List of publications. 1976 supplement to 1971

Fritz Lab
LIST OF PUBLICATIONS

February 1964

Fritz Engineering Laboratory
Department of Civil Engineering
LIST OF PUBLICATIONS
1964

Fritz Engineering Laboratory
Department of Civil Engineering
FOREWORD

Presented in this booklet is a listing of the publications of the staff members of Fritz Engineering Laboratory of the Department of Civil Engineering, Lehigh University. These publications are the result of research programs carried out in the laboratory up to 1964.

The Fritz Engineering Laboratory was founded in 1909 and was expanded and modernized in 1954-55. Through its instructional facilities, research programs and industrial testing facilities, the laboratory has taken a major part in the advancement of knowledge and techniques in the field of civil engineering.

Research investigations are being carried out in the fields of structural metals, structural concrete, hydraulics, soils, structural models, sanitation, and material testing. Numerous design specifications have been influenced by the results of these studies conducted at the laboratory.

To obtain the maximum benefit from the results of such studies, it is the general policy of the laboratory to issue research reports for publication in the journals of the profession. Reprints of these publications can be obtained from the laboratory, subject to their availability. To cover mailing and handling costs, a nominal charge of 25 cents per copy is made.

The first part of the list consists of publications arranged according to their "publication numbers". The second part includes early published papers. These papers are given sequential numbers with the letter "A" prefixed. An author index and a subject index are also provided to facilitate the retrieval of information.
LIST OF PUBLICATIONS

1. Lyse, I.
Tests Indicate Effect of Fine Clay Concrete, ENR, Vol. 113, p. 234, 1934 (FL 149.4)

2. Nettles, H. R. and Holme, J. M.
A Study of the Analysis of Fresh Concrete with the Dunagan Buoyancy Apparatus, Proc. ASTM, Vol. 33, Part I, p. 297, 1933 (FL 151.2)

3. Lyse, I. and Godfrey, H. J.

4. Lyse, I. and Holme, J. M.
Durability of Concrete and Aggregates, Proc. ACI, Vol. 30, p. 121, 1934 (FL 156.2)

5. Lyse, I. and Godfrey, H. J.
Investigation of Web Buckling in Steel Beams, Trans. ASCE, Vol. 100, p. 675, 1933 (FL 155.2)

6. Johnston, B.
Torsion Testing Machine of 750,000 In-Lb Capacity, ENR, Vol. 114, p. 310, 1935 (FL 161.6)

7. Lyse, I. and Stewart, D. M.

8. Lyse, I. and Johnston, B.
Structural Beams in Torsion, Trans. ASCE, Vol. 101, p. 857, 1936 (FL 161.4)

9. Stewart, D. M.
Behavior of Stationary Wire Ropes in Tension and Bending, Trans. ASCE, Vol. 102, p. 606, 1937 (FL 171.2)

10. Lyse, I. and Schreiner, N. G.

11. Lyse, I. and Schreiner, N. G.

12. Lyse, I.

13. Lyse, I. and Gibson, G. J.
14. Gibson, G. J.

15. Lyse, I. and Madsen, I. E.
   STRUCTURAL BEHAVIOR OF BATTLEDECK FLOOR SYSTEMS, Trans. ASCE, Vol. 104, pp.244-274, 1939 (FL 170.3)

16. Lyse, I. and Wernisch, G. R.

17. Wernisch, G. R.

18. Slater, W. A. and Lyse, I.
   THIRD PROGRESS REPORT ON COLUMN TESTS AT LEHIGH UNIVERSITY, Proc. ACI, Vol. 28, p.159, 1932 (FL 146.6)

19. Lyse, I. and Kreidler, C. L.
   FOURTH PROGRESS REPORT ON COLUMN TESTS AT LEHIGH UNIVERSITY, Proc. ACI, Vol. 28, p.317, 1932 (FL 146.7)

20. Lyse, I.
   FIFTH PROGRESS REPORT ON COLUMN TESTS AT LEHIGH UNIVERSITY, Proc. ACI, Vol. 29, p.433, 1933 (FL 146.10)

21. Lyse, I.
   REINFORCED BRICK COLUMNS TESTED AT LEHIGH UNIVERSITY, ENR, Vol. 110, pp. 34-35, 1933 (FL 162.1)

22. Lyse, I.
   TESTING MACHINE CAPACITY DOUBLED BY SPECIAL LOADING RIG, ENR, Vol. 111, p.248, 1933 (FL 162.3)

23. Lyse, I.
   TESTS OF REINFORCED BRICK COLUMNS, American Ceramics Society Journal, Vol. 16, No.11, p.584, Nov.1933 (FL 162.2)

24. Lyse, I.
   REINFORCED BRICK COLUMNS, ENR, Vol. 112, p.12, 1934 (FL 162.4)

25. Keyser, C. C.
   DESIGNING CONCRETE FOR WEIGHT OF 271 POUNDS PER CUBIC FOOT, Proc. ACI, Vol. 28, p.525, 1932 (FL 200.28.82.2)

26. Lyse, I.
   TESTING RIVETED JOINTS OF CROMANSIL STEEL, ENR, Vol. 110, p.584, 1933, (FL 200.31.70.2)

27. Lyse, I.
28. Lyse, I.
TEST OF NEW SHEET METAL DOWEL FOR HIGHWAY JOINTS, Concrete, Vol. 46, (3) p. 3, 1938 (FL 200.30.16.2)

29. Lyse, I.
CEMENT-WATER RATIO BY WEIGHT PROPOSED FOR DESIGNING CONCRETE MIXES, ENR, Vol. 107, p.723, 1931 (FL 154.1)

30. Lyse, I.
SIMPLIFYING DESIGN AND CONTROL OF CONCRETE MIXES, ENR, Vol. 108, p.248, 1932 (FL 154.2)

31. Lyse, I.
VISUALIZING CONCRETE ECONOMY IN TERMS OF STRENGTH, ENR, Vol. 109, p.109, 1932 (FL 154.3)

32. Lyse, I.

33. Lyse, I.
RELATION BETWEEN QUALITY AND ECONOMY OF CONCRETE, Proc. ACI, Vol. 29, p.325, 1933 (FL 154.5)

34. Lyse, I.
TESTS OF REINFORCED CONCRETE COLUMNS, Civil Engineering, Vol. 3, p.366, July 1933 (FL 160.1)

35. Lyse, I. and Keyser, C. C.

36. Lyse, I.
EFFECT OF BRAND AND TYPE OF CEMENT ON STRENGTH AND DURABILITY OF CONCRETE, Proc. ACI, Vol. 31, p.247, 1935 (FL 159.2)

37. Lyse, I.

38. Lyse, I.
VOLUME CHANGES IN CONCRETE, Concrete, Vol.44 (3), p.10, 1936 (FL 167.3)

39. Lyse, I.

40. Lyse, I.

41. Lyse, I.
THE MODULAR RATIO - A NEW METHOD OF DESIGN OMITTING M, Concrete and Construction Engineering (England), 1937 (FL 178.4)
42. Lyse, I.
   EFFECT OF RIGID BEAM-COLUMN CONNECTIONS ON COLUMN STRESSES, The
   Welding Journal, Vol. 17, p. 25, 1938 (FL 174.5)

43. Johnston, B.
   THE STRUCTURAL SIGNIFICANCE OF STRESS, Civil Engineering, Vol. 9,
   p. 291, 1939 (FL 188.1)

44. Johnston, B. and Godfrey, H. J.
   TEST OF MODEL OF THE TACOMA NARROWS ANCHORAGE BAR, The Welding
   Journal, Vol. 18, p. 253, 1939 (FL 200.34.16.5)

45. Johnston, B. and Cox, K. C.
   HIGH YIELD POINT STEEL AS TENSION REINFORCEMENT IN BEAMS, Proc. ACI,
   Vol. 36, p. 65, 1939 (FL 183.1)

46. Johnston, B. and Mount, E. H.
   DESIGNING WELDED FRAMES FOR CONTINUITY, The Welding Journal, Vol. 18,
   p. 253-s, 1939 (FL 185.1)

47. Johnston, B.
   THE STORY OF RESEARCH IN FRITZ LABORATORY, Lehigh Alumni Bulletin,
   Feb. 1940, (FL 237.9)

   PILOT TESTS ON COVERED ELECTRODE WELDS, The Welding Journal, Vol. 19,
   p. 133-s, 1940 (FL 190.1)

49. Johnston B. and Cox, K. C.
   THE BOND STRENGTH OF RUSTED DEFORMED BARS, Proc. ACI, Vol. 37, p. 57,
   1940 (FL 184.3)

50. Johnston, B. and Green, L. F.
   FLEXIBLE WELDED ANGLE CONNECTIONS, The Welding Journal, Vol. 19,
   p. 402-s, 1940 (FL 192.1)

51. Johnston, B. and Hechtman, R.
   DESIGN ECONOMY THROUGH RESTRAINT IN BEAM CONNECTIONS, ENR, Vol. 125,
   p. 74, 1940, (FL 191.2)

52. Godfrey, H. J.
   THE FATIGUE AND BENDING PROPERTIES OF COLD DRAWN STEEL WIRE, Trans.
   ASM, Vol. 39, p. 133, Mar. 1941 (FL 187.3)

53. Johnston, B. and Mount, E. H.
   ANALYSIS OF BUILDING FRAMES WITH SEMI-RIGID CONNECTIONS, Trans. ASCE,
   Vol. 107, p. 993, 1942 (FL 185.2)

54. Madsen, I. E.
   REPORT OF CRANE GIRDER TESTS, Iron and Steel Engineer, Vol. 18 (11)
   p. 47, 1941 (FL 193.17)

55. Johnston, B.
   LATERAL BUCKLING OF THE I-SECTION COLUMN WITH ECCENTRIC END LOADS IN
   1941 (FL 189.6)
56. Johnston, B. and Opila, F.
COMPRESSION AND TENSION TESTS OF STRUCTURAL ALLOYS, Proc. ASTM, Vol. 41, p. 552, 1941 (FL 188.4)

57. Johnston, B. and Deits, G. R.
TESTS OF MISCELLANEOUS WELDED BUILDING CONNECTIONS, The Welding Journal, Vol. 21, p. 5, 1941 (FL 194.1)

58. Johnston, B. and Cheney, L.
STEEL COLUMNS OF ROLLED WIDE FLANGE SECTION, AISC Research Report No. 190, Progress Report No. 1, Nov. 1942 (FL 189.4)

59. Johnston, B. and Cheney, L.
STEEL COLUMNS OF ROLLED WIDE FLANGE SECTION, AISC Research Report No. 191, Progress Report No. 2, Nov. 1942 (FL 189.5)

60. Brandes, J. L. and Mains, R. M.
REPORT TESTS OF WELDED TOP-PLATE AND SEAT BUILDING CONNECTIONS, The Welding Journal, Vol. 23, p. 146-s, 1944 (FL 196.1)

61. Chang, F. K., Knudsen, K. E. and Johnston, B.
PHOTOELASTIC ANALYSIS OF STRESSES IN CRANE LADLE HOOKS, Iron and Steel Engineer, Vol. 25 (1), p. 87, 1948 (FL 206.1)

62. Hechtman, R. A. and Johnston, B.
RIVETED SEMI-RIGID BEAM-TO-COLUMN BUILDING CONNECTIONS, AISC Research Report No. 206, Progress Report No. 1, Nov. 1947 (FL 191.3)

63. Luxion, W. and Johnston, B.

64. Yu, Ai-Ting and Johnston, B.


COMPOSITION AND PROPERTY VARIATION OF TWO STEELS, Progress Report No. 2 (Pressure Vessel Research Committee), The Welding Journal, Vol. 28, p. 227-s, 1949 (FL 208.2)

EFFECTS OF PLASTIC STRAIN AND HEAT TREATMENT, Progress Report No. 3, (Pressure Vessel Research Committee ), The Welding Journal, Vol. 28, p. 337-s, 1949 (FL 208.3)

68. Chang, F. K., Knudsen, K. E., and Johnston, B.
A TORSION TESTING MACHINE OF 2,000,000 INCH-POUND CAPACITY, ASTM Bulletin No. 160, p. 49, 1949 (FL 209.1)
69. EFFECT OF WELDING ON PRESSURE-VESSEL STEELS, Progress Report No.4, (Pressure Vessel Research Committee), ASME Publication No.49, 1949, (FL 208.4)


73. McPherson, M. B. and Nece, R. E. AN INEXPENSIVE DEMONSTRATION FLUID POLARISCOPE, ASEE Spring Meeting, 1950


82. Chang, F. K., and Johnston, B. TORSION OF PLATE GIRDER, ASCE, Vol.118, p.337, 1953 (FL 211.2)
83. Tor, S. S., Ruzek, J. M., and Stout, R. D.
REPEATED LOAD TESTS ON WELDED AND PRESTRESSED STEELS, The Welding
Journal, Vol. 31, p.238-s, 1952 (FL 208.8)

84. Gross, J. H., Tsang, S. and Stout, R. D.
FACTORS AFFECTING RESISTANCE OF PRESSURE VESSEL STEELS TO REPEATED

85. Thurlimann, B., Bereuter, R. O., and Johnston, B.
THE EFFECTIVE WIDTH OF A CIRCULAR CYLINDRICAL SHELL ADJACENT TO A
CIRCUMFERENTIAL REINFORCING RIB, Proc. First U. S. National Congress
of Applied Mechanics (ASME), June, 1953 (FL 213J-1)

86. Knudsen, K. E., Yang, C. H., Johnston, B., and Beedle, L. S. (Appendix
by Weiskops, W. H.)
PLASTIC STRENGTH AND DEFLECTIONS OF CONTINUOUS BEAMS, The Welding
Journal, Vol. 32, p.240-s, 1953 (FL 205B.22)

87. Johnston, B., Yang, C. H., and Beedle, L. S.
AN EVALUATION OF PLASTIC ANALYSIS AS APPLIED TO STRUCTURAL DESIGN,

88. Smislova, A., Loewer, A. C., Jr., and Eney, W. J.
USING SR-4 GAGES TO MEASURE STRAINS IN WIRE STRAND, Product Engineer-
ing, Vol.24 (4), p. , 1953 (FL 223.4)

89. Lyse, I. and Keyser, C. C.
PHYSICAL PROPERTIES OF STEEL, Lehigh University Publication, 1935

90. Slater, W. A. and Fuller, M. O.
TESTS OF RIVETED AND WELDED STEEL COLUMNS, Proc. ASCE, Vol. 58,
p.1147, 1932 (FL 144.3)

PLASTIC DEFORMATION OF WIDE-FLANGE BEAM-COLUMNS, Trans. ASCE, Vol.120,
p.1019, 1955 (FL 205A.12)

92. Ruzek, J. M., Knudsen, K. E., Johnston E. R., and Beedle, L. S.
WELDED PORTAL FRAMES TESTED TO COLLAPSE, Proc. SESA, Vol. XI, No.1,
p.159, 1952 (FL 205D.3)

93. Muhlhausen, E. K., Loewer, A. C., Jr., and Eney, W. J.
TORSION TESTING EQUIPMENT FOR CYLINDRICAL CEMENT SPECIMENS, Proc. SESA,
Vol. XI, No. 1, p.97

94. Roesli, A., Loewer, A. C., Jr., and Eney, W. J.
MACHINE TO APPLY REPEATED LOADS TO LARGE FLEXURAL MEMBERS, ASTM Bulle-
tin, No. 196, p. 50, 1954 (FL 223.8)

95. Thurlimann, B. and Johnston B. G.
ANALYSIS AND TESTS OF A CYLINDRICAL SHELL ROOF MODEL, Proc. ASCE,
Separate No. 434, Vol. 80, p. , 1954 (FL 213K)
96. Huber, A. W. and Beedle, L. S.

97. Beedle, L. S.
RECENT TESTS OF RIGID FRAMES, Proc. AISC National Engineering Conference, 1954 (FL 205.23)

98. Ketter, R. L. and Beedle, L. S.
DISCUSSION OF "STRENGTH OF COLUMNS ELASTICALLY RESTRAINED AND ECCENTRICALLY LOADED" by P. P. Bijlaard, G. P. Fisher, and Winter, G., Trans. ASCE, Vol. 120, p.1070, 1955 (FL 205A.15)

NON-UNIFORM TORSION OF PLATE GIRDERS, Trans. ASCE, Vol. 121, p.759, 1956 (FL 215.0)

100. Ketter, R. L. and Thurlimann, B.
CAN DESIGN BE BASED ON ULTIMATE STRENGTH?, Civil Engineering, Vol.25 (1), p.59, 1955 (FL 205.28)


102. Beedle, L. S.

103. Ketter, R. L.

104. Toprac, A. A. and Beedle, L. S.

105. Knudsen, K. E. and Eney, W. J.

PLASTIC DESIGN IN STRUCTURAL STEEL, Lecture Notes from Summer Course, 1955 (FL 205.32)(Available from AISC, Price $2.00)

107. Shilling, C. G., Schutz, F. W. Jr., and Beedle, L. S.

108. Pray, R. F. and Jensen, C. D.
109. Ketter, R. L. and Beedle, L. S.
DISCUSSION OF "ELASTIC-PLASTIC DESIGN OF SINGLE SPAN BEAMS AND FRAMES" by H. S. Sawyer, Proc. ASCE, Vol. 82 (ST4), p. 11, 1956, (FL 205.41)

110. PROCEEDINGS OF 1956 AISC NATIONAL ENGINEERING CONFERENCE AT LEHIGH UNIVERSITY, 1956 (FL 205.42), (Available from AISC)

111. White, M. W. and Thurlimann, B.
STUDY OF COLUMNS WITH PERFORATED COVER PLATES, AREA, Vol. 58, p. 173, 1957 (FL 244.1)

112. Thurlimann, B.
INFLUENCE SURFACE FOR SUPPORT MOMENTS OF CONTINUOUS SLABS, Proc. IABSE, Vol. 16, p. 485, 1956 (FL 264.0)

113. Thurlimann, B.

114. Ketter, R. L.
PLASTIC ANALYSIS AND DESIGN AT THE UNDERGRADUATE LEVEL (FL 205.49)
Beedle, L. S.
GRADUATE STUDIES IN PLASTIC ANALYSIS AND DESIGN, ASEE Civil Engineering Bulletin No. 22 (1), 1956 (FL 205.46)

115. Driscoll, G. C., Jr., and Beedle, L. S.

116. Ketter, R. L.
The USE OF MODELS IN PLASTIC DESIGN, Proc. AISC National Engineering Conference, 1955 (FL 205.31)

117. Roseli, A., Smislova, A., Ekberg, C. E., Jr., and Eney, W. J.

118. Haaijer, Geerhard

119. Ekberg, C. E., Jr., Walther, R. E. and Slutter, R. G.

120. Thurlimann, B.
COMPOSITE BEAMS WITH STUD SHEAR CONNECTORS, HRB Bulletins 174-185, No. 174, p. 18, 1957 (National Research Council)

121. Kawai, T. and Thurlimann, B.
INFLUENCE SURFACES FOR MOMENTS IN SLABS CONTINUOUS OVER FLEXIBLE CROSS BEAMS, Proc. IABSE, Vol. 17, p. 117, 1957 (FL 264.1)
122. Fisher, J. W., Driscoll, G. C., Jr., and Schutz, F. W., Jr. 
BEHAVIOR OF WELDED CORNER CONNECTIONS, The Welding Journal, Vol. 37, 
p. 216-s, 1958 (FL 205C.21)

123. Fisher, J. W., Driscoll, G. C., Jr., and Beedle, L. S. 
PLASTIC ANALYSIS AND DESIGN OF SQUARE RIGID FRAME KNEES, Welding 
Research Council Bulletin Series No. 39, 1958 (FL 205C.24)

124. Haaijer, G. and Thurlimann, B. 
ON INELASTIC BUCKLING IN STEEL, Trans. ASCE, Vol. 125, p. 308, 1960 
(FL 205E.9)

125. Thurlimann, B. 
STRENGTH OF PLATE GIRDERs, Proc. AISC National Engineering Conference 
1958 (FL 251.2)

126. Schiffman, R. L., Taylor, I. J., and Eney, W. J. 
PRELIMINARY REPORT ON CONTINUOUSLY REINFORCED CONCRETE PAVEMENT 
RESEARCH IN PENNSYLVANIA, Highway Research Board Bulletins 174-185, 
No. 181, 1957 (FL 251.2), (Available from HRB, Price 60¢)

127. Beddle, L. S. 
PLASTIC DESIGN OF STEEL STRUCTURES, AISI Regional Technical Meeting, 
Philadelphia, Nov. 1958 (FL 205.62)

128. Walther, R. E. 
INVESTIGATION OF MULTI-BEAM BRIDGES, Proc. ACI, Vol. 54, p. 505, 
1957-58 (FL 223.14), (Available from ACI, Price $1.00)

129. Walther, R. E. 
SHEAR STRENGTH OF PRESTRESSED CONCRETE BEAMS, Proc. World Conference 
on Prestressed Concrete, May 1958 (FL 223.17A)

130. Roesli, A. and Walther, R. E. 
THE ANALYSIS OF PRESTRESSED MULTI-BEAM BRIDGES AS ORTHOTROPIC 
PLATES, Proc. World Conference on Prestressed Concrete (San Francis­
co), July 1957 (FL 223.10)

131. Slutter, R. G. and Ekberg, C. E., Jr. 
STATIC AND FATIGUE TESTS ON PRESTRESSED CONCRETE RAILWAY SLABS, 

132. Ketter, R. L. 
THE INFLUENCE OF RESIDUAL STRESS ON THE STRENGTH OF STRUCTURAL 
MEMBERS, WRC Bulletin No. 44, 1958 (FL 220A.29)

133. Huber, A. W. 
FIXTURES FOR TESTING PIN-ENDED COLUMNS, ASTM Bulletin No. 234, p.41, 
1958 (FL 220A.24)

134. Ketter, R. L. 
PLASTIC DESIGN OF PINNED-BASE GABLE FRAMES, WRC Bulletin No. 48, 
1959 (FL 205.56)
135. Huber, A. W. and Ketter, R. L.


137. Kawai, T.
ON THE BENDING OF A SECTORIAL PLATE, Proc. IABSE, Vol. 18, p. 63, 1958 (FL264.5)


139. McPherson, M. B., and Karr, M. H.


141. COMMENTARY ON PLASTIC DESIGN IN STEEL: BASIC CONCEPTS, Progress Report No. 1
GENERAL PROVISIONS AND EXPERIMENTED VERIFICATION, Progress Report No. 2

142. Ekberg, C. E., Jr., Walther, R. E., and Slutter, R. G.
CLOSURE 'FATIGUE RESISTANCE OF PRESTRESSED CONCRETE BEAMS IN BENDING
by C. E. Ekberg, Jr., R. E. Walther, and R. G. Slutter, (1957),

143. Taylor, I. J. and Eney, W. J.
FIRST YEAR PERFORMANCE REPORT ON CONTINUOUSLY REINFORCED CONCRETE PAVEMENTS IN PENNSYLVANIA, Highway Research Board Bulletins 214-223, No. 214, 1959 (FL 256.3), (Available from HRB)

144. Thurlimann, B.

145. Ketter, R. L. and Yen, B. T.
PLASTIC DESIGN OF PINNED BASE 'LEAN-TO' FRAMES, WRC Bulletin Series 53, 1959 (FL 205.61)

146. Graham, J. D., Sherbourne, A. N., Khabbaz, R. N., and Jensen, C. D.
WELDED INTERIOR BEAM-TO-COLUMN CONNECTIONS, AISC Publication, 1959 (FL 233.15)
147. Thurlimann, B. and Eney, W. J.
MODERN INSTALLATION FOR TESTING OF LARGE ASSEMBLIES UNDER STATIC AND FATIGUE LOADING, Proc. SESA, Vol. XVI, No. 2, p. 81 (FL 237.7)

148. Basler, K. and Thurlimann, B.
PLATE GIRDER RESEARCH, Proc. AISC National Engineering Conference, 1959 (FL 251.6)

149. Ketter, R. L.
DISCUSSION "SINGLE STORY FRAMES" by J. Heyman (1957), British Welding Journal, Vol. 4, No. 1, p. 3, 1957 (FL 205.67)

150. Kusuda, T.
BUCKLING OF STIFFENED PANELS IN ELASTIC AND STRAIN-HARDENING RANGE, Transportation Technical Research Institute, Report No. 39, Japan, 1959 (FL 248.2)

151. Ojalvo, M.


153. Thurlimann, B.
DER EINFLUSS VON EIGENSPANNUNGEN AUF DAS KNICKEN VON STAHLSTUTZEN (THE INFLUENCE OF RESIDUAL STRESS ON THE BUCKLING OF STEEL COLUMNS), Schweizer Archiv, 23, Jahrgang, No. 12, p. 388, 1957

154. Thurlimann, B.

155. Basler, K. and Thurlimann, B.
BUCKLING TESTS OF PLATE GIRDER, Preliminary Report, IABSE 6th Congress, Stockholm, 1960 (FL 251.7)

156. Galambos, T. V.


158. Galambos, T. V.
159. Taylor, I. J. and Eney, W. J.
   OBSERVATIONS ON THE BEHAVIOR OF CONTINUOUSLY REINFORCED CONCRETE
   PAVEMENTS IN PENNSYLVANIA, Highway Research Board Bulletin 238,
   pp. 23-38, 1959 (FL 256.8), (Available from HRB)

160. COMMENTARY ON PLASTIC DESIGN IN STEEL: CONNECTIONS, Progress Report
   No. 6
   DEFLECTIONS, Progress Report No. 7
   WRC-ASCE Joint Committee, Proc. ASCE, Vol. 86 (EM2), 1960 (FL 205.53)

161. Beedle, L. S. and Tall, L.
   (FL 220A.34)

162. Foreman, R. T. and Rumpf, J. L.
   STATIC TENSION TESTS OF COMPACT BOLTED JOINTS, Trans. ASCE, Vol. 125,
   Part II, p. 228, 1960 (FL 271.6)

163. Comprised of three separate reports and one supplement:
   Graham, J. D., Sherbourne, A. N., Khabbaz, R. N., and Jensen, C. D.
   WELDED INTERIOR BEAM-TO-COLUMN CONNECTIONS, (FL 233.15)
   Mueller, John A.
   STRESSES IN COVER PLATES AND BEARING STIFFENERS - A Supplement to:
   "TRANSFER OF STRESSES IN WELDED COVER PLATES" by A. M. Ozell and
   A. L. Conyers, University of Florida (FL 251.15)
   Lee, G. C.
   A SURVEY OF LITERATURE ON THE LATERAL INSTABILITY OF BEAMS,
   (FL 205H.2)
   WRC Bulletin Series No. 63, 1960 (Available from AWS, Price $2.00)

164. Basler, K.
   FURTHER TESTS ON WELDED PLATE GIRDERS, Proc. AISC National Engineer-
   ing Conference, Denver, Colorado, 1960 (FL 251.16)

   WEB BUCKLING TESTS ON WELDED PLATE GIRDERS, WRC Bulletin Series
   No. 64, 1960 (FL 251.11 to 251.14 inc.)

166. Galambos T. V. and Jones, Jonathan
   GERMAN BUCKLING SPECIFICATIONS (TRANSLATION), CRC Bulletin, 1957,
   (FL 205A.20)

167. Ojalvo, Morris

168. Beedle, L. S.
   ON THE APPLICATION OF PLASTIC DESIGN, Paper presented at the Second
   Symposium on Naval Structural Mechanics, Brown University, 1960
   (FL 205.70)

169. Warner, R. F.
   DISCUSSION "SHEAR STRENGTH OF PRESTRESSED CONCRETE BEAMS" Trans.
   ASCE, Vol. 125, p. 634, 1960
170. McPherson, M. B. and Dittig, R. G.

171. Herbich, J. B.

172. Herbich, J. B.

HIGH SPEED FATIGUE TESTS ON SMALL SPECIMENS OF PLAIN CONCRETE, Prestressed Concrete Institute Journal, Vol. 4, No. 2, Sept. 1959 (FL 223.S10)

174. Culver, Charles and Coston, Robert

175. Ekberg, C. E., Jr.
SUMMARY ON PRESTRESSED CONCRETE PROGRAM AT LEHIGH UNIVERSITY, Proc. World Conference on Prestressed Concrete, July 1957, p. A30-1 (FL 223)

176. Ostapenko, Alexis
DISCUSSION "PRINCIPAL OF VIRTUAL WORK IN STRUCTURAL ANALYSIS" by Frank L. DiMaggio, ASCE Paper 2643, Nov. 1960

177. Beedle, L. S., Galambos, T. V., and Tall, L.
COLUMN STRENGTH OF CONSTRUCTION STEELS, Paper presented at Steel Design and Engineering Seminar of United States Steel Corporation at Pittsburgh (Article appears in a United States Steel Publication "New Concepts in Steel Design and Engineering".), 1961 (FL 272.5)

178. COMMENTARY ON PLASTIC DESIGN IN STEEL, WRC-ASCE Joint Committee, ASCE Manual No. 41, 1961 (FL 205.53), (Available from ASCE - $7.00; to members, $3.50)

179. Basler, Konrad
NEW PROVISIONS FOR PLATE GIRDER DESIGN, Proc. AISC National Engineering Conference, 1961 (FL 251.23)

180. Slutter, R. G. and Driscoll, G. C., Jr.
RESEARCH ON COMPOSITE DESIGN AT LEHIGH UNIVERSITY, Proc. AISC National Engineering Conference, 1961 (FL 279.9)

181. Herbich, John B.
DISCUSSION "LATEST DREDGING PRACTICE" by Ole Erickson, Proc. ASCE Paper 2729, Feb. 1961
182. Ojalvo, Morris and Lu, Le-Wu

183. Lu, Le-Wu

184. Lu, Le-Wu

185. Basler, Konrad and Thurlimann, Bruno

186. Basler, Konrad
STRENGTH OF PLATE GIRDER IN SHEAR, Proc. ASCE, Vol. 87 (ST7), p. 151, 1961 (FL 251.20)

187. Basler, Konrad

188. Herbich, John B.

189. Reimer, Paul H., Jr.
DISCUSSION "MOMENT-DISTRIBUTION CONSTANTS FROM CARDBOARD ANALOGS" by Otakar Ondra, Proc. ASCE Paper 2721

190. Macias-Rendon, Miguel Angel
DISCUSSION "MOMENT-DISTRIBUTION CONSTANTS FROM CARDBOARD ANALOGS" by Otakar Ondra, Proc. ASCE Paper 2721

191. CLOSURE "COMMENTARY ON PLASTIC DESIGN IN STEEL" by WRC-ASCE Joint Committee, Proc. ASCE, Vol. 87 (EM5), p. 103, 1961 (FL 205.53)

192. Galambos, T. V.
DISCUSSION "STRENGTH AND DESIGN OF METAL BEAM-COLUMNS" by Walter J. Austin, Proc. ASCE Paper 2802, April, 1961

193. Basler, K. and Thurlimann, B.
CARRYING CAPACITY OF PLATE GIRDER, Final Report, 6th Congress of IABSE, Stockholm, 1960 (FL 251.18)
194. Rao, N. R. N. and Tall, L.  

195. Lee, G. C. and Galambos, T. V.  

196. Beedle, L. S. and Gaylord, E. H.  

197. Comprised of two Separate Reports:  
Ojalvo, M. and Fukumoto, Y.  
NOMOGRAPHS FOR THE SOLUTION OF BEAM-COLUMN PROBLEMS (FL 278.5)  
Galambos, T. V. and Prasad, J.  
ULTIMATE STRENGTH TABLES FOR BEAM-COLUMNS (FL 287.3)  
WRC Bulletin Series No. 78, 1962

198. Tall, L.  

199. Fujita, Y. and Driscoll, G. C., Jr.  

200. Fisher, J. W. and Viest, I. M.  

201. Thurlimann, B.  
LARGE COMPACT JOINTS WITH HIGH STRENGTH STEEL BOLTS, Final Report of International Association Bridge Structural Engineers, 1960 (FL 271)

202. Galambos, T. V. and Ueda, Y.  

203. Ferrara, A. and Galambos, T. V.  

204. Civil Engineering Department Staff, Lehigh University  
STRUCTURAL STEEL DESIGN, (Seminar Notes), Spring, 1962 (FL 354.3)

205. ECONOMY OF DESIGN, Lehigh Alumni Bulletin, p. 8, June 1962

206. Comprised of two Separate Reports:  
Le-Wu Lu  
A SURVEY OF LITERATURE ON THE STABILITY OF FRAMES (FL 276.2)  
Yen, Y. C, Lu, Le-Wu, and Driscoll, G. C., Jr.  
TESTS ON THE STABILITY OF WELDED STEEL FRAMES, (FL 276.9)  
WRC Bulletin Series No. 81, 1962
207. Tall, L. and Estuar, F. R.

208. Herbich, J. B.
DIKES CURVE SCOURING AT ABUTMENTS, The American City, Dec. 1962

209. Herbich, J. B.
SOME NOTES ON THE COMPARISON OF BRITISH AND AMERICAN UNIVERSITIES, Edinburgh University Engineering Society Yearbook, 1962

210. Basler, K. and Thurlimann, B.

211. Fisher, J. W. and Viest, I.

212. Galambos, T. V.

213. Taylor, I. J.

214. Taylor, I. J. and Eney, W. J.
FIRMES CONTINUOUS de HORMIGON ARMADO (Development of Continuously Reinforced Concrete Highway Pavements), Informes de la Construccion, Spain, Nov. 1959 (FL 265.5)

215. Yen, B. T. and Basler, K.

216. Rao, N. R. N. and Tall, L.
COLUMNS REINFORCED UNDER LOAD, The Welding Journal, Vol. 42, p. 177-s, April 1963 (FL 286.1)

217. Estuar, F. R. and Tall, L.

218. Ojalvo, M. and Levi, V.
219. Herbich, J. B.  
EFFECT OF IMPELLER DESIGN CHANGES ON CHARACTERISTICS OF A MODEL DREDGE PUMP, ASME Paper 63-AHGT-33 (FL 277.33)

220. Yen, B. T. and Cooper, P. B.  


222. Zanoni, E. and Lu, L. W.  

223. Lu, L. W.  

224. Herbich, J. B. and Christopher, R. J.  
USE OF HIGH SPEED PHOTOGRAPHY TO ANALYZE PARTICLE MOTION IN A MODEL DREDGE PUMP, International Association for Hydraulic Research, p. 89, February 1963 (FL 277.38)

225. Herbich, J. B., Willenbrock, J., and Sorensen, R.  

226. Lay, M. and Galambos, T. V.  

227. Lu, L. W.  

228. Lu, L. W.  

229. Hulsbos, C. L.  

PLASTIC ANALYSIS OF HAUNCHED CORNER CONNECTIONS, WRC Bulletin No. 91, 1963 (FL 205C.25-26-27)

232. Rumpf, J. L. and Fisher, J. W.

233. Nitta, A. and Thurlimann, B.

234. Warner, R. F. and Hulsbos, C.

235. Tall, L.

236. Galambos, T. V.

237. Nishino, Fumio
DISCUSSION OF "EXPERIMENTS ON END CONNECTION OF I-BEAMS SUBJECT TO SHEAR BENDING AND COMBINATION OF SHEAR AND BENDING" by F. Lichtenberg, Welding Research Abroad, Vol. 9 (8), 1963

238. RESEARCH AND INDUSTRIAL TESTING AT FRITZ ENGINEERING LABORATORY, Brochure, 1964 (FL 237.28)

239. Cooper, P. B., Lew, H. S., and Yen, B. T.
ADDENDA

The following papers by members of the staff were published but were not given numbers at the time of publication:

A1. McKibben, F. P.
   THE FRITZ ENGINEERING LABORATORY OF LEHIGH UNIVERSITY, Proc. ASTM,
   Vol. XI, p. 856, 1911

A2. Slater, W. A. and Lyse, I.
   COMPRESSION STRENGTH OF CONCRETE IN FLEXURE AS DETERMINED FROM TESTS

   NEW SERIES OF TESTS COMPARES BEAM AND CONTROL-CYLINDER STRESSES, ENR,
   Vol. 105, p. 95, July 17, 1930 (FL 147.2)

A4. Kreidler, C. L.
   PRELIMINARY STUDIES FOR REINFORCED CONCRETE COLUMN INVESTIGATION,
   Fritz Lab, Lehigh University, 1930 (FL 146.3)

A5. Uhler, E. H. and Jensen, C. D.
   AN INVESTIGATION OF WELDED CONNECTIONS BETWEEN BEAMS AND COLUMNS,
   The Welding Journal, Vol. 9, p. 61, April, 1930 (FL 143.2)

   FIRST PROGRESS REPORT ON COLUMN TESTS AT LEHIGH UNIVERSITY, Proc.
   ACI, Vol. 27, p. 677, 1931 (FL 146.4)

A7. Jensen, C. D.
   EFFECT OF CURRENT STRENGTH AND DUCTILITY OF ARC WELDS, The Welding

A8. Slater, W. A.
   TEST OF CONCRETE CONVEYED FROM A CENTRAL MIXING PLANT, Proc. ASTM,
   Vol. 31, p. 510, 1931 (FL 200.30.32.2)

A9. Slater, W. A. and Fuller, M. O.
   TESTS OF LIGHT-GAGE WELDED PRESSURE TANKS, The Welding Journal,
   Vol. 10, 1931 (FL 200.30.76.1)

A10. Lyse, I.
    DISCUSSION OF "TESTS OF CONCRETE FROM A TRANSIT MIXER" by Hollister,
    Proc. ACI, Vol. 28, p. 688, 1932 (FL 200.30.32.3)

A11. Lyse, I.
    CURRENT WORK AT LEHIGH UNIVERSITY, ENR, Vol. 112, p. 225, Feb. 15,
    1934 (FL 237.20)

A12. Jensen, C. D.
    COMBINED STRESSES IN FILLET WELDS, The Welding Journal, Vol. 13,
    p. 117, Feb. 1934 (FL 164.1)
A13. Jensen, C. D.
DISCUSSION ON "INVESTIGATION OF WELDED SEAT ANGLE CONNECTIONS",

A14. Lyse, I. and Stewart, D. M.

A15. Lyse, I.
CURRENT WORK AT LEHIGH UNIVERSITY, ENR, Vol. 114, p. 588, April 25, 1935, (FL 237.21)

A16. Johnston, B. G.
TORSIONAL RIGIDITY OF STRUCTURAL SECTIONS, Civil Engineering, Vol. 5, p. 698, 1935 (FL 161.5)

A17. Wernisch, G. R.
CEMENT-WATER RATIO - A SIMPLE METHOD, Concrete, Dec. 1935 (FL 154.77)

A18. Lyse, I. and Gibson, G. J.

A19. Jensen, C. D.

A20. Ehasz, F. L.
DISCUSSION ON "STRUCTURAL BEAMS IN TORSION" by I. Lyse and B. G. Johnston, Trans. ASCE, Vol. 101, p. 918, 1936 (Publication No. 8) (FL 169.2)

LOADED SPOKED VEHICLE WHEELS, Journal of the American Society of Agricultural Engineers, Vol. 17, p. 155, 1936 (FL 165.5)

A22. Lyse, I.
CURRENT STUDIES AT LEHIGH UNIVERSITY, ENR, Vol. 16, p. 391, March 12, 1936, (FL 237.22)

A23. Lyse, I.
DER BEIWERT n EIENBETONBAU (The Value in Reinforced Concrete Design), Beton und Eisen (Berlin), April 7, 1937 (FL 178.3)

WELDED GIRDERS WITH INCLINED STIFFENERS, The Welding Journal, Vol. 16, p. 27-s. 1937 (FL 177.2)

A25. Lyse, I.
A STUDY OF STRUCTURAL SECTIONS SUBJECTED TO TORSION, Journal of Faculty Sciences, University of Istanbul, Jan. 1937 (FL 161.7)
A26. Munse, W. H. and Welch, C. B.
BEAM SHEAR DEPENDS ON NET AREA, ENR, Vol. 20, p. 546, 1938
(FL 254.195A)

A27. Jensen, C. D. and Crispen, R. E.
STRESS DISTRIBUTION IN WELDS SUBJECTED TO BENDING, The Welding Jour­
nal, Vol. 17, p. 22-s, Oct. 1938

A28. Godfrey, H. J.
DISCUSSION OF "FATIGUE TESTS OF WIRE" by Wampler and Allemen, ASTM
Bulletin, No. 101, p. 18, Dec. 1939 (FL 187.1)

A29. Johnston, B. G.
DISCUSSION ON "SYMPOSIUM ON SIGNIFICANCE OF THE TENSION TEST OF ME­
tals in Relation to Design", Proc. ASTM, Vol. 40, p. 592 and p.601, 1940 (FL 188.3)

A30. Jensen, C. D. and Antoni, C. M.
WELDED GIRDER WITH INCLINED STIFFENERS, The Welding Journal,
Vol. 20, p. 170-s, 1941 (FL 177.3)

A31. Lyse, I. and Black, W. E.
AN INVESTIGATION OF STEEL RIGID FRAMES, Trans. ASCE, Vol. 107,
p. 127, 1942 (FL 181.2)

A32. Cox, K. C.
TESTS OF REINFORCED CONCRETE BEAMS WITH RECOMMENDATIONS FOR ATTAIN­
ing Balanced Design, Proc. ACI, Vol. 38, p. 65, 1942 (FL 186.2)

A33. Ippen, A. T.
THE INFLUENCE OF VISCOSITY ON CENTRIFUGAL PUMP PERFORMANCE, Trans. ASME, Vol. 68, p. 823, 1946 (FL 199.1)

A34. Yu, Ai-Ting
VIBRATION DAMPING OF STRANDED CABLE, Proc. SESA, Vol. IX, p. 141,
June, 1952 (FL 201.2-05A)
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AISC, 110
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