aug 1971, pp 46-47.

98. Centre de Recherches de Pont-a-Mousson, "Fiber Reinforced Comcrete," French Patent No. 1,368,228, 31 Jul 1964 (Chem. Abstr., Vol 62, No. 7, 1965, 7492).

99. Chan, H. C. and Patterson, W. A., "Effects of Aging and Weathering on the Tensile Strength of Glass Fiber Reinforced High Alumina Cement," Journal of Materials Science, Vol 6, 1971, pp 342-346.

100. _____, "The Theoretical Prediction of the Cracking Stress of Glass-Fibre-Reinforced Inorganic Cement," Journal of Materials Science, Vol 7, 1972, pp 856-860.

101. "Characteristics of Fibers and What They do for Concrete," Concrete Construction, Vol 19, No. 3, Mar 1974, pp 107-109.

102. Chen, W. F. and Carson, J. L., "Bearing Capacity of Fiber Reinforced Concrete," Fiber-Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 209-220.

103. _____, "Stress-Strain Properties of Random Wire Reinforced Concrete," Proceedings, American Concrete Institute, Journal, Vol 68, No. 12, Dec 1971, pp 933-936.

104. Chironis, N. P., "Sprayed Fibrous Concrete for Mines," Coal Age, Vol 79, No. 12, Dec 1974, pp 56-59.

105. Clifton, J. and Frohnsdorff, G., "Fiber-Reinforced Cementitious Materials," Cements Research Progress, 1974, Cements Division, American Ceramic Society, Columbus, Ohio, 1975, pp 201-234.

106. Cohen, E. B. and Diamond, S., "Validity of Flexural Strength Reduction as an Indication of Alkali Attack on Glass in Fibre Reinforced Cement Composites," Proceedings, RILEM Symposium, Fibre Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 315-325.

107. "Composites--Standards, Testing and Design," Proceedings, Conference, National Physical Laboratory, London, Apr 8-9, 1974, IPC Science and Technology Press, Ltd., 1974.

108. "Concrete Means Better Pavement," Newsletter, American Concrete Paving Association, Oakbrook, Ill., Vol 9, No. 10, Oct 1973, pp 1-6.

109. "Concrete Paves the Waves," Contract Journal (England), 14 Dec 1972, p 44.

110. "Concrete Reinforced with Polypropylene Fibers," Precast Concrete (London), Vol 3, No. 9, Sep 1972, pp 533-536.

111. Constantinesco, G., "Reinforced Concrete," U. S. Patent No. 2,677,955, 1943.

112. Cook, D. J. and Uher, C., "Thermal Conductivity of Fibre-Reinforced Concrete," Cement and Concrete Research, Vol 4, No. 4, July 1974, pp 497-509.

113. Cornell, M. R., Bond Stress Between Steel Fibers and Concrete as Affected by Modulus of Elasticity and Poisson's Ratio of the Material, M.S. Thesis, Clarkson College of Technology, Potsdam, N. Y., 1966.

114. Coursey, G. E., "New Shape in Shore Protection," Civil Engineering, American Society of Civil Engineers, Dec 1973, pp 69-71.

115. Cox, F. B., "Crack-Arrest Techniques in Reinforced Concrete Structural Elements, Report 1, Laboratory Tests," Technical Report C-74-7, Nov 1974, U. S. Army Engineer Waterways Experiment Station, CE, Vicksburg, Miss.,

116. _____, "Feasibility Study for Building a Rapidly Constructed, Low-Cost, Inflatable-Formed, Steel Fiber-Reinforced Concrete Structure," Miscellaneous Paper C-74-11, Jun 1974, U. S. Army Engineer Waterways Experiment Station, CE, Vicksburg, Miss.

117. Dardare, J., "Contribution to the Study of the Mechanical Behavior of Concrete Reinforced with Polypropylene Fibres" (in French), Proceedings, RILEM Symposium, Fibre Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 227-235.

118. _____, "Polypropylene Fibre Concrete--Its Use for Precasting," Proceedings, Eighth International Congress of the Precast Industry, BIBM (Stressa, May 12-19, 1975), Cement and Concrete Association, London, 1975.

119. Dave, N. J., O'Leary, D. C., and Saunders, J., "Structural Use of Fibrous-Cement in Composite Concrete Construction," Fiber Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 511-532.

120. DeBooy, R. (Hollansche Beton Group N.V.), "Improvements in Concrete Reinforcement," United Kingdom Patent No. 1,316,160, 9 May 1973.

121. Dehousse, N. M., "Properties and Testing of Steel Fibre Concrete" (in French), Proceedings, RILEM Symposium, Fibre Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 119-136.

122. Den Boer, L. J., "Concrete Technology and Pull-Out Testing of Fibre Reinforced Normal Gravel Concrete," Proceedings, Conference, Properties and Applications of Fibre Reinforced Concrete and Other Fibre Reinforced Building Materials, University of Delft, The Netherlands, 1974, pp 97-106.

123. De Vekey, R. C. and Majumdar, A. J., "Determining Bond Strength in Fibre-Reinforced Composites," Magazine of Concrete Research, Vol 20, No. 65, Dec 1968, pp 229-234.

124. _____, "Interfacial Bond Strength of Glass Fiber-Reinforced Cement Composites," Journal of Materials Science, Vol 5, No. 2, Feb 1970, pp 183-185.

125. "Developments in Fibre Composites," Precast Concrete, Vol 6, No. 10, Oct 1975, pp 549-551.

126. "Diamond Blades Saw Joints in Fibrous Concrete," Roads & Streets, Vol 116, No. 2, Feb 1973, p 102

127. Dickerson, R. F., "A Progress Report on Concrete Reinforced with Steel Fibers," Concrete Construction, Vol 20, No. 7, Jul 1975, pp 281-283.

128. _____, "Steel Fiber Reinforced Concrete--A New Pavement Material," Roads & Streets, Vol 115, No. 7, Jul 1972, pp 68-71.

129. Dixon, J. and Mayfield, B., "Concrete Reinforced with Fibrous Wire," Concrete, Vol 5, No. 3, Mar 1971, pp 73-76.

130. "DRAMIX, A New Concrete Reinforcement," N.V. Bekaert SA., Zwevegem, Belgium, Jan 1975.

131. Eddy, B. W., "Composition for Artificial Stone," U. S. Patent 531,520, Dec 25, 1894.

132. Edgington, J., Steel-Fibre-Reinforced Concrete, Ph. D. Dissertation, University of Surrey, 1973.

133. Edgington, J. and Hannant, D. J., "Steel Fibre Reinforced Concrete: The Effect on Fibre Orientation of Compaction by Vibration," Materiaux et Constructions (Materials and Structures), Vol 5, No. 25, Jan-Feb 1972, pp 41-44.

134. Edgington, J., Hannant, D. J., and Williams, R. I. T., "Steel Fibre Reinforced Concrete," Current Paper CP 69/74, Jul 1974, Building Research Establishment, Garston, England.

135. _____, "Steel Fibre Reinforced Concrete," Precast Concrete, Vol 6, No. 8, Aug 1975, pp 433-438.

136. Efsen, A. and Krenchel, H., "Tensile Cracks in Reinforced Concrete," Ingenioren, Copenhagen, No. 3, Feb 1959, pp 101-110.

137. Elvery, R. H. and Samari, M. A., "Reduction in Shrinkage Cracking in Reinforced Concrete Due to the Inclusion of Steel Fibres," Proceedings, RILEM Symposium, Fibre Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 149-157.

138. Etheridge, H., "Concrete Construction," U. S. Patent No. 1,913,707, Jun 13, 1933.

139. "Experimental House Uses Fibrous Concrete Floor Slab," Engineering News-Record, Vol 193, 16 Jan 1975, p 12.

140. Fairweather, A. D., "The Use of Polypropylene Film Fibre to Increase Impact Resistance of Concrete," Prospects for Fibre Reinforced Constructional Materials, International Building Exhibition, London, Nov 1971, pp 41-44; also Discussion, pp 56-58.

141. Fattuhi, N. I., Properties of Steel Fibre Reinforced Cement-Based Matrices, M. Eng. Thesis, University of Sheffield, 1974.

142. Ferry, R., "Glass Fiber Reinforced Cement," Concrete Construction, Vol 20, No. 4, Apr 1975, pp 137-139.

143. "Fiber Reinforced Concrete Undergoes Toughest Test," Engineering News-Record, Vol 190, 7 Sep 1972, p 12.

144. Fibre Reinforced Cement and Concrete, Proceedings, RILEM Symposium, Construction Press, Ltd., Lancaster, England, Sep 1975.

145. "Fibre-Reinforced Cement-Based Materials," Concrete (London), Vol 5, No. 3, Mar 1971, pp 97-98.

146. "Fibre-Reinforced Cement Composites," Technical Report 51.067, Jul 1973, The Concrete Society, London.

147. "Fibre Reinforced Concrete," Proceedings, Conference, Properties and Applications of Fibre Reinforced Concrete and Other Fibre Reinforced Building Materials, Sep 6, 1973, University of Delft, The Netherlands, 1974.

148. "Fibrous Concrete--A New Dimension in Bridge Deck Construction," Concrete Construction, Vol 18, No. 7, Jul 1973, pp 321-324.

149. "Fibrous Concretes, Applications Outstrip Knowledge," Precast Concrete, Vol 3, No. 11, Nov 1972, pp 681-683.

150. "Fibrous Concrete, Construction Material for the Seventies," Conference Proceedings, M-28, Dec 1972, U. S. Army Construction Engineering Research Laboratory, Champaign, Ill.

151. "Fibrous Concrete in the USA and UK," Precast Concrete, Vol 3, No. 10, Oct 1972, pp 613-616.

152. "Fibrous Concrete--Pavement of Tomorrow," Newsletter, American Concrete Paving Association, Vol 8, No. 10, Oct 1973, pp 1-6.

153. "Fibrous Concrete Placed 3 In. Thick in Urban Highway Test," Roads and Streets, Vol 116, No. 2, Feb 1973, pp 59-62.

154. "Fibrous Concrete: Starting to Bring Theory and Practices Together," New Civil Engineer, Oct 1972, pp 24-25.

155. "Fibrous Concretes, U. S. A. and U. K.," Proceedings, Symposium, The Concrete Society, London, West Midlands Region, University of Birmingham, Papers 1-5, 27 Sep 1972.

156. "Fibrous-Reinforced Concrete Performs Well in Airfield Pavement Tests," Concrete Construction, Vol 17, No. 3, Mar 1972, pp 119-120.

157. "Fibrous Reinforcements for Portland Cement Concrete," U. S. Department of Commerce, Technical Report No. 2-40, May 1965, U. S. Army Ohio River Division Laboratories, C[illegible], Cincinnati, Ohio.

158. "Fibrous Concrete Tested on Highway," Engineering News-Record, Vol 190, No. 36, 19 Oct 1972, p 16.

159. Ficklen, W., "Improvements in Reinforced Structures and Wearing Surfaces of Hydraulics, Bituminous, or Like Cement, Concrete, Asphalt, or the Like," British Patent No. 11754, May 21, 1914.

160. Flajsman, F., Cahn, D. S., and Phillips, J. C., "Polymer-Impregnated Fibre-Reinforced Mortars," Journal of the American Ceramic Society, Vol 54, No. 3, 1971, pp 129-130.

161. Fördös, Z., "Fibre Reinforced Cement Based Materials," BFL Internal Report No. 311, 1973, Concrete Research Laboratory, Karlstrup.

162. _____, "Evaluation of Fibre Reinforced Cement-Based Composites--Durability," BFL Internal Report No. 380, May 1975, Concrete Research Laboratory, Karlstrup.

163. Fowler, D., "Carbon Fibre Cement," Civil Engineering (London), No. 517, Sep 1974, pp 34-37.

164. "FYCRETE--A New Concrete Building Material," Concrete Construction, Vol 14, No. 4, Apr 1969, pp 133-134.

165. Gale, K., "Steel Fibres Arrest Cracks in Concrete," Civil Engineering and Public Works Review, Vol 68, No. 804, Jun 1973, pp 501-502.

166. Gale, K., "Steel Fibres Used in Concrete Will Mean Wider Applications," The Engineer, Vol 237, No. 6121, 5 Jul 1973, p 31.

167. Garlinghouse, L. H. and Garlinghouse, R. E., "The Omni Mixer--A New Approach to Mixing Concrete," Proceedings, American Concrete Institute, Journal, Vol 69, No. 4, Apr 1972, pp 220-223.

168. Garside, J. H. and Meriwood, D. L., "Polypropylene Fiber Reinforced Pumice Concrete," N. Z. Concrete Construction (Wellington), Vol 18, No. 1, Feb 1974, pp 13-15.

169. Gillet, R. S. and Majumdar, A. J., "Apparatus for Testing Tensile Strengths of Corroded Glass Fibres," BRS Current Paper, Mar 1968, Building Research Station, Garston, England.

170. Gilson, J. C., "Health Hazards of Asbestos," Composites, Vol 3, No. 2, Mar 1972, pp 57-59.

171. "Glasfaserbeton (Glass Fibre Reinforced Concrete)," Portland-Zementwerke Heidelberg Aktiengesellschaft, 1975, Heidelberg, Germany.

172. "Glass Fiber--A Winner," Civil Engineering, Vol 69, No. 817, Sep 1974, pp 25-26.

173. "Glass Fibers, Fycrete, Reinforced Concrete," Engineering News-Record, Vol 182, Jan 30, 1969, p 19.

174. Glass Fibre Reinforced Cement Technical Manual, Pilkington Brothers Limited, St. Helens, Merseyside, England, 1974.

175. "Glass Fibre Reinforced High Alumina Cement," Precast Concrete, Vol 3, No. 12, Dec 1972, pp 745-749.

176. "Glass Reinforced Cement (GRC): Latest Development," Composites News, Vol 5, No. 1, Jan 1974, pp 2-3.

177. "Glass Fibre Reinforced Cement," Concrete (London), Vol 5, No. 3, Mar 1971, p 99.

178. "Glass Reinforced Gypsum Components," BRS News, Building Research Station, England, No. 9, Summer 1969, pp 8-9.

179. Glatz, H. (Deumu Deutsch Erz-und Metall-Union Gesellschaft), "Shuttering and Reinforcing Elements for Concrete Structures," U. S. Patent No. 3,739,542, 19 Jun 1973.

180. Glowacz, K., "Mine Roadway Lining of Sprayed Wire Concrete," Rudy I Metale Niezelazne (Poland), Vol 19, No. 3, Mar 1974, pp 141-143.

181. Glynn, T. E. and Al-Salihi, M. Z., "Tensile Strength of Reinforced Microconcrete," Aug 1975, School of Engineering, Trinity College--Dublin (Ireland).

182. Goeman, F., "Performance of E-Glass Fibers as Reinforcement for Portland Cement Mortar," Fiber Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 287-298.

183. Goldfein, S., "Fibrous Reinforcement for Portland Cement," Modern Plastics, Vol 42, No. 8, Apr 1965, pp 156-160.

184. _____, "Plastic Fibrous Reinforcement for Portland Cement," Technical Report No. 1757-TR, Oct 1963, U. S. Army Engineer Research and Development Laboratories, Fort Belvoir, Va.; also Rubber and Plastics Age, Vol 46, 1965, pp 51-53.

185. Graham, G. M., "Reinforced Concrete," U. S. Patent No. 983,274, Feb 7, 1911.

186. Gramling, W. L. and Nichols, T. H., "Steel Fiber Reinforced Concrete," Report 71-3, Dec 1972, Pennsylvania Department of Transportation; also Special Report 148, 1974, pp 160-165, Transportation Research Board, Washington, D. C.

187. Gray, B. H., "A Discussion of Field Considerations," Proceedings, Conference M-28, Fibrous Concrete-Construction Material for the Seventies, Construction Engineering Research Laboratory, Champaign, Ill., Dec 1972, pp 39-54.

188. _____, "Applicability of Fibrous Concrete for Military Construction," Proceedings, Symposium on Fibrous Concrete, U. S. A. and U. K., The Concrete Society (London). West Midlands Region, University of Birmingham, Paper 4, 27 Sep 1972.

189. _____, "Fiber Reinforced Concrete--A General Discussion of Field Problems and Applications," Technical Manuscript M-12, Apr 1972, Construction Engineering Research Laboratory, Champaign, Ill.

190. Gray, B. H., "Fiber Reinforced Concrete Pavement Performance Investigation," Highway Focus, Vol 4, No. 5, Oct 1972, pp 53-64.

191. _____, "Fiber Reinforced Concrete Session--A General Discussion of Field Problems and Applications--Conference Notes," Engineering Conference on New Materials in Concrete Construction, University of Illinois, Chicago, Ill., Dec 15-17, 1971.

192. Gray, B. H. and Rice, J. L., "Fibrous Concrete for Pavement Applications," Preliminary Report M-13, Apr 1972, Construction Engineering Research Laboratory, Champaign, Ill.

193. _____, "Pavement Performance Investigation," Proceedings, Conference M-28, Fibrous Concrete-Construction Material for the Seventies, Construction Engineering Research Laboratory, Champaign, Ill., Dec 1972, pp 147-157.

194. Graystone, J. A. (Imperial Chemical Industries, Ltd.), "Fiber-Reinforced Concrete," Ger Offen Patent No. 2,240,006, 8 Mar 1973. (Chemical Abstracts, Vol 78, No. 24, 1973, 150608d).

195. "GRC Developments by Charcon Composites," Precast Concrete, Vol 5, No. 12, Dec 1974, pp 695-697.

196. "GRC Wins Innovation Award," Precast Concrete, Vol 5, No. 9, Sep 1974, pp 523-525.

197. Gregory, J. M., Galloway, J. W., and Raithby, K. D., "Full-Scale Trials of a Wire-Fibre-Reinforced Concrete Overlay on a Motorway," Proceedings, RILEM Symposium, Fibre Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 383-394.

198. Grimer, F. J. and Ali, M. A., "The Strengths of Cements Reinforced with Glass Fibers," Magazine of Concrete Research (London), Vol 21, No. 66, Mar 1969, pp 23-30.

199. Gunasekaran, M., "Strength and Behavior of Lightweight Concrete Reinforced with Metallic Fibres of Mixed Aspect Ratios," The Indian Concrete Journal (Bombay), Vol 49, No. 2, Feb 1975, pp 48-49, 55.

200. Gunasekaran, M. and Ichikawa, Y., "The Strength and Behavior of Steel Fiber Reinforced Lightweight Concrete Made with Regulated Set Cement and Sintered Fly Ash Aggregates," Fiber Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 113-126.

201. Gunasekaran, M., Ichikawa, Y., and Dunlap, A. B., "On the Properties and Behavior of High Early Strength of Lightweight Polymer Impregnated Concrete Reinforced with Alkali Resistant Glass Fibers," Fiber Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 265-285.

202. Gutt, W., "Developments in Fibrous Composites," Proceedings, Sixth CIB Congress, Budapest, Oct 1974, Theme II/I, The Impact of Research on the Built Environment, 1974, pp 174-182.

203. Gvozdev, A. A., Mikhailov, K. V., and Nikula, I., "Plastic Bonded Fibre-Glass as Reinforcement for Concrete Components," Beton i Zhelezobeton, No. 3, 1960, pp 105-111 (Translation, Great Britain, D.S.I.R., Building Research Station, Library Communication No. 1021).

204. Haavik, D. J., A Feasibility Study of Fibrous Reinforcement for Portland Cement Concrete, M.S. Thesis, University of California at Berkeley, 1968.

205. Hale, D. K., "Fibre Pull-Out in Multipla-Cracked Discontinuous Fibre Composites," Proceedings, RILEM Symposium, Fibre Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 55-68.

206. Halvorsen, G. T. and Kesler, C. E., "Concrete for Tunnel Liners: Evaluation of Fiber Reinforced Quick Setting Cement Concrete," Report No. FRA-OR&D-75-3, Aug 1974, Federal Railroad Administration, U. S. Department of Transportation, Washington, D. C.

207. Halvorsen, G. T., Kesler, C. E., and Paul, S. L., "Concrete for Tunnel Liners: Mix Design Recommendations for Prototype Extruded Liner System--Final Report," Report No. FRA-OR&D-75-89, Aug 1975, Federal Railroad Administration, U. S. Department of Transportation, Washington, D. C.

208. Halvorsen, G. T., Keske, W. G., Stout, J. A., and Kesler, C. E., "Concrete for Tunnel Liners: Behavior of Fiber Reinforced Quick Setting Cement Concrete--Final Report," Report No. FRA-OR&D-75-87, Aug 1975, Federal Railroad Administration, U. S. Department of Transportation, Washington, D. C.

209. Halvorsen, U. A., and Samuelsson, P., "English Concrete Technology of Today," Cement och Betong, No. 4, 1971, pp 419-432.

210. Hannant, D. J., "Discussion on 'Mechanical Properties of Cement Mortar with Randomly Oriented Short Steel Wires' by B. Pakotiprapha, R. P. Pama, and S. L. Lee," Magazine of Concrete Research (London), Vol 27, No. 90, Mar 1975, pp 37-38.

211. _____, "Steel Fibre Reinforced Concrete," Prospects for Fiber Reinforced Construction Materials, Int. Building Exhb., London, Nov 1971, pp 47-58.

212. _____, "Steel Fibres and Lightweight Beams," Concrete, Vol 6, No. 8, Aug 1972, pp 39-40.

213. Hannant, D. J. and Edgington, J., "Durability of Steel Fibre Concrete," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 159-169.

214. Hannant, D. J. and Spring, N., "Steel Fibre-Reinforced Mortar: A Technique for Producing Composites with Uniaxial Fibre Alignment," Magazine of Concrete Research, Vol 26, No. 86, Mar 1974, pp 47-48.

215. Hanson, D., "Steel-Fiber-Reinforced Dolosse," Presented at Eureka, Calif., 6 July 1973, to members of the Preconference Tour of the 13th International Conference on Coastal Engineering, Vancouver, B. C., 10-14 Jul 1973.

216. Harris, B., Varolow, J., and Ellis, C. D., "The Fracture Behavior of Fibre-Reinforced Concrete," Cement and Concrete Research, Vol 2, No. 4, 1972, pp 447-461.

217. Harris, D. M., Harvey, J. A., and Clipston, J. A. (Caledonian Mining Co., Ltd., England), "Apparatus for Preparing and Dispensing Mixtures of Concrete and Fibres," U. S. Patent No. 3,885,774, 27 May 1975.

218. Hayden, R., Grundsätzliche Fragen der Herstellung von Asbestzement (Basic Problems Regarding the Production of Asbestos-Cement), Zementverlag, Berlin, 1942.

219. Haynes, B. C., Jr., and Simons, J. W., "Surface Bonding of Concrete Block Walls as Related to Structural Properties," 1972, USDA Agricultural Engineering Center, Athens, Ga.; and Research Bulletin No. 110, May 1972, University of Georgia Experimental Station.

220. _____, "Surface Bonding of Concrete Blocks--A Technique for Erecting Block Walls Without Mortar Joints," Agriculture Information Bulletin No. 343, Jun 1970, U. S. Department of Agriculture, Washington, D. C.

221. Haynes, H. H., "Investigation of Fiber Reinforcement Methods for Thin Shell Concrete," Technical Report No. 979, 1968, Naval Civil Engineering Laboratory, Port Hueneme, Calif.

222. Helms, S. B. and McCoy, W. J., "Sulfate Resistance of Asbestos-Cement Pipe Specimens," Proceedings, American Concrete Institute, Journal, Vol 72, No. 12, Dec 1975, pp 714-719.

223. Henager, C. H., "A New Wrinkle--Shotcrete Containing Steel Fibers," Concrete Construction, Vol 20, No. 8, Aug 1975, pp 345-347.

224. _____, "Steel Fibrous Ductile Concrete Joint for Seismic-Resistant Structures," Paper presented at the 1974 Annual American Concrete Institute Meeting, San Francisco, Calif, Apr 1974.

225. Henry, R. L., "An Investigation of Large Diameter Fiber-Reinforced Concrete Pipe," Fiber-Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 435-454.

226. Herring, K. S. and Kesler, C. E., "Concrete for Tunnel Liners: Behavior of Steel Fiber-Reinforced Concrete Under Combined Loads--Final Report," Report No. FRA-OR&D 75-7, Aug 1974, Federal Railroad Administration, U. S. Dept. of Transportation, Washington, D. C.

227. Hewitt, W., "Metallic Fabric," U. S. Patent No. 316,458, 28 Apr 1885.

228. Hibert, A. P. and Grimer, F. J., "Flexural Fatigue of Glass Fiber-Reinforced Cement," BRE Report PD 51/74, 1974, Building Research Establishment, Garston, United Kingdom.

229. Hills, D. L., "Premixed Glass Fibre Reinforced Cement," Precast Concrete (London), Vol 6, No. 5, May 1975, pp 251-254.

230. Hobbs, C., "Faircrete: An Application of Fibrous Concrete," Prospects for Fibre-Reinforced Construction Materials, International Building Exhibition, London, Nov 1971, pp 59-67.

231. _____, "Tailor-Made Concretes--Scope for Immediate Development," Concrete, Vol 5, No. 3, Mar 1971, pp 77-82.

232. Hoff, G. C., "Concreto Reforzado Con Fibras (Fiber-Reinforced Concrete)," Proceedings, Second International Symposium on Concrete Technology, Ciudad University, Monterrey, Mexico, Mar 1975, pp 59-66.

233. _____, "Concretos Reforzados Con Fibras (Fiber-Reinforced Concretes)," Proceedings, Second Symposium on Modern Concrete Technology, Asociacion Venezolana de Productores de Cementos, Caracas, Venezuela, Nov 1975.

234. _____, "Research and Development of Fiber-Reinforced Concrete in North America," Proceedings, Symposium on Concrete Research and Development, 1970-1973, The Institution of Engineers, Natl. Conf. Publication No. 73/6, Sydney, Australia, Sep 1973, pp 1-5; also Miscellaneous Paper C-74-3, Feb 1974, U. S. Army Engineer Waterways Experiment Station, CE, Vicksburg, Miss.

235. Hoff, G. C., "The Use of Fibre-Reinforced Concrete in Hydraulic Structures and Marine Environments," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 395-407; also Miscellaneous Paper No. C-75-4, Jun 1975, U. S. Army Engineer Waterways Experiment Station, CE, Vicksburg, Miss.

236. Holicky, N., Glass Fiber-Reinforced Spun Concrete, M.A. Sci Thesis, University of Waterloo, Canada, 1971.

237. "Homogeneous Fiber Reinforcement of Concrete," Report No. 5106-66-14, Oct 1966, Hauser Research and Engineering Co., Boulder, Colo.

238. Hooks, J., Fatigue Strength of Steel Wire-Reinforced Concrete, M.S. Thesis, Clarkson College of Technology, Potsdam, N. Y., 1963.

239. Hope, A., "Immunising Fibre Glass Against Concrete," New Scientist, 30 Aug 1973.

240. "How to Work with Bloc Bond," Apr 1972, Owens-Corning Fiberglas Corp., Toledo, Ohio.

241. Hubbard, S. J., "Feasibility Study of Masonry System Utilizing Surface-Bond Material," Technical Report No. 4-43, Jul 1966, U. S. Army Ohio River Division Laboratories, CE, Cincinnati, Ohio.

242. Hughes, B. P., "Discussion," Proceedings, Symposium on Fibrous Concrete, USA and UK, The Concrete Society (London), West Midlands Region, University of Birmingham, Paper 5, 27 Sep 1972.

243. _____, "Fibre-Reinforced Composites," Proceedings, Symposium on Advances in Concrete, The Concrete Society (London), West Midlands Region, University of Birmingham, 27-29 Sep 1971.

244. _____, "Fibre Reinforcement for Concrete," Proceedings, Symposium on Fibrous Concrete, USA and UK, The Concrete Society (London), West Midlands Region, University of Birmingham, Paper 1, 27-29 Sep 1971.

245. Hughes, B. P. and Ash, J. E., "Short-Term Loading and Deformation of Concrete in Uniaxial Tension and Torsion," Magazine of Concrete Research (London), Vol 20, No. 64, Sep 1968, pp 145-154.

246. Hughes, B. P. and Fattuhi, N. I., "Fibre Bond Strengths in Cement and Concrete," Magazine of Concrete Research, Vol 27, No. 92, Sep 1975, pp 161-166.

247. Hughes, B. P. and Guest, J. E. "Polymer-Modified Fibre-Reinforced Cement Composites," Presented at First International Congress on Polymer Concretes, The Concrete Society (London), Session C, Paper 4, May 1975.

248. "Humboldt Bay Jetty Rehabilitation--Strength Study of Steel Fiber-Reinforced Concrete Dolosse," Dec 1972, U. S. Army Corps of Engineers, South Pacific Division Laboratory, Sausalito, Calif.

249. Hutchinson, R. L., "Performance of Concrete Pavements Subjected to Wide-Body Jet Aircraft Loadings," Roadways and Airport Pavements, American Concrete Institute, Detroit, SP-51, 1975, pp 135-159.

250. Igbal, M. A., Shrinkage of Steel Fiber-Reinforced Concrete, M.S. Thesis, Carnegie Mellon University, Pittsburgh, Pa., 1965.

251. Illner-Paine, "Fiberglass-Reinforced Cement--The British Building Bomb," Translation No. AD 9190841, U. S. Army Foreign Science and Technology Center, Charlottesville, Va.

252. "Impact Strength of CARICRETE Surprises Industry," International Construction (London), Aug 1971, pp 44-45.

253. "Iowa Fibrous Concrete Test Is Largest to Date," Concrete Products, Vol 77, No. 1, Jan 1974, pp 72-73.

254. Ironman, R., "Stronger Market Seen for Glass Fiber Concrete," Concrete Products, Vol 79, No. 1, Jan 1976, pp 42-44.

255. Ishai, O. and Majumdar, A. J., "Cementitious Materials Reinforced by High Performance Fibres," Initial Report, RILEM TC 19-FRC, Aug 1973.

256. Iyengar, K. T. S. R. and Viswanatha, C. S., "Discussion of 'Stress-Strain Properties of Random Wire Reinforced Concrete' by W. Chen and J. L. Carson," Proceedings, American Concrete Institute, Journal, Vol 69, No. 6, Jun 1972, pp 346-349.

257. Iyengar, K. T. S. R. and Viswanatha, C. S., "Some Studies on Strength and Deformational Aspects of Fiber Reinforced Concrete," Proceedings, 41st Annual Research Session, Concrete, Central Board of Irrigation and Power, New Delhi, Vol 3, Jul 1971.

258. Jaras, A. C. and Litherland, K. L., "Microstructural Features in Glass Fibre-Reinforced Cement Composites," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 327-334.

259. Johnson, F. B. et al., Mason Productivity Study, Vol III, Measurement of Productivity, Vol III, U. S. Department of Housing and Urban Development, Center for Building Research, Univ. of Texas at Austin, 18 Apr 1973.

260. Johnston, C. D., "Steel Fiber Reinforced Concrete Pavement--Construction and Interim Performance Report," Roadways and Airport Pavements, American Concrete Institute, Detroit, SP-51, 1975, pp 161-173.

261. _____, "Steel Fiber Reinforced Mortar and Concrete--A Review of Mechanical Properties," Fiber Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 127-142.

262. _____, "Steel Fibre Reinforced Concrete Pavement--Second Interim Performance Report," Proceedings, RILEM Symposium, Fibre Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 409-418.

263. Johnston, C. D. and Coleman, R. A., "Properties of Fiber-Reinforced Mortar in Uniaxial Tension," Fiber Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 177-194.

264. Jones, F. E., "Weathering Tests on Asbestos--Cement Roofing Materials," Building Research Technical Paper No. 29, 1947, HMSO, London.

265. Kaden, R. A., "Field Placement Dams--Shotcreting of Tunnels and Rock Slope Stabilization," For Short Course on Steel Fibrous Concrete--Properties, Applications, and Research Results, 15-17 Jul 1974, U. S. Army Engineer District, Walla Walla, Wash.

266. _____, "Pumping Fibrous Concrete for Spillway Test," Fiber Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 497-510.

267. _____, "Steel Fibrous Shotcrete," Western Construction, Vol 49, No. 4, Apr 1974, pp 30-33.

268. Kar, J. N. and Pal, A. K., "Strength of Fiber Reinforced Concrete," Proceedings, American Society of Civil Engineers, Vol 98, ST5, May 1972, pp 1058-1068.

269. Kasperkiewicz, J. and Skarendahl, A., "Bibliography on Fibre-Reinforced and Polymer Impregnated Cement Based Composites," Jan 1974, Swedish Cement and Concrete Research Institute of Technology, Stockholm, Sweden.

270. Kataoka, M. and Kotera, A. (Kuraray Co., Ltd.), "Plastics--Concrete Compositions," Japan Patent No. 7,125,255, 21 Jul 1971. (Chemical Abstracts, Vol 77, No. 14, 1972, 92324z).

271. Kelly, A., "Reinforcement of Structural Materials by Long Strong Fibres," Metallurgical Transactions, Vol 3, Sep 1972, pp 2313-2325.

272. Kempster, E. (National Research and Development Corp.), "Process for Dispersing Fibre in an Aqueous Mix," U. S. Patent No. 3,716,386, 13 Feb 1973.

273. _____ (Thyssen (GB) Ltd.), "Improvements in or Relating to Cementitious Composite Materials," United Kingom Patent No. 1,314,253, 18 Apr 1973.

274. Kesler, C. E., "Mix Design Considerations," Proceedings, Conference M-28, Fibrous Concrete--Construction Material for the Seventies, Construction Engineering Research Laboratory, Champaign, Ill., Dec 1972, pp 29-37.

275. _____ (United States Steel Corp.), "Fiber-Reinforced Cement Composite," U. S. Patent No. 3,834,916, 10 Sep 1974.

276. _____ (USS Engineers and Consultants, Inc.), "Reinforced Cement Mixtures," Ger. Offen. Patent No. 2,314,352 (1973), (Chem. Abstr., Vol 81, No. 8, 1974, 40905c).

277. Kesler, C. E. and Schwarz, A. W., "Steel Fiber Reinforced Concrete Mix Design Considerations," Highway Focus, Vol 4, No. 10, Oct 1972, pp 22-35.

278. Khrometz, Yu. N. et al., "Mechanicheskie Svoistva Gipsovich Izdelij Armirovannych Steklovoloknom," Stroitelnie Materiali, No. 2, 1973, pp 21-22.

279. Khudairi, S. E., Torsion of Steel-Fibre-Reinforced Concrete Elements, M.S. Thesis, University of Surrey, Oct 1970.

280. Kleinlogel, A., "Verfahren zur Herstellung einer Kunstlichen Bearbeitungs--Fahigen (Methods for Preparation of a Synthetic Machineable Iron Mass)," German Patent 338,959, 18 Jan 1920.

281. Klink, S. A., "Fibro-Cement Composites," United Nations Organization Report and Proceedings of Expert Working Group Meeting, Vienna, 20-24 Oct 1969, New York, 1970.

282. _____, Fycrete, A New Material for Structures, Ph. D. Dissertation, 1967, Rensselaer Polytechnic Institute, Troy, N. Y., Nov 1967; also Report B-3, American University of Beirut, Beirut, Lebanon, Jun 1969.

283. Klos, H. G., "Properties and Testing of Asbestos Fibre Cement," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 259-267.

284. Knutson, M. J., "Green County, Iowa, Concrete Overlay Research Project," Roadways and Airport Pavements, American Concrete Institute, Detroit, SP-51, 1975, pp 175-195.

285. Kollek, J. J., "Fibres in Cement--Based Materials--an Appreciation," Proceedings, Symposium on Advances in Concrete, Concrete Society (London), West Midlands Region, University of Birmingham, 28-29 Sep 1971.

286. Komloš, K., "Strength and Deformation Properties of Concrete Reinforced with Randomly Spaced Steel and Basalt Fibres," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 237-245.

287. Krenchel, H., Fibre Reinforcement, Akademisk Forlag, Copenhagen, 1964.

288. _____, "Fibre-Reinforced Brittle Matrix Materials," Internal Report I-18, SE Lab, 1972, Technology University of Denmark, 1972; also Fiber-Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 45-77.

289. _____, "Fibre Spacing and Specific Fibre Surface," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 69-79.

290. Krenchel, H. and Hejgaard, O., "Can Asbestos be Completely Replaced One Day?" Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 335-346.

291. Krylov, B. A. and Trambovetsky, V. P., "Investigations of Fibre-Reinforced Materials in the USSR," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 419-424.

292. Kubota, H. and Sakane, A., "A Study of the Improvement of Cement Mortars by Admixing Polymer Emulsion and Synthetic Fibre," Proceedings, RILEM Symposium on Synthetic Resins in Building Construction, Paris, 1967, Editions Eyrolles, 1970, pp 115-126; also Takenaka Technical Research Report No. 3, Dec 1968, Tokyo.

293. Kudkyashov, V. V., Timashev, V. V., and Butt, Yu. M., "Cement Stone Reinforced with Glass Fiber," Tr. Mosk. Khim-Tekhnol. Inst., No. 72, 1973, pp 148-150. (Chem. Abstr., Vol 80, No. 18, 1974, 99540n.)

294. Kurbatov, L. G. et al., "Mnogosloijnie Sfericheskie Obolochki Dlia Peredvizhnych Domov," Beton i Zhelezobeton, No. 7, 1973, pp 19-20.

295. Kurbatov, L. G. and Vylegzhanin, V. P., "Fibrous Reinforced Concrete for Thin-walled Shells," Beton i Zhelezobeton, No. 2, Feb 1974, pp 10-12.

296. Kuznetsova, L. G., Cherkinsky, Yu. S., Frolov, N. P., Zhavrid, S. S., and Kandratjeva, Yu. V., "Increasing of Durability of Fibre-Glass Reinforcement," Beton i Zhelezobeton, No. 3, 1973, pp 30-31.

297. LaFraugh, R. W. and Moustafa, S. E., Experimental Investigation of the Use of Steel Fibers for Shear Reinforcement, Concrete Technology Associates, Tacoma, Wash., Jan 1975.

298. Lamb, H. C. and Dembo, M. M., "Ultimate Strength of Chopped Wire Reinforced Small-Scale Mortar Slabs," OCD Work Order No. PS-65-17, Sep 1966; prepared for Office, Chief of Engineers, Washington, D. C., for Office of Civil Defense, Office of the Secretary of the Army, Protective Structures Development Center, Fort Belvoir, Va.

299. Landers, E. A., Fatigue Strength of Concrete Beams Reinforced with Steel Fibers, M.S. Thesis, Clarkson College of Technology, Potsdam, N. Y., Nov 1967.

300. Lankard, D. R., "Applications of Fibre Concrete," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 3-19.

301. _____, "Applications of Wire-Reinforced Concrete," Proceedings, Symposium on Fibrous Concrete, USA and UK, The Concrete Society (London), West Midlands Region, University of Birmingham, Paper 3, 27 Sep 1972.

302. _____, "Casting Thin Sections of Steel Fibrous Concrete," Concrete Products, Vol 74, No. 4, Apr 1971, p 52.

303. _____, "Fiber-Reinforced Cement-Based Composites," American Ceramic Society Bulletin, Vol 54, No. 3, Mar 1975, pp 272-276.

304. _____, "Flexural Strength Predictions," Proceedings, Conference M-28, Fibrous Concrete--Construction Material for the Seventies, Construction Engineering Research Laboratory, Champaign, Ill., Dec 1972, pp 101-123.

305. Lankard, D. R., "Steel Fibres in Mortar and Concrete," Composites, Vol 3, No. 3, Mar 1972, pp 65-70.

306. Lankard, D. R., Bundy, G. E., and Sheets, H. D., "Strengthening Refractory Concrete," Industrial Process Heating (England), Vol 13, No. 3, Mar 1973, pp 34-37.

307. Lankard, D. R. and Sheets, H. D., "Use of Steel Wire Fibers in Refractory Castables," American Ceramic Society Bulletin, Vol 50, No. 5, May 1971, pp 497-500.

308. Lankard, D. R. and Walker, A. J., "Bridge Deck and Pavement Overlays with Steel Fibrous Concrete," Fiber Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 375-392.

309. _____, "Pavement Applications for Steel Fibrous Concrete," Transportation Engineering Journal, American Society of Civil Engineers, Vol 101, No. TE1, Paper 11108, Feb 1975, pp 137-153.

310. _____, "Two Reports for WIRAND Laboratory Studies (Cost/Effectiveness Study and Effect of Fibers on the Properties of Fresh and Hardened Concrete)," Jul, Aug 1972, Battelle, Columbus Laboratories, Columbus, Ohio.

311. Lankard, D. R., Walker, A. J., and Snyder, M. J., "R/M Batching and Placement of Steel Fibrous Concrete," Concrete Products, Vol 74, No. 10, Oct 1971, pp 60-61, 72.

312. "Largest Fibrous Concrete Paving Project Solves Clumping Problem," Engineering News-Record, Vol 192, No. 15, 11 Apr 1974, pp 68-69.

313. Larner, L. J., Speakman, K., and Majumdar, A. J., "Chemical Interactions Between Glass Fibres and Cement," BRE Report PD 43/74, 1974, Building Research Establishment, Garston, United Kingdom.

314. Lawrence, P., "Some Theoretical Considerations of Fibre Pull-Out from an Elastic Matrix," Journal of Materials Science, Vol 7, No. 1, 1972, pp 1-6.

315. Laws, V., "The Efficiency of Fibrous Reinforcement of Brittle Matrices," Journal of Physics, D: Applied Physics, Vol 4, 1971, pp 1737-1746.

316. Laws, V., Ali, M. A., and Nurse, R. W. B., "The Response to Stress of a Short-Fibre Reinforced Brittle Matrix," Proceedings, Conference on the Properties of Fibre Composites, Teddington, England, 1972, pp 29-30.

317. Laws, V., Lawrence, P., and Nurse, R. W. B., "Reinforcement of Brittle Matrices by Glass Fibres," Journal of Physics, D: Applied Physics, Vol 6, 1973, pp 523-537.

318. Lerch, W., "Chemical Resistance of Asbestos-Cement Pipe," Materials Research and Standards, Vol 2, No. 9, Sep 1962, p 745.

319. Longini, R. L., Romualdi, J. P., and Stelson, T. E., "Concrete Construction and Roadways," U. S. Patent No. 3,500,728 (1970).

320. Lott, J. L., "Discussion of 'Probabilistic Analysis of Fiber-Reinforced Concrete' by A. E. Naaman, F. Moavenzodeh, and F. J. McGarry," Journal of the Engineering Mechanics Division, American Society of Civil Engineers, Vol 101, No. EM2, Apr 1975, pp 156-159.

321. Luke, C. E., "Driveway, Road, and Airport Slabs," Proceedings, Conference M-28, Fibrous Concrete--Construction Material for the Seventies, Construction Engineering Research Laboratory, Champaign, Ill., Dec 1972, pp 199-208; also Highway Focus, Vol 4, No. 5, Oct 1972, pp 65-70.

322. Luke, C. E., Waterhouse, B. L., and Wooldridge, J. F., "Steel Fiber-Reinforced Concrete Optimization and Applications," Fiber-Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 393-413.

323. Magan, R. (S. A. Ciments LaFarge), "Concretes and Reinforced Concretes with a Low Expansion Coefficient," U. S. Patent No. 3,709,394, 5 Feb 1974.

324. Majumdar, A. J., "Alkali Resistant Glass Fibers for Reinforcing Cement Products," S. Africa Patent No. 6,804,898, 1 Aug 1969 (Chemical Abstracts, Vol 71, No. 26, 1969, 128188a).

325. _____, "Fibre Cement and Concrete--A Review," Composites, Vol 6, No. 1, Jan 1975, pp 7-16.

326. _____, "Glass Fibre-Reinforced Cement and Gypsum Products," Proceedings, Royal Society, London, No. A 319, 1970, pp 69-78.

327. _____, "Improvement in Cement Compositions Containing Glass Fibre," United Kingdom Patent No. 1,307,357, Feb 1973.

328. _____, "Modification of GRC Properties," Proceedings, Conference on Composites--Standards, Testing and Design, National Physical Laboratory, IPC Science and Technology Press, Ltd., Apr 1974, pp 103-110.

329. _____, (National Research Development Corporation, U. K.), "Cement Compositions Containing Glass Fibres," U. S. Patent No. 3,783,092, 1 Jan 1974.

330. _____, (National Research Development Corporation, U. K.), "Glass Fibres and Compositions Containing Glass Fibres," U. S. Patent No. 3,887,386, 3 Jun 1975.

331. _____, "Properties of Fibre Cement Composites," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 279-313.

332. _____, "The Role of the Interface in Glass Fibre-Reinforced Cement," Conference XI, SILICONE, Budapest, 1973, pp 953-975; Cement and Concrete Research, Vol 4, No. 2, 1972, pp 247-268.

333. Majumdar, A. J. and Ryder, J. F., "Glass Fiber Reinforcement of Cement Products," Journal of Glass Technology, Vol 9, No. 3, Jun 1968, pp 78-84.

334. Majumdar, A. J. and Ryder, J. F., "Reinforcement of Cements and Gypsum Plasters by Glass Fibers," Science of Ceramics, Vol 5, 1970, pp 539-564.

335. Majumdar, A. J., Ryder, J. F., and Rayment, D. L., "Fracture Studies in Glass-Reinforced Gypsum Plaster Using the Scanning Electron Microscope," Journal of Materials Science, Vol 3, No. 3, 1968, pp 561-563.

336. Majumdar, A. J. and Tallentire, A. G., "Glass Fiber Reinforced Cement Base Materials," Fiber Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 351-362.

337. Malhotra, V. M. and Winer, A., "Use of Asbestos Fibre in Portland Cement and Sulphur Concretes," Report No. MRP/MSL 75-85 (OP) and (J), Apr 1975, Industrial Minerals Laboratory, Canada Centre for Mineral and Energy Technology, Ottawa, Canada.

338. Mangat, P. S., "Tensile Strength of Steel Fiber Reinforced Concrete," Cement and Concrete Research, Vol 6, No. 2, Mar 1976, pp 245-252.

339. Mangat, P. S. and Swamy, R. N., "Compactability of Steel Fibre-Reinforced Concrete," Concrete, Vol 8, No. 5, May 1974, pp 34-35.

340. _____, "Properties of Polymer Modified Plain and Fibre Reinforced Concrete," Presented at First International Congress on Polymer Concretes, The Concrete Society (London), Session F, Paper 8, May 1975.

341. Manson, P. W. and Blair, L. R., "Sulfate Resistance of Asbestos-Cement Pipe," Materials Research and Standards, Vol 2, No. 10, Oct 1962, p 828.

342. Maries, A. and Tseung, A. C. C., "Factors Influencing the Strength of Cement/Glass Fiber Composites," Structure, Solid Mechanics and Engineering Design, Proceedings of the Civil Engineering Materials Conference, (Southampton, 1969), Wiley, New York, 1971, pp 1123-1130.

343. Marsh, H. N., Jr., "Glass Fibers in Concrete: The Current Status," Proceedings, Conference M-28, Fibrous Concrete--Construction Material for the Seventies, Construction Engineering Research Laboratory, Champaign, Ill., Dec 1972, pp 83-100.

344. Marsh, H. N., Jr., and Clarke, L. L., Jr., "Glass Fibers in Concrete," Fiber-Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 247-264.

345. Martin, G. C., "Method of Forming Pipe," U. S. Patent No. 1,633,219, 21 Jun 1973.

346. Marvin, E., "Fibrous Concrete Pavement Overlay Thickness Design," Technical Note, Dec 1974, Construction Engineering Research Laboratory, Champaign, Ill.

347. "Materials; New Components in GRC," Two notes in BRS News (England), No. 16, Spring 1971, pp 8-11.

348. Mattison, L. G., "Fibre Concrete and Polymer Concrete," Väg-och Vattenbyggaren, No. 1, 1973.

349. Matyszewski, T. and Mielczarek, Z., "GFR Gypsum--Concrete Beams," Abstracts of the IBAUSIL Conference, Weimar, 1973, Tonindustrie Zeitung, Vol 97, No. 12, Dec 1973, p 321.

350. Mayfield, B., "A Discussion of 'Steel Fiber Treatment to Improve Bonds,' by B. Mayfield and B. Zelly," Concrete, Vol 7, No. 10, Oct 1973, p 33.

351. Mayfield, B. and Zelly, B., "Steel Fibre Treatment to Improve Bonds," Concrete, Vol 7, No. 3, Mar 1973, pp 35-37.

352. McCurrich, L. H. and Adams, M. A. J., "Fibres in Cement and Concrete," Concrete, Vol 7, No. 4, Apr 1973, pp 51-53.

353. McDonald, A. R., "Wirand Concrete Pavement Trials," Proceedings, Conference M-28, Fibrous Concrete--Construction Material for the Seventies, Construction Engineering Research Laboratory, Champaign, Ill., Dec 1972, pp 209-234.

354. McKee, D. C., "Discussion of 'Fiber-Reinforced Concrete Properties' by S. P. Shah and B. V. Rangan," Proceedings, American Concrete Institute, Journal, Vol 68, No. 8, Aug 1971, pp 626-627.

355. _____, The Properties of an Expansive Cement Mortar Reinforced with Random Wire Fibers, Ph. D. Dissertation, University of Illinois, Urbana, Ill., 1969.

356. McKinney, J. L., Tensile Strength of Steel Fiber Reinforced Concrete, M.S. Thesis, Clarkson College of Technology, Potsdam, N. Y., 1964.

357. Meischke-Smith, W., "Ferro-Concrete Construction," U. S. Patent No. 1,349,901, 17 Aug 1927.

358. Mellon, P., "Properties of Concrete Reinforced with Polypropylene Fiber," Nov 1971, British Railways Board, Research Department, London.

359. Meyer, A., "Glass Fibre Concrete (Glasfaser Beton)," Betonwerk and Fertigteil--Technik, Vol 39, No. 9, Sep 1973, pp 625-631.

360. Meyer, A. H., Ledbetter, W. B., Layman, A. H., and Saylak, D., "Reconditioning Heavy-Duty Freeways in Urban Areas," Dec 1975, Texas Transportation Institute, Texas A&M University, College Station, Tex.

361. Meyer, A. H., Ledbetter, W. B., and White, F. S., "Annotated Bibliography for Reconditioning Heavy-Duty Freeways in Urban Areas," Mar 1976, Texas Transportation Institute, Texas A&M University, College Station, Tex. pp 33-55.

362. Michel, H. F., "Fibrous Concrete Used at Kinzua Dam," USCOLD News, Nov 1974, pp 17-18.

363. Mikhail, R. Sh. and Youssef, A. M., "Studies on Fibre-Reinforced Portland Cement Pastes--Surface Area and Pore Structure," Cement and Concrete Research, Vol 4, No. 6, Nov 1974, pp 869-880.

364. Mikkelmeni, M. R., A Comparative Study of Fiber Reinforced Concrete and Plain Concrete Construction, M.S. Thesis, Mississippi State University, State College, Miss., 1970.

365. Moens, J. E. C., "Steel Fiber Concrete Mix Proportioning," N. V. Bekaert, S. A., Zwevegem, Belgium (Presented at the American Concrete Institute Convention, Phildelphia, Pa., Mar 1976).

366. _____, "Steel Wire Fiber Optimization," Fiber Reinforced Concrete Conference at Stevin Laboratory, Delft, The Netherlands, Sep 1973.

367. Monfore, G. E., "A Review of Fiber Reinforcement of Portland Cement Paste, Mortar, and Concrete," Journal, PCA Research and Development Laboratories, Vol 10, No. 3, Sep 1968, pp 36-42; also, Research Department Bulletin No. 226, Portland Cement Association, Skokie, Ill.

368. Montag, R. E., Behavior of a Reinforced Concrete Continuous Beam Containing Steel Wire Segments, M.S. Thesis, Iowa State University, Ames, Iowa, 1965.

369. Moore, J. W., "A New Organic High Modulus Reinforcing Fiber," Report PRD-49, IIT Research Institute, Chicago, Ill.

370. Morel, K. C., The Thermal Conductivity of Steel Fiber Reinforced Portland Cement Mortar, M.S. Thesis, Clarkson College of Technology, Potsdam, N. Y., 1961.

371. Mori, S., Kohno, T., and Tanaka, I., "Properties of Mortar Reinforced with PVA Fibers," Journal of Cement and Concrete (Japan), No. 231, pp 2-3.

372. Moshcansky, N. A., "On the Durability of Glass-Plastic Reinforcement in Concrete," Beton i Zhelezobeton, Vol 9, 1965, pp 33-34.

373. Murat, M., "Internal Morphology of a Fiber-Reinforced Cement," Cement and Concrete Research, Vol 4, No. 2, 1974, pp 327-333.

374. Murphy, E. M., "Steel Fiber Shotcrete in Mines," Concrete Construction, Vol 20, No. 10, Oct 1975, pp 443-445.

375. Naaman, A. E., A Statistical Theory of Strength for Fiber-Reinforced Concrete, Ph. D. Dissertation. Massachusetts Institute of Technology, Cambridge, Mass., 1972.

376. Naaman, A. E., Argon, A. S., and Moavenzadeh, F., "Fracture Model for Fibre Reinforced Cementitious Materials," Cement and Concrete Research, Vol 13, No. 4, 1973, pp 397-411.

377. Naaman, A. E., Moavenzadeh, F., and McGarry, F. J., "Probabilistic Analysis of Fiber-Reinforced Concrete," Journal of the Engineering Mechanics Division, American Society of Civil Engineers, Vol 100, No. EM2, Apr 1974, pp 397-413.

378. Naaman, A. E., McGarry, F. J., and Sultan, J. N., "Developments in Fiber Reinforcement for Concrete," Report No. R 72-28, May 1972, Massachusetts Institute of Technology, Civil Engineering Department, Cambridge, Mass.

379. Naaman, A. E. and Shah, S. P., "Bond Studies on Oriented and Aligned Steel Fibres," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 171-178.

380. _____, "Pull-Out Mechanism in Steel Fiber-Reinforced Concrete," Journal of the Structural Division, American Society of Civil Engineers, January 1976.

381. Nair, N. G., "Mechanics of Glass Fibre Reinforced Cement," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 81-93.

382. Nanda, V. K., A Laboratory Investigation of Fibre-Reinforced Concrete, M.S. Thesis, University of Surrey, 1969.

383. Nanda, V. K. and Hannant, D. J., "Fibre-Reinforced Concrete," Concrete Building and Concrete Products, Vol 44, No. 10, Oct 1969, pp 179-181.

384. Natarajan, P., A Study on the Tensile Strength of Fiber-Reinforced Concrete, M.E. Dissertation, Department of Civil and Hydraulic Engineering, Indian Institute of Science, 1970.

385. National Research and Development Corp., "Improvements in or Relating to Fibre Reinforced Articles," United Kingdom Patent No. 1,360,803, 24 Jul 1974.

386. National Research and Development Council (London), "Alkali-Resistant Glass-Fluxing Agent," Brit. Patent Appl. No. 5070/67.

387. _____, "Glass Fibre Alkali Systems," Brit. Patent Appl. No. 31025/66.

388. _____, "Gypsum Plaster Glass Reinforced," Brit. Patent Appl. No. 4962/67.

389. National Standards Company, "Wire Reinforced Plastic Composites," U. S. Patent No. 3,592,727, 1971.

390. Naus, D., Plummer, F., and Merritt, R., "Cost Performance Analysis of Portland Cement Concrete--Fibrous Polyester Concrete Material System," Technical Report No. M-45, 1973, U. S. Army Construction Engineering Research Laboratory, Champaign, Ill.

391. Nekrasov, V. P., "Metod Kosvennogo Vooruzhenia Betona," Novij Zhelezobeton, Ch. I, NKPS, Moscow, 1925.

392. Nelissen, L. J. M., "Fibre Reinforced Structural Concrete," Cement, Vol 24, No. 5, 1972, pp 200-203.

393. Neville, A. M., "Increasing Tensile Strength of Terrazzo," Proceedings, American Concrete Institute, Journal, Vol 61, No. 3, Mar 1964, pp 335-343.

394. "New Materials in Concrete Construction," Concrete Construction, Vol 17, No. 6, Jun 1972, pp 271-276.

395. New Materials in Concrete Construction, Proceedings, Conference, University of Illinois at Chicago Circle, Chicago, Ill., Dec 15-17, 1972.

396. "New Plant and Products, Glass Fibre-Reinforced Cement," Concrete, Vol 5, No. 3, Mar 1971, p 99.

397. "New Techniques Add to the Versatility of Concrete," International Construction (London), Apr 1969, pp 68-70.

398. "New Uses for Glass Fibre Reinforcements," BRS News, No. 2, Building Research Station, Watford, England, Autumn 1967, pp 8-9.

399. Nielsen, L. E. and Chen, D. E., "Young's Modulus of Composites Filled with Randomly Oriented Fibers," Journal of Materials, Vol 3, No. 2, Jun 1968, pp 352-358.

400. Nishioka, K., Kakima, N., Yamakawa, S., and Shirakawa, K., "Effective Applications of Steel Fibre-Reinforced Concrete," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 425-433.

401. Nutt, O. (Cement Marketing Co., Ltd.) "Concrete Compositions," United Kingdom Patent No. 1,317,245, 16 May 1973.

402. O'Leary, D. C., Dave, N. J., and Saunders, J., "Steel Fibers in Partially Prestressed Composite Beams," Fiber-Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 477-495.

403. Oakley, D. R. and Proctor, B. A., "Tensile Stress-Strain Behavior of Glass Fibre-Reinforced Cement Composites," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 347-359.

404. Oehler, L. T., "Fibrous Concrete Strength--Corrections to 'Fibrous Concrete Tested on Highway (ENR 10/19/72, p 16),'" Engineering News-Record, Vol 190, No. 7, 15 Feb 1973.

405. Ohgishi, S. and Kizawa, K., "Experiments on Bearing Capacity for Impact Bending of Mortar Beams and Plates Containing Polypropylene Fiber Dispersed in Them," Bulletin, Nagoya Institute of Technology (Japan), Vol 19, 1967, pp 381-390.

406. Ohgishi, S. and Ugai, M., "Properties of Mortar and Concrete Reinforced with Metal Fibers," Journal of Cement and Concrete (Japan), No. 272, pp 24-30.

407. Ohio Department of Transportation, "Experimental Wirand Concrete Pavement Report No. 2, Ashland County-IR-71," Feb 1974.

408. Ohlerich, G., "Asbestos--Properties and Specific Problems in Processing," Baustoffindustrie, Vol 15, No. 85, Oct 1972, pp 26-30.

409. Ohama, Y. and Sugama, T., "Properties of Polystyrene-Impregnated Mortar Prepared by Heat Polymerization in Hot Water," Proceedings, 16th Japanese Congress on Materials Research, The Society of Materials Science, Kyoto, Japan, 1973, pp 216-218.

410. Opoczky, L. and Lászlò, P., Jr., "Investigation of the 'Corrosion' of Asbestos Fibres in Asbestos Cement Sheets Weathered for Long Times," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 269-276.

411. Opoczky, L., Mechler, I., and Szatura, L., "Corrosion of Artificial Fibers in Asbestos Cement Products," Epitoanyag, Vol 24, 1972, pp 121-127 (Chem Abstr., Vol 77, No. 10, 1972, 65846q).

412. "Ordinary Portland Cement Concrete Reinforced with Glass Fibres," Precast Concrete, Vol 3, No. 11, Nov 1972, p 684.

413. Oroschokoft, G., "Reinforcement for Reinforced Concrete Structures," U. S. Patent Nos. 3,744,207, 10 Jul 1973 and 3,800,491, 2 Apr 1974.

414. Ounanian, D. W., Halvorsen, G. T., and Kesler, C. E., "Concrete for Tunnel Liners: Pumpable Fiber Reinforced Concrete--Final Report," Report No. FRA-OR&D 75-88, Aug 1975, Federal Railroad Administration, U. S. Department of Transportation, Washington, D. C.

415. Oya, S., Nore, H., and Suzuki, K., "Process for Preparing Reinforcing Additives to be Applied to Inorganic Cements," U. S. Patent No. 3,865,779, 11 Feb 1975.

416. Ozell, A. M., "Discussion of 'Mechanics of Crack Arrest in Concrete with Closely-Spaced Reinforcement' by J. P. Ramuuldi and C. B. Batson," Proceedings, American Society of Civil Engineers, Vol 89, No. EM4, Aug 1963, p 103.

417. Pakotiprapha, B., Mechanical Properties of Cement Mortar with Randomly Oriented Short Steel Wires, M.S. Thesis, Asian Institute of Technology, 1973.

418. Pakotiprapha, B., Pama, R. P., and Lee, S. L., "Mechanical Properties of Cement Mortar with Randomly Oriented Short Steel Wires," Magazine of Concrete Research, London, Vol 26, No. 86, Mar 1974, pp 3-15.

419. Parameswaran, V. S. and Rajagopalan, K., "A Discussion of 'Steel Fibre Treatment to Improve Bonds' by B. Mayfield and B. Zelly," Concrete, Vol 7, No. 9, Sep 1973, p 29.

420. _____, "Strength of Concrete Beams with Aligned or Random Steel Fibre Microreinforcement," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 95-103.

421. Parimi, S. R., Studies on Fibre-Reinforced Concrete, Master of Technology Thesis, Indian Institute of Technology, Kanpur, India, 1969.

422. Parimi, S. R. and Sridhar Rao, J. K., "Effectivemess of Random Fibres in Fibre-Reinforced Concrete," Proceedings of International Conference on Mechanical Behavior in Materials, Kyoto, Japan, Vol 5, Aug 1971, pp 176-186.

423. Parimi, S. R. and Sridhar Rao, J. K., "On the Fracture Toughness of Fiber-Reinforced Concrete," Fiber-Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 79-92.

424. _____, "Some Studies on Fibre-Reinforced Concrete," Report CE2-1968, 1968, Dept of Civil Engineering, IIT Kanpur, India.

425. Parker, F., Jr., "Construction of Fibrous Concrete Overlay: Tampa International Airport," Proceedings, Conference M-28, Fibrous Concrete--Construction Material for the Seventies, Construction Engineering Research Laboratory, Champaign, Ill., Dec 1972, pp 177-197.

426. _____, "Construction of Fibrous Reinforced Concrete Overlay Test Slabs, Tampa International Airport, Florida," Report No. FAA-RD-72-119, Oct 1972, Federal Aviation Administration, U. S. Department of Transportation, Washington, D. C.

427. _____, "Steel Fibrous Concrete for Airport Pavement Applications," Technical Report S-74-12, Nov 1974, U. S. Army Engineer Waterways Experiment Station, CE, Vicksburg, Miss.

428. Parker, H. W., "Steel Fiber-Reinforced Regulated-Set Concrete," Proceedings, Conference M-28, Fibrous Concrete--Construction Material for the Seventies, Construction Engineering Research Laboratory, Champaign, Ill., Dec 1972, pp 125-138.

429. Parker, H. W., Deere, D. V., Peck, R. B., Birkemoe, P. C., and Sample, R. M., "Testing and Evaluation of Prototype Tunnel Support Systems," Report No. FRA-OR&D 74-11, Aug 1973, Federal Railroad Administration, U. S. Department of Transportation, Washington, D. C.

430. Pascenko, A. A., Serbin, V. P., Klimenko, V. S., and Starcevskaja, E. C., "New Tests on Portland Cement Reinforced with Coated Glass Fibers," Abstracts of the IBAUSIL Conference, Weimar, 1973, Tonindustrie Zeitung, Vol 97, No. 12, Dec 1973, p 321.

431. Pasko, T. J., Jr., "Pavement Applications of Steel Fiber Reinforced Concrete," Highway Focus, Vol 4, No. 5, Oct 1972, pp 71-91.

432. Patterson, W. A., "Glass Fibre-Reinforced High Alumina Cement--Mechanical Properties and Potential Applications," Ph. D. Thesis, 1971, Queens University of Belfast.

433. Patterson, W. A. and Chan, H. C., "Fracture Toughness of Glass Fibre-Reinforced Cement," Composites, Vol 6, No. 3, May 1975, pp 102-104.

434. Paul, S. L. and Ferra-Boya, R. A., "Concrete Tunnel Liners--Structural Testing of Cast-in-Place Liners," Chapter 4: Moment--Thrust Failure Envelope, Final Report UILU - ENG 75-2014, Aug 1975, U. S. Department of Transportation, Washington, D. C. pp 4-1 through 4-20.

435. Pecuil, T. E. and Marsh, H. N., Jr., "Fiberglas Surface Bonding," Fiber-Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 363-374.

436. Pell, F. R., The Effects of Pozzolans and Autoclaving on the Mechanical Properties of Glass Fibre-Reinforced Portland Cement, M.Sc. Thesis, University of Bristol, 1969.

437. Peters, D., "Steel Fibres Give Concrete Greater Strength," The Engineer, Vol 231, No. 5975, Jul 1970, pp 34-35.

438. Perkins, A. M. and Ferguson, A. (Tac Construction Materials, Ltd.), "Fiber-Reinforced Asbestos Cement," Brit. Patent No. 1,327,792, 22 Aug 1973 (Chem. Abstr., Vol 80, No. 4, 1974, 18810a).

439. Pihlajavaara, S. E., "A Brief Review of the Theoretical Estimation and Experimental Determination of Strength of Fibre-Reinforced Concrete," A Note Prepared for Nordforsk Meeting, Parainen-Pargas, 8-9 Apr 1974.

440. _____, "Introduction to Fibre Reinforcement," Eripainos Rakennustaito, No. 8, 1973, pp 29-34.

441. "Pioneer Overlay Job Uses Fiber-Reinforced Concrete," Civil Engineering, American Society of Civil Engineers, Vol 44, No. 1, Jan 1974, pp 38-39.

442. "Plastic Fibrous Reinforcement for Portland Cement," Architecture and Building, Jan 1965, and Rubber and Plastics Age, Jan 1965, pp 51-53.

443. Poad, M. E., Serbousek, M. O., and Goris, J., "Engineering Properties of Fiber-Reinforced and Polymer-Impregnated Shotcrete," Bu Mines-RI-8001, Jan 1975, Bureau of Mines, Spokane Mining Research Center, Spokane, Wash.

444. Podolny, W., Jr., "Properties of Fiber-Reinforced Concrete," Highway Focus, Vol 4, No. 5, Oct 1972, pp 1-22.

445. "Polymerized Fibrous Concrete to Fix Dam Spillway," Engineering News-Record, Vol 194, No. 2, 9 Jan 1975, p 10.

446. Pomeroy, C. D., "Evaluating Modified Concretes--Parts 1 and 2," Concrete, Vol 7, No. 5, May 1973, pp 34-36, and Concrete, Vol 7, No. 6, Jun 1973, pp 32-34.

447. _____, "Fibre-Reinforced Concrete--Its Properties and Applications," DN/4023, Oct 1973, Cement and Concrete Association, London.

448. Pomeroy, C. D. and Brown, J. H., "Tailoring Fibre-Concretes to Special Requirements," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 435-444.

449. Pomeroy, C. D., Taylor, H. P. J., and Brown, J. H., "Concrete Products for the Replacement of Timber for Chock Construction in Coal Mining," Technical Report 42-491, May 1974, Cement and Concrete Association, London.

450. Porter, H. F., "Preparation of Concrete from Selection of Materials to Final Disposition," Proceedings of the National Association of Cement Users, American Concrete Institute, Detroit, Vol 6, 1910, p 287.

451. Portland-Zement Werke Heidelberg Aktiengesellschaft, "A process for the Production of Glass Fibre Reinforced Cement or Concrete," United Kingdom Patent No. 1,357,821, 26 Jun 1974.

452. "Practical Applications of Fibres," Precast Concrete, Vol 5, No. 1, Jan 1974, pp 31-32.

453. Proctor, B. A., Oakley, D. R., and Wiechers, W., "Tensile Stress/Strain Characteristics of Glass Fibre-Reinforced Cement," Proceedings, Conference on Composites--Standards, Testing, and Design, National Physical Laboratory, IPC Science and Technology Press, Ltd., Apr 1974, pp 106-107.

454. "Prospects for Fibre-Reinforced Concrete," Precast Concrete, Vol 2, No. 12, Dec 1971, pp 709-711.

455. Prospects for Fibre Reinforced Construction Materials, Proceedings, International Building Exhibition Conference, London, Nov 24, 1971, Building Research Establishment, England, 1972.

456. Rajagopalan, K. and Parameswaren, V. S., "A Discussion of 'A Theory for the Flexural Strength of Steel Fibre-Reinforced Concrete,' by R. N. Swamy and P. S. Mangat," Cement and Concrete Research, Vol 5, No. 2, Mar 1975, pp 179-182.

457. _____, "A Discussion of 'Influence of Fibre Geometry on the Properties of Steel Fibre-Reinforced Concrete' by R. N. Swamy and P. S. Mangat," Cement and Concrete Research, Vol 5, No. 2, Mar 1975, pp 189-190.

458. _____, "A Discussion of 'New Reinforcing Materials in Concrete' by S. P. Shah," Proceedings, American Concrete Institute, Journal, Vol 71, No. 11, Nov 1974, pp 582-584.

459. _____, "A Study on the Mechanics of Fibre Debonding in Concrete with Microreinforcement." Materiaux et Constructions, (Materials and Structures), Vol 8, No. 48, Jul-Aug 1975, pp 305-314.

460. Rajagopalan, K., Parameswaran, V. S., and Ramaswamy, G. S., "Strength of Steel Fiber-Reinforced Concrete Beams," The Indian Concrete Journal (Bombay), Vol 48, No. 1, Jan 1974, pp 17-25.

461. Ramey, M. R., Flexural Behavior of Fiber-Reinforced Concrete Beams, Ph. D. Dissertation, Carnegie-Mellon University, Pittsburgh, Pa, 1967.

462. Ramey, M. R. and McCabe, P. J., "Compression Fatigue of Fiber-Reinforced Concrete," Proceedings, American Society of Civil Engineers, Vol 100, No. EM2, Apr 1974, pp 139-149.

463. Rammant, J. P. and Van Laethem, M., "Fibre Concrete for a Folded Plate Structure," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 179-185.

464. Rao, C. V. S. K. and Swamy, R. N., "Bearing Strength of Steel Fibre Reinforced Concrete," Building Science, Vol 9, No. 4, Dec 1974, pp 263-268.

465. Redmond, T. B. and Toennies, H., "Impact Strength of Bloc Bond Concrete Masonry Walls," Test Report, Nov 1972, National Concrete Masonry Association, Arlington, Va.

466. _____, "Structural Properties and Moisture Resistance of Surface Bonded Concrete Masonry Walls," Test Report, Apr 1971, and Addendum Report, May 1971, National Concrete Masonry Association, Arlington, Va.

467. _____, "Structural Properties of Concrete Masonry Walls Constructed with Surewall," Test Report, 1970, and Addendum Report, May 1972, National Concrete Masonry Association, Arlington, Va.

468. Rehm, G., "Fibre-Reinforced Concrete Types and Problems Resulting Therefrom," Betonwerk and Fertigteil-Technik, Vol 39, No. 9, Sep 1973, pp 638-641.

469. Riale, B. R., A Study of Steel Fiber-Reinforced Concrete Plates, M.S. Thesis, Clarkson College of Technology, Potsdam, N. Y., 1964.

470. "Ribtec Steel Fiber in Concrete--Information Leaflet," Jan 1974, Ribbon Technology Corp., Canal Winchester, Ohio.

471. Rice, J. L., "Fibrous Concrete Pavement Design Summary," Final Report, No. CERL-TR-M-134, Jun 1975, U. S. Army Construction Engineering Research Laboratory, Champaign, Ill.

472. _____, "Pavement Design Considerations," Proceedings, Conference M-28, Fibrous Concrete--Construction Material for the Seventies, Construction Engineering Research Laboratory, Champaign, Ill., Dec 1972, pp 159-176.

473. _____, "Proposed Design Criteria for Fibrous Concrete Pavement," Preliminary Report S-5, Apr 1972, Construction Engineering Research Laboratory, Champaign, Ill.

474. Riedel, W. and Bimberg, R., "Possibilities and Boundaries for Reinforcement of Cementitious Materials with Glass or Mineral Fibers," Abstracts of the IBAUSIL Conference, Weimar, 1973, Tonindustrie Zeitung, Vol 97, No. 12, Dec 1973, p 321.

475. Ritchie, A. G. B. and Al-Kayyali, O. A., "The Effects of Fibre Reinforcements on Lightweight Aggregate Concrete," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 247-256.

476. Ritchie, A. G. B. and MacKintosh, D. M., "Selection and Rheological Characteristics of Polypropylene Fibres," Concrete, Vol 6, No. 8, Aug 1972, pp 36-39.

477. Ritchie, A. G. B. and Rahman, T. A., "Effect of Fiber Reinforcement on the Rheological Properties of Concrete Mixes," Fiber-Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 29-44.

478. Robinson, K., "Process for Making Ferro-Cement Structures," U. S. Patent No. 3,839,521, 1 Oct 1974.

479. Rommel, R. R., Craig, W. E., Murphy, S. D., and Fine, H. D., "Evaluation of 'Tuf' Concrete Used to Replace the Original Liner at U-19e," Dec 1969, Fenix and Scission, Inc., Mercury, Nev.

480. Romualdi, J. P., "Discussion of 'Fiber-Reinforced Concrete Properties,' by S. P. Shah and B. V. Rangan," Proceedings, American Concrete Institute, Journal, Vol 68, No. 8, Aug 1971, pp 627-630.

481. _____, "The Static Cracking Stresses and Fatigue Strength of Concrete Reinforced with Short Pieces of Thin Steel Wire," Proceedings, International Conference on the Structure of Concrete and Its Behavior Under Load, London, Sep 1965, Cement and Concrete Association (London), 1967, pp 190-214.

482. _____, "Theory and Development of Fibrous Concrete," Proceedings, Symposium on Fibrous Concrete, USA and UK, The Concrete Society (London), West Midlands Region, University of Birmingham, Paper 2, 27 Sep 1972.

483. _____, "Two-Phase Concrete and Steel Material," U. S. Patent No. 3,429,094, 1969.

484. Romualdi, J. P. and Batson, G. B., "Behavior of Reinforced Concrete Beams with Closely Spaced Reinforcements," Proceedings, American Concrete Institute, Journal, Vol 60, No. 6, Jun 1963, pp 775-790.

485. _____, "Mechanics of Crack Arrest in Concrete with Closely Spaced Reinforcements," Proceedings, American Society of Civil Engineers, Vol 89, EM3, Jun 1963, pp 147-168.

486. Romualdi, J. P. and Mandel, J. A., "Discussion of 'Tensile Strength of Concrete Affected by Uniformly Distributed Closely Spaced Short Lengths of Wire Reinforcements,'" Proceedings, American Concrete Institute, Journal, Vol 61, No. 12, Dec 1964, pp 1651-1656.

487. _____, "Tensile Strength of Concrete Affected by Uniformly Distributed Closely Spaced Short Lengths of Wire Reinforcement," Proceedings, American Concrete Institute, Journal, Vol 61, No. 6, Jun 1964, pp 657-671.

488. Romualdi, J. P. and Ramey, M. R., "Effects of Impulsive Loads on Fiber-Reinforced Concrete Beams," Contract No. OCD-PS-64-21, Oct 1965, Final Report for Office of Civil Defense, Carnegie Institute of Technology, Pittsburgh, Pa.

489. Romualdi, J. P., Ramey, M. R., and Sanday, S. C., "Prevention and Control of Cracking by Use of Short Random Fibres," Proceedings, American Concrete Institute, Journal, Vol 65, No. 7, Jul 1968, pp 557-559; also ACI Publication SP-70, 1968, pp 179-203.

490. Roper, H., Stitt, D. M, and Lawrence, P., "Properties of Resin Coated Glass Fibers as Reinforcement in Concretes, Mortar, and Pastes," Fibre-Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 221-245.

491. Ross, J. H., "Fibre Reinforcement for Structural Composites," Materials Research and Standards, Vol 11, No. 5, May 1971, pp 11-15.

492. Rubenstein, D. (Chemstress Industries, Inc.), "Reinforced Pipe," U. S. Patent No. 3,742,985, 3 Jul 1973.

493. Ryan, T., "Steel Fibres in Gunite, an Appraisal," Tunnels and Tunneling, Vol 7, No. 4, Jul-Aug 1975, pp 74-75.

494. Ryder, J. F., "Applications of Fibre Cement," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 23-35.

495. _____, "Glass Fibre-Reinforced Gypsum Plaster," Proceedings, Prospects for Fibre-Reinforced Construction Materials, International Building Exhibition, London, Nov 1971, pp 69-89; also BRE Current Paper, 1972.

496. Sage, R. H., Tensile Studies of Steel Fiber Reinforced Dental Plaster, M.S. Thesis, Clarkson College of Technology, Potsdam, N. Y., 1964.

497. Samarai, M. and Elvery, R. H., "The Influence of Fibres upon Crack Development in Reinforced Concrete Subject to Uniaxial Tension," Magazine of Concrete Research, Vol 26, No. 89, Dec 1974, pp 203-211.

498. Sanday, S. C., Fatigue Strength of Closely Spaced Short Wire Reinforced Concrete, M.S. Thesis, Carnegie Mellon University, Pittsburgh, Pa., 1963.

499. Sarkar, S. and Bailey, M. B., "Structural Properties of Carbon Fibre-Reinforced Cement," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 361-371.

500. Sather, W. R., "Fibrous Concrete Field Batching Sequences," Proceedings, American Concrete Institute, Journal, Vol 71, No. 10, Oct 1974, pp 504-505.

501. _____, "First Fiber Concrete Placed in Minnesota," Construction Bulletin (U. S. A.), 3 Aug 1972, pp 3-5.

502. _____, "New type of Concrete Placed in Inside Loading Dock," Construction Bulletin, 15 Feb 1973, pp 16-17.

503. Sather, W. R. and Wilson, J. R., "A New Dimension in Bridge Deck Construction," Concrete Construction, Jul 1973, pp 321-324.

504. Saucier, K. L., "Determination of Practical Ultimate Strength of Concrete," Miscellaneous Paper C-72-16, Jun 1972, U. S. Army Engineer Waterways Experiment Station, CE, Vicksburg, Miss.

505. Schnütgen, B., "Some Results of Investigations on Steel Fibre-Reinforced Concrete," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 105-116.

506. Schrader, E. K., Studies in the Behavior of Fiber-Reinforced Concrete, M.S. Thesis, Clarkson College of Technology, 1971.

507. Schrader, E. K. and Kaden, R. A., "Cavitation and Erosion at Dworshak," USCOLD News, Issue No. 48, Nov 1975, pp 5-7, 13-14.

508. Schrader, E. K. and Munch, A. V., "Fibrous Concrete Repair of Deck Slab at Libby Dam Visitor Facility, Libby, Montana," Walla Walla District, Corps of Engineers, Walla Walla, Wash.

509. _____, "Fibrous Concrete Repairs, Sluice Cavitation at Libby Dam," Walla Walla District, Corps of Engineers, Walla Walla, Wash.

510. Schwarz, A. W., "Steel Fiber Production and Related Considerations," Proceedings, Conference M-28, Fibrous Concrete--Construction Material for the Seventies, Construction Engineering Research Laboratory, Champaign, Ill., Dec 1972, pp 55-61.

511. _____, "Steel Fibre-Reinforced Concrete," Polish-American Seminar on Concrete Today and Tomorrow in Housing, Warsaw, Poland, 22-27 Oct 1973.

512. _____, "Steel Fiber Reinforced Concrete," 1975, U. S. Steel Corp., New Project Development, Pittsburgh, Pa.

513. Seailles, J-C., "High Density Mortar," French Patent No. 514,186, 13 Nov 1920.

514. Serinken, S., "Discussion of 'Durability of Fibreglass--Portland Cement Composites,' by D. S. Cahn, J. C. Phillips, O. Ishai, and S. Aroni," Proceedings, American Concrete Institute, Journal, Vol 70, No. 9, Sep 1973, p 661.

515. Shah, S. P., "Micromechanics of Concrete and Fibre-Reinforced Concrete," International Conference on Civil Engineering Materials, Southampton University, England, Paper 31, Apr 1969, pp 367-376.

516. _____, "New Materials in Concrete Construction," Proceedings of a Conference, University of Illinois at Chicago Circle, Dec 1971, University of Illinois, Chicago, Ill., 1972.

517. _____, "New Reinforcing Materials in Concrete," Proceedings, American Concrete Institute, Journal, Vol 71, No. 5, May 1974, pp 257-262; also University of Illinois at Chicago Circle, Chicago, Ill.

518. Shah, S. P., "Non-Linear Behavior and Composite Nature of Concrete and Fiber Reinforced Concrete," American Society of Civil Engineers Joint Specialty Conference, Chicago, Ill., 1968, pp 12-16.

519. Shah, S. P. and Naaman, A. E., "Mechanical Properties of Glass and Steel Fiber Reinforced Mortar," Report No. 75-1, University of Illinois at Chicago Circle, Chicago, Ill.; also Proceedings, American Concrete Institute, Journal, Vol 73, No. 1, Jan 1976, pp 50-53.

520. Shah, S. P. and Rangan, B. V., Journal of the Structural Division, American Society of Civil Engineers, ST6, Jun 1970, pp 1167-1184.

521. _____, "Fiber-Reinforced Concrete Properties," Proceedings, American Concrete Institute, Journal, Vol 68, No. 2, Feb 1971, pp 126-135.

522. _____, "Some Micromechanical Properties of Fibre-Reinforced Concrete," Research Report R 69-72, Dec 1969, Department of Civil Engineering, Massachusetts Institute of Technology, Cambridge, Mass.

523. Shah, S. P. and Winter, G., "Inelastic Behavior and Fracture of Concrete," Proceedings, American Concrete Institute, Journal, Vol 63, No. 9, Sep 1966, pp 925-930.

524. Sherard, J. L., "Fibre-Reinforced Concrete," U. S. Patent No. 3,616,589, Nov 1971.

525. Shiire, T. and Uemiya, I., "Study on the Increase of Tensile Strength of Mortar with Metal Fibers," Journal of Cement and Concrete (Japan), No. 272, pp 24-30.

526. Shrimali, S. K., Studies on Deformation Characteristics of Fibrous Concrete, M.E. Thesis, Department of Civil and Hydraulic Engineering, Indian Institute of Science, 1971.

527. Shroff, J. K., The Effect of a Corrosive Environment on the Properties of Steel Fibre-Reinforced Portland Cement Mortar, M.S. Thesis, Clarkson College of Technology, Potsdam, N. Y., 1966.

528. Simons, J. W. and Haynes, B. C., Jr., "Surface Bonding of Concrete Blocks," Information Bulletin No. 343, Jun 1970, U. S. Department of Agriculture, Washington, D. C.

529. Sinno, R. R., "Discussion of 'Fiber-Reinforced Concrete Properties' by S. P. Shah and B. V. Rangan," Proceedings, American Concrete Institute, Journal, Vol 68, No. 8, Aug 1971, pp 630-631.

530. Skarendahl, A., "Fiberarmerade Cement--Baserade Material (Fibre-Reinforced Cement-Based Materials)," Jun 1975, Swedish Cement and Concrete Research Institute, Institute of Technology, Stockholm, Sweden.

531. _____, "Fiberbetong--Produktionsmetoder, Egenskaper Och Användning (Fibrous Concrete--Production Methods, Properties and Use)." Presented at the Nordisk Concrete Congress, Tammerfors,

12-14 Jun 1975, Swedish Cement and Concrete Institute, Institute of Technology, Stokholm, Sweden, 1975.

532. Slayter, G., "Two-Phase Materials," Scientific American, Vol 206, No. 1, Jan 1962, pp 124-126, 128, 130-132, 134.

533. Smidth, F. L. and Co, A/S, "Method and Apparatus for Manufacturing Fibrous Cement Sheets," UK Patent No. 1,263,486, Feb 1972.

534. Snyder, M. J. and Lankard, D. R., "Factors Affecting Cracking Strength of Fibrous Concrete," Proceedings, American Concrete Institute, Journal, Vol 69, No. 2, Feb 1972, pp 96-100.

535. Soane, A. J., "Glass Fibre Reinforced Cement Composites," Proceedings, 7th International Congress of the Precast Concrete Industry--BIBM 72, Barcelona, May 1972, pp 178-189.

536. Soane, A. J. and Williams, J. R., "The Design of Glass Fibre Reinforced Cement Cladding Panels," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 445-452.

537. Spurrier, J. and Luxmoore, A., "Theoretical and Experimental Tensile Behavior of Fibre-Reinforced Cementitious Materials," Fibre Science and Technology, Vol 6, No. 4, Oct 1973, pp 281-298.

538. Sridhara, S., Kumar, S., and Sinare, M. A., "Fibre-Reinforced Concrete," Indian Concrete Journal, Vol 45, No. 10, Oct 1971, pp 428-442.

539. "Steel Fibres in Airport Runways," Concrete, Vol 6, No. 8, Aug 1972, pp 34-35.

540. "Steel Fibre Reinforced Concrete," Highways and Road Construction, Vol 41, Oct 1973, p 55.

541. Steele, B. R., "Glass-Fibre Reinforced Cement," Proceedings, Prospects for Fibre Reinforced Construction Materials, International Building Exhibition, London, Nov 1971, pp 69-89; also Building Research Station Current Paper CP 17/72, England, Sep 1972, pp 29-36.

542. Steinberg, M., Dikeou, J. T., Kukacka, L. E., Backstrom, J. W., Colombo, P., Hickey, K. B., Auskern, A., Rubenstein, S., Manowitz, B., and Janes, C. W., "Concrete-Polymer Materials, Second Topical Report," USBR REC-OCE-70-1 and BNL 50218 (T-560), U. S. Bureau of Reclamation, Denver, Colo., Dec 1969, pp 36-38.

543. Stelmo, Ltd., "Improvements in or Relating to Concrete Pipes," United Kingdom Patent No. 1,389,738, 3 Apr 1975.

544. Stiefkin, C. E. (American Smelting and Refining Co.), "Coating Asbestos Fiber with Aluminum Sulfate Prior to Forming a Cement/Asbestos Slurry from the Treated Fibers to Enhance the Filtering Characteristics of the Slurries," U. S. Patent No. 3,832,280, 27 Aug 1974.

545. Sundararaja Iyengar, K. T. and Viswanatha, C. S., "Fiber-Reinforced Concrete--Recent Development," National Seminar on Materials Science and Technology, Madras, Feb 1973.

546. _____, "Some Studies on Strength and Deformational Aspects of Fibre-Reinforced Concrete," Proceedings of Forty-First Annual Research Session, Central Board of Irrigation and Power, India, Vol 3, 1971, pp 211-240.

547. _____, "Discussion of 'Stress-Strain Properties of Random Wire Reinforced Concrete' by W. F. Chen and J. L. Carson," Proceedings, American Concrete Institute, Journal, Vol 69, No. 6, Jun 1972, pp 346-349.

548. "Surface Bonding--A Technique for Erecting Concrete Block Walls Without Mortar Joints," Report No. CA-42-57, Jun 1970, U. S. Department of Agriculture, Athens, Ga.

549. Swamy, R. N., "Delft Conference on Fibre-Reinforced Materials," Concrete, Vol. 7, No. 12, Dec 1973, p 44.

550. _____, "Fibre-Reinforced Concrete Is Here to Stay," Civil Engineering and Public Works Review, Vol 68, No. 809, Dec 1973, pp 1075-1081.

551. _____, "Fibre-Reinforced Concrete: Mechanics, Properties, and Applications," The Indian Concrete Journal, Vol 48, No. 1, Jan 1974, pp 7-16, 29.

552. _____, "Fibre Reinforcement of Cement and Concrete," RILEM Technical Committee 19-FRC Report, "Evaluation of Fibre Reinforced Cement Based Composites," Materiaux et Constructions, Vol 8, No. 45, May-Jun 1975, pp 235-254.

553. Swamy, R. N., "Progress in Fibre-Reinforced Concrete," Civil Engineering and Public Works Review, Vol 68, No. 806, Sep 1973, pp 745-754.

554. _____, "Properties and Applications of Fibre-Reinforced Concrete," Betonituote, No. 3, 1973, pp 21-27.

555. _____, "The Technology of Steel Fibre-Reinforced Concrete for Practical Applications," Proceedings, The Institute of Civil Engineers, Part 1, Design and Construction, Vol 56, May 1974, pp 143-159.

556. Swamy, R. N. and Al-Noori, K. A., "Bond Strength of Steel Fibre-Reinforced Concrete," Concrete, Vol 8, No. 8, Aug 1974, pp 36-37.

557. _____, "Flexural Behavior of Fibre Concrete with Conventional Steel Reinforcement," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 187-196.

558. _____, "Flexural Properties of Steel Fibre Reinforced Concrete," Concrete (London), Vol 9, No. 6, Jun 1975, pp 30-31.

559. Swamy, R. N., Fattuhi, N. I., and Mangat, P. S., "Laboratory and Field Studies of Fiber Reinforcement in Concrete," Nov 1971, Department of Civil and Structural Engineering, University of Sheffield, Sheffield, England.

560. _____, "Mechanics of Fibre-Reinforced Concrete," Proceedings of the International Conference on Mechanical Behavior of Materials, Kyoto, Japan, Vol 5, 1971, pp 168-175; also Department of Civil and Structural Engineering, University of Sheffield, Sheffield,
England.

561. Swamy, R. N. and Kameswara Rao, C. V. S., "Discussion of 'Probabilistic Analysis of Fiber-Reinforced Concrete' by A. E. Naaman, F. Moavenzadeh, and F. J. McGarry," Journal of the Engineering Mechanics Division, American Society of Civil Engineers, Vol 101, No. EM2, Apr 1975, pp 156-159.

562. Swamy, R. N. and Kent, B., "Some Practical Structural Applications of Steel Fiber-Reinforced Concrete," Fiber-Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 319-336.

563. Swamy, R. N. and Mangat, P. S., "A Reply to Rajagopalan and Parameswaran's Discussion of 'A Theory for the Flexural Strength Strength of Steel Fiber-Reinforced Concrete,'" Cement and Concrete Research, Vol 5, 1975, pp 183-187.

564. _____, "A Reply to Rajagopalan and Parameswaren's Discussion of 'Influence of Fiber-Geometry on the Properties of Steel Fiber-Reinforced Concrete,'" Cement and Concrete Research, Vol 5, 1975, pp 191-194.

565. _____, "A Theory for the Flexural Strength of Steel Fiber-Reinforced Concrete," Cement and Concrete Research, Vol 4, No. 2, 1974, pp 313-325.

566. Swamy, R. N. and Mangat, P. S., "Flexural Strength of Steel Fibre Reinforced Concrete," Proceedings, Institute of Civil Engineers, Vol 57, Dec 1974, pp 701-707.

567. _____, "Influence of Fiber Geometry on the Properties of Steel Fiber-Reinforced Concrete," Cement and Concrete Research, Vol 4, No. 3, 1974, pp 451-465.

568. _____, "Influence of Fibre-Aggregate Interaction on Some Properties of Steel Fibre Reinforced Concrete," Materiaux et Constructions (Materials and Structures), Vol 17, No. 41, Sep-Oct 1974, pp 307-314.

569. _____, "Onset of Cracking and Ductility of Steel Fiber Concrete," Cement and Concrete Research, Vol 5, No. 1, Jan 1975, pp 37-53.

570. Swamy, R. N., Mangat, P. S., and Rao, C. V. S. K., "The Mechanics of Fiber Reinforcement of Cement Matrices," Fiber-Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 1-28.

571. Swamy, R. N. and Rao, C. V. S. K., "Fracture Mechanism in Concrete Systems Under Uniaxial Loading," Cement and Concrete Research, Vol 3, No. 4, Jul 1973, pp 413-427.

572. Swamy, R. N. and Stavrides, H., "Some Properties of High Workability Steel Fibre Concrete," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 197-208.

573. _____, "Some Statistical Considerations of Steel Fiber Composites," Cement and Concrete Research, Vol 6, 1976, pp 201-216.

574. Sydapuram, J. R., Steel Fiber Reinforced Concrete in Tension, M.S. Thesis, Department of Civil Engineering, The University of Mississippi, University, Miss., 1972.

575. Tac Construction Materials Limited, "Improved Cementitious Materials and Artifacts Made from Them," United Kingdom Patent No. 1,399,335, 2 Jul 1975.

576. _____, "Improvements in or Relating to the Manufacture of Reinforced Asbestos Cement Products," United Kingdom Patent No. 1,399,336, 2 Jul 1975.

577. Takagi, J., "Some Properties of Glass Fiber-Reinforced Concrete," Fiber Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 93-111.

578. Tanaba, J., "Synthetic Fiber Reinforced Resin Concrete or Resin Mortar," Japan Patent No. 7,305,789, 1973 (Chem. Abstr., Vol 80. No. 2, 1974, 6510q).

579. Tattersall, G. H. and Urbanourcz, C. R., "Bond Strength in Steel Fibre Reinforced Concrete," Magazine of Concrete Research (London), Vol 26, No. 87, Jun 1974, pp 105-113.

580. Taylor, M. A., "Closed Loop Reinforcement for Concrete," Fiber-Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 299-316.

581. Taylor, M. A., and Ramey, M. R., "Triaxial Properties of Fiber Reinforced Concrete," Mar 1972, University of California, Berkley, California.

582. Taylor, M. A., Tai, M. K., and Ramey, M. R., "Biaxial Compressive Behavior of Flow Fiber Reinforced Mortar," Proceedings, American Concrete Institute, Journal, Vol 72, No. 9, Sep 1975, pp 496-501.

583. Te'eni, M. and Scales, R., "The Fibre Reinforcement of Cement-Based Systems--Second Interim Report," Internal Report, 1971, Southampton University, England.

584. The Battelle Development Corporation, "Concrete Construction and Roadways," U. S. Patent No. 3,500,728, 1970.

585. _____, "Two-Phase Concrete and Steel Materials," U. S. Patent No. 3,429,094, 1969.

586. "The Bloc Bond System of Wall Construction for Architects and Builders," Publication 5-SB-6284, Owens-Corning Fiberglas Corp., Toledo, Ohio.

587. The Properties of Fibre Composites, Proceedings, Conference, National Physical Laboratory, London, 4 Nov 1971, IPC Science and Technology Press, Ltd., 1971.

588. "Thin Concrete Overlay for Residential Streets," Better Roads, Vol 43, No. 4, Apr 1973, pp 24-26.

589. "Thin Concrete Overlays Get County Test," Better Roads, Vol 43, No. 11, Nov 1973, pp 20-22.

590. Thomas, J. A. G., "Fibre-Air-Entrained Concrete," Composites, Vol 3, No. 2, Mar 1972, pp 71-74.

591. _____, "Fibre Composites as Construction Materials," Composites, Vol 3, No. 2, Mar 1972, pp 62-64.

592. _____, "Glass Fibre-Reinforced Cement," Composites, Vol 2, No. 2, Jun 1971, pp 95-97.

593. Timashev, V. V. et al., "Issledovanie Cementnogo Kamnia, Armiro-Vannogo Voloknistymi Monokristallami," Sb. Trudov "Legkie Betoni na Isskustvennysh i Estestvennych Poristych Zapliniteliach Dal'nego Vostoka," Vladivostok, 1972.

594. Togawa, K. and Araki, K., "The Flexural Strength of Steel Fibrous Mortar or Concrete," Concrete Journal, Vol 12, No. 4, 1974, pp 105-112.

595. Trambovetsky, V. P., "Beton, Armirovanij Dispersnoj Armaturoj," Beton i Zhelezobeton, No. 12, 1974, pp 40-42.

596. Tsypkina, Ya., "Plastic Bars Reinforced with Glass (The Yu Zh N11 Reinforcement)," Beton i Zhelezobeton, Vol 9, 1961, pp 417-418.

597. United Nations Organization, "Fibro-Cement Composites," Report and Proceedings of Expert Working Group Meeting, Vienna, 20-24 Oct 1969, United Nations, New York, 1970.

598. U. S. Steel Corp., "Portland Cement Compositions Reinforced with Non-Round Filaments," U. S. Patent No. 3,650,785, 1972.

599. Untrauer, R. E. and Works, R. E., "The Effect of the Addition of Short Lengths of Steel Wire on the Strength and Deformation of Concrete." Paper presented at American Concrete Institute Fall Convention, Cleveland, Ohio, American Concrete Institute, Detroit, 1965.

600. "Unusual Construction Problems Overcome [illegible] Fibrous Concrete Pavement Research Project," Roads and Str[illegible], Vol 117, No. 2, Feb 1974, pp 61-65.

601. Ur'ev, N. B. and Mikhailov, N. V., "The Mechanism of Failure of Reinforcing Glass Fibre in Hardening Cement Paste," Neorganicheskie Materialy, No. 5, 1969, pp 1451-1455.

602. Ur'ev, N. B., Mikhailov, N. V., and Rebinder, P. A., "Some Characteristics of the Breakdown Mechanism of Glass Fibers Under Crystallization Conditions of New Growths from an Active Medium," Dokl. Akad. Nauk. SSSR, Vol 177, No. 6, 1967, pp 1404-1406.

603. Urbanowicz, C. R., Alumina Filament-Cement Composite Material, B.S. Thesis, University of Surrey, 1971.

604. Van Buren, M. (Bayshore Concrete Products Corp.), "Reinforcement of Concrete Structures," U. S. Patent No. 3,738,786, 12 Jun 1973.

605. Vasilyev, V. P., "Behavior of Tensioned Elements Made of Fine Aggregate Concrete with Dispersed Reinforcement of Glass-Plastic," Stroitelstuo i Architekturo, Vol 9, No. 3, 1966, pp 17-22.

606. _____, "Deformation of Tensioned Armocement with Various Bond Strength Between Concrete and Steel," Beton i Zhelezobeton, Vol 15, No. 10, Oct 1969, pp 24-25.

607. Vasilos, T. and Wolff, B. G., "Strength Properties of Fiber-Reinforced Composites," Journal of Metals, Vol 18, No. 5, May 1966, pp 583-592.

608. Vesper, R. L., "An Evaluation of 'Tuf' Concrete Made with Lone Star Cement," May 1969, Nevada Operations Office, Atomic Energy Commission, Las Vegas, Nevada.

609. Wagner, C., "Disputes on the Safety of Asbestos," New Scientist, Vol 61, 1974, pp 606-609.

610. Wagner, E., "Concrete Reinforcement," U. S. Patent No. 3,890,756, 24 Jun 1975.

611. Walgate, D., "Bright Future for Glassy Concrete?" New Scientist, 24 Oct 1974, pp 276-278.

612. Walker, A. J., "Wirand Field Trial--Wirand Pre-Cast Slab Patching of New York City Expressway," Oct 1971, Battelle-Columbus Laboratories, Columbus, Ohio.

613. Walker, A. J. and Lankard, D. R., "Field Work in New York City for the Tri-Borrough Bridge and Tunnel Authority--Fast Side Airlines Studies," Mar 1971, Battelle-Columbus Laboratories, Columbus, Ohio.

614. Walker, A. J. and Lankard, D. R., "Wirand Field Trials: Queens Midtown Tunnel Patch, New York, N. Y.," Mar 1971, Battelle-Columbus Laboratories, Columbus, Ohio.

615. Waller, J. A., "Carbon Fiber Cement Composites," Fiber-Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 143-161.

616. _____, "Carbon Fibre Cement Composites," Civil Engineering and Public Works Review, Vol 67, No. 789, Apr 1972, pp 357-361.

617. Walton, P. L. and Majumdar, A. J., "Cement-Based Composites with Mixtures of Different Types of Fibres," Composites, Vol 6, No. 5, Sep 1975, pp 209-216; also BRE Report PD 48/74, Building Research Establishment, Garston, United Kingdom.

618. Waterhouse, B. L. and Luke, C. E., "Steel Fiber Optimization," Proceeding, Conference M-28, Fibrous Concrete--Construction Material for the Seventies, Construction Engineering Research Laboratory, Champaign, Ill., Dec 1972, pp 63-81.

619. Weakley, R. D., "Bonding Means for Reinforced Concrete Structures," U. S. Patent No. 1,046,913, 10 Dec 1912.

620. Weilder, J. B., Jr., Strength Characteristics of Mortar Containing Dispersed Fibrous Reinforcement, M.S. Thesis, Rice University, Houston, Tex., 1961.

621. Weiss, V., "Crack Development in Concrete with Closely-Spaced Reinforcement and in Similar Materials," Cement and Concrete Research, Vol 3, No. 2, 1973, pp 189-205.

622. Weniger, K. A., "Fabrication of Asbestoscement Products," 1914, Berlin.

623. "Wexham Manhole Cover," Agrément Board Assessment Report No. 120, Sep 1974, Cement and Concrete Association, Wexham Springs, Slough, Bucks.

624. Wiedemann, G., Renner, V., Frenyel, H., Ungunz, H., Petzold, R., Fischer, B., and Matzke, M., "Silicate Fiber-Containing Construction Material," East German Patent No. 90,983, 20 Jun 1972 (Chemical Abstracts, Vol 78, No. 10, 1973, 61744c).

625. Wilkinson, R. W., Newton, J., and Stitt, D. M. (A. C. I. Technical Centre Pty, Ltd.), "Concrete Reinforcing Materials," U. S. Patent No. 3,839,270, 10 Oct 1974.

626. Williams, R. I. T., "Steel Fibre Reinforcement Concrete," Building Specification, May 1971.

627. Williams, R. I. T., Towler, R. S., Hannant, D. J., and Nanda, V. K., "Fiber Reinforced Materials," Department of Civil Engineering, Surrey University, London, United Kingdom, Dec 1970.

628. Williams, T., Allen, G., and Kaufman, M. S.. The Impact Strength of Fibre Composites," Journal of Materials Science, Vol 8, 1973, pp 1765-1787. (Not concrete but fiber theory.)

629. Williamson, G. R., "Compression Characteristics and Structural Beam Analysis of Steel Fiber-Reinforced Concrete," Technical Report M-62, Dec 1973, Construction Engineering Research Laboratory, Champaign, Ill.

630. Williamson, G. R., "Fibrous Reinforcement for Portland Cement Concrete," Technical Report No. 2-40, May 1965, U. S. Army Corps of Engineers, Ohio River Division Laboratory, Cincinnati, Ohio.

631. Williamson, G. R., "Fort Hood Fibre Concrete Overlay," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 453-459.

632. _____, "Response of Fibrous-Reinforced Concrete to Explosive Loading," Technical Report No. 2-48, Jan 1966, U. S. Corps of Engineers, Ohio River Division Laboratory, Cincinnati, Ohio.

633. _____, Some Static and Dynamic Characteristics of Fiber-Reinforced Concrete, Ph. D. Thesis, Carnegie-Mellon University, Pittsburgh, Pa., 1969.

634. _____, "Technical Information Pamphlet on Fibrous Concrete Overlays--Fort Hood Project," Final Report No. CERL-TR-M-147, Aug 1975, Construction Engineering Research Laboratory, Champaign, Ill.

635. _____, "The Effect of Steel Fibers on the Compressive Strength of Concrete," Fiber-Reinforced Concrete, American Concrete Institute, Detroit, SP-44, 1974, pp 195-207.

636. _____, "Use of Fibrous Reinforced Concrete in Structures Exposed to Explosive Hazards," Report No. MP5-5, Aug 1975, U. S. Corps of Engineers, Ohio River Division Laboratory, Cincinnati, Ohio.

637. Williamson, G. R. and Gray, B. H., "Fibrous Concrete Technical Information Pamphlet," Dec 1972, Construction Engineering Research Laboratory, Champaign, Ill.

638. Williamson, G. R. and Knab, L. I., "Full-Scale Fibre Concrete Beam Tests," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 209-214.

639. "WIRAND Concrete--Instructions and Other Technical Information," 1973, The Battelle Corporation, Columbus, Ohio.

640. "Wirand, Steel Fibrous Concrete," NZ Concrete Construction (Wellington), Vol 16, No. 1, Feb 1972, pp 18-21.

641. "Wire-Reinforced Precast Concrete Decking Panels," Precast Concrete, Vol 2, No. 12, Dec 1971, pp 703-708.

642. "Wire Reinforcement Improves Performance of Ceramic Tooling," Iron Age, 24 May 1973, p 68.

643. Wischers, G., "Fiber-Reinforced Concrete," Beton, Vol 3, 1974, pp 95-99.

644. _____, "Faserbe-Wehrter Beton" (Fibre Reinforced Concrete), Betontechnische Berichte 1974, Beton-Verlag Gmbh, Dusseldorf, 1975, pp 45-70.

645. Wlasnosci Mechaniczne I Struktura Kompozytow Betonowych, (Proceedings, Mechanics of Construction Composites), Jablona, Nov 1974, Polska Akademia Nauk., 1975.

646. "Working with Bloc Bond," Publication 5-SB-8285, Owens-Corning Fiberglas Corp., Toledo, Ohio.

647. Works, R. E., The Effect of the Addition of Short Lengths of Steel Wire on the Strength and Deformation of Concrete, M.S. Thesis, Iowa State University of Science and Technology, Ames, Iowa, 1964.

648. Yrjanson, W. A., "A Review of Field Applications of Fibrous Concrete," Special Report 148, 1974, Transportation Research Board, Washington, D. C., pp 69-79.

649. _____, "Pavement Applications of Fibrous Concrete," Proceedings, Conference M-28, Fibrous Concrete--Construction Material for the Seventies, Construction Engineering Research Laboratory, Champaign, Ill., Dec 1972, pp 139-145; also Highway Focus, Vol 4, No. 5, Oct 1972, pp 92-98.

650. Yrjanson, W. A. and Halm, H. J., "Field Applications of Fibrous Concrete Pavements," Nov 1973, American Concrete Paving Association, Oak Brook, Ill.

651. Zerna, W., "Steel Fibre Concrete," Betonwerk and Fertigteil-Technik, Vol 39, No. 9, Sep 1973, pp 634-637.

652. Zitkevic, N., "Improvements in Reinforced Concrete," British Patent No. 515,003, May 1938.

653. Zollo, R. F., "Extrusion of Steel Fiber Reinforced Concrete," Proceedings, American Concrete Institute, Journal, Vol 72, No. 12, Dec 1975, pp 675-677.

654. _____, "Fiber-Reinforced Concrete Extension," Journal, Structural Division, American Society of Civil Engineers, Vol 101, No. ST12, Dec 1975, pp 2573-2583.

655. _____, "Investigation into the Extrusion of a Wire Fiber Reinforced Concrete Material System," Report VM-NSF-GK 37049-1, Sep 1973, National Science Foundation, Washington, D. C.

656. _____, "Wire Fiber Reinforced Concrete Overlays for Orthotropic Bridge Deck Type Loadings," Proceedings, American Concrete Institute, Journal, Vol 72, No. 10, Oct 1975, pp 576-582.

657. Zonsveld, J., "Polypropylene Fibres as a Reinforcement in Concrete," Plastvärlden, No. 6, 1972, pp 25-27.

658. _____, "Properties and Testing of Concrete Containing Fibres Other than Steel," Proceedings, RILEM Symposium, Fibre-Reinforced Cement and Concrete, Construction Press, Lancaster, England, Sep 1975, pp 217-226.

659. _____, "The Application of Staple Film Fibre in Concrete," Proceedings, II Conference, Textiles from Film, The Plastic Institute, Paper No. 20, 1971, pp 105-108.

660. _____, "The Marriage of Concrete and Plastics," Plastica, Vol 23, No. 10, Oct 1970, pp 1-12.

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