Maher, Frank J. Papers

Frank J. Maher Papers

1934-1986

Title Statement

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2021-02-24	LM Rozema added missing notes for an unprocessed collection, added FA title and filing titles, added FA date from EAD, and added component with instances previously attached to collection level.

Descriptive Summary

Unit ID

Ms.1986.004

Unit Date

1934-1986

Language

The materials in the collection are in English.

Abstract

Papers--including writings, drawings, and correspondence--of Frank J. Maher (1915-1995), an engineer specializing in aerodynamic research and an instructor in Engineering Science and Mechanics at Virginia Tech from 1937 to 1978. Includes consulting files and wind tunnel research on various building and bridge projects; research project files on aerodynamics and wind loads; academic courses; and materials relating to engineer and bridge designer David B. Steinman.

Creator

Maher, Frank J. (Francis Joseph), 1915-

Extent

4.5 Cubic Feet 3 boxes

Physical Location

Please note: This collection is in off-site storage and requires 2-3 days notice for retrieval. Please contact Special Collections and University archives for more information.

Repository

Special Collections and University Archives, Virginia Tech

Administrative Information

Conditions Governing Access

The collection is open for research.

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Source of Acquisition

The Frank J. Maher Papers were donated to Special Collections and University Archives in 1986.

Processing Information

The processing, arrangement, and description of the Frank J. Maher Papers commenced in September, 2024, and was completed in November, 2024.

Preferred Citation

Researchers wishing to cite this collection should include the following information: [identification of item], [box], [folder], Frank J. Maher Papers, Ms1986-004, Special Collections and University Archives, Virginia Tech, Blacksburg, Va.

Biographical Notes

Francis Joseph Maher was born in Brooklyn, New York, on June 11, 1915. After obtaining a bachelor's degree in engineering at Manhattan College (1936), he attended graduate school at Virginia Polytehcnic Institute and State University. He earned a master's degree in civil engineering in 1937, and that same year joined the faculty at Virginia Tech, where he specialized in studying aerodynamics and wind loads and provided consultation for many civil engineering projects. In the course of his career, Maher received the Wine Award for teaching (1960), The Western Electric Fund Award of the American Society for Engineering Education (1965), and a place among the Outstanding Educators of America (1973). Maher married Jean Page Howard (1915-2009) in Roanoke, Virginia, on July 11, 1939; the couple had two children. Maher retired from teaching in 1978, and the College of Engineering Science continues (as of 2024) to award a student scholarship in his name. Francis J. Maher died August 10, 1995, and was buried in Westview Cemetery, Blacksburg, Virginia. That same year, the university esbablished the Frank J. Maher Professorship in Engineering Science and Mechanics.

Scope and Content

This collection contains the papers of Francis ("Frank") J. Maher, a professor of engineering at Virginia Polytechnic Institute and State University (Virginia Tech) from 1937 to 1978. The collection includes Maher's consulting and wind tunnel testing files (including notes, drawings, correspondence, and printed materials) on a number of bridge and building design projects, most notable of these perhaps being the Mackinac Bridge, designed by David B. Steinman. Also among Maher's office files are files pertaining to his academic career, including general academic administrative correspondence, and to his academic research on aerodynamics and wind loads. Maher's professional relationship with engineer and bridge designer David B. Steinman, for whom he frequently provided testing services, is reflected in a collection of correspondence and printed materials by Steinman. The collection includes notes, drawings, correspondence, and

photographs.

Keywords

Faculty and staff
Science and Technology
University History
Bridges
Civil engineering
Wind tunnels
Virginia Polytechnic Institute (1944-1970)
Virginia Polytechnic Institute and State University (1970-)

Rights Statement for Archival Description

Arrangement

The collection is arranged in three series:

Series I. Testing and Consulting, 1947-1982. This series contains files relating to Maher's consulting and wind tunnel testing on a number of building and bridge civil engineering projects, including several for engineer and bridge designer David B. Steinman, the most significant perhaps being the Mackinac Bridge. Included in the series are notes, reports, project drawings, correspondence, printed materials, and photographs. The series is arranged alphabetically by name of project or design firm.

Series II. Academic Research and Instruction, 1934-1986. Files relating to Maher's instruction and general academic research may be found in this series. Included are a number of files relating to research on wind loads on various types of structures (domes and tall buildings among these), including materials from a few conferences attended by Maher. Also in the series are a few folders relating specifically to Maher's teaching career, including course and lecture background materials. A selection of Maher's articles and unpublished papers completes the series. The series is arranged by material type.

Series III. David B. Steinman, 1941-1986. Included in this series are files relating to Maher's professional relationship with Steinman, a civil engineer and designer. The series contains four letters and two Christmas cards from Steinman, other correspondence relating to him, and printed materials relating to his life and work. The series also contains a collection of published materials written by Steinman, and a folder relating to a plaque on the Virginia Tech campus honoring Steinman.The series is arranged by material type.

Description of Subordinate Components

Series I. Testing and Consulting
Unit Date 1947-1982

American Motors Corporation Building (Smithfield, Michigan)
Unit Date 1973-1974, n.d.
box-folder 1 (box)
Container 1 (folder)

Belle Heth and McHarg schools (Radford, Virginia; C. Pearson , architect; Poulton, Maher and Blake, structural engineers)
Unit Date 1955, n.d.
box-folder 1 (box)
Container 2 (folder)

Blue Cross / Blue Shield Building (Chapel Hill, North Carolina)

Unit Date 1971
box-folder 1 (box)
Container 3 (folder)

Bosporus [i.e., Bosphorus] Bridge (Istanbul, Turkey; David B. Steinman, consulting engineer)
Unit Date 1959, n.d.
box-folder 1 (box)
Container 4 (folder)

Clinch Valley College academic building (Wise, Virginia)
Unit Date 1957-1958, n.d.
box-folder 1 (box)
Container 5 (folder)
Extent [2 folders]

Commodore Barry Bridge (Chester, Pennsylvania)
Unit Date 1964-1979, n.d.
box-folder 1 (box)
Container 6 (folder)
Extent [7 folders]

Commodore Barry Bridge (Chester, Pennsylvania): Boeing test results
Unit Date 1973, n.d.
box-folder 1 (box)
Container 7 (folder)
Extent [4 folders]

Corsell, Peter Associates
Unit Date 1974-1975
box-folder 1 (box)
Container 8 (folder)

First and Merchants Bank (Radford, Virginia)
Unit Date 1953, n.d.
box-folder 1 (box)
Container 9 (folder)

First Union Plaza (Charlotte, North Carolina)
Unit Date 1973-1975, n.d.
box-folder 1 (box)
Container 10 (folder)

Genesee River Bridge
Unit Date 1981
box-folder 1 (box)
Container 11 (folder)

Glenwood Baptist Church (Danville, Virginia; Francis Atkins, architect; Poulton, Maher and Blake, structural engineers)
Unit Date 1956-1957, n.d.
box-folder 1 (box)
Container 12 (folder)

Gov. William Preston Lane Bridge (Chesapeake Bay; J. E. Greiner Company, designers)
Unit Date 1967-1970, n.d.
box-folder 1 (box)
Container 13 (folder)
Extent [5 folders]

Greiner Engineering Sciences
Unit Date 1975, n.d.
box-folder 1 (box)
Container 14 (folder)

Hancock, John W. Jr. Inc.
Unit Date 1972, n.d.
box-folder 1 (box)
Container 15 (folder)

Hollins College chapel (Roanoke, Virginia; Frantz and Addkison, architects)
Unit Date 1957-1958, n.d.
box-folder 1 (box)
Container 16 (folder)
Extent [3 folders]

Independence Center (Charlotte, North Carolina)
Unit Date 1981-1982
box-folder 2 (box)
Container 1 (folder)
Extent [2 folders]

Instrument Corporation of America - manufacturing plant addition (Blacksburg, Virginia; Dan Nickline, architect)
Unit Date 1953, n.d.
box-folder 2 (box)
Container 2 (folder)

Irvin Industries: Wind-supported structures
Unit Date 1969-1973, n.d.
box-folder 2 (box)
Container 3 (folder)
Extent [4 folders]

Jefferson Arch (Gateway Arch)(St. Louis; David B. Steinman, consulting engineer)
Unit Date 1947-1976, n.d.
box-folder 2 (box)
Container 4 (folder)
Extent [2 folders]

Leslie Coal Mine (Sidney, Kentucky)
Unit Date 1975-1978, n.d.
box-folder 2 (box)
Container 5 (folder)

Mackinac Bridge - testing (Mackinaw City, Michigan; David B. Steinman, designer)
Unit Date 1950-1954, n.d.
box-folder 2 (box)
Container 6 (folder)
Extent [3 folders]

Mackinac Bridge - printed materials (Mackinaw City, Michigan; David B. Steinman, designer)
Unit Date 1951-1976, n.d.
box-folder 2 (box)
Container 7 (folder)
Extent [2 folders]

The Bridge at Mackinac: New Northwest Passage - in Michigan - a Dramatic Story in Color
Unit Date n.d.

Brown, Prentiss M. The Mackinac Bridge Story
Unit Date 1956

"Dedication of Michigan's Mackinac Bridge," The Australasian Engineer
Unit Date 1958

"'Mighty Mac': Story of the Mackinac Bridge," The Australasian Engineer
Unit Date 1959

"Mighty Mack: There's Something About the Gigantic Bridge That's Almost Human"
Unit Date 1976

"Prize Bridges 1958"
Unit Date [1958?]

"Proposed Mackinac Straits Bridge Preliminary Report"
Unit Date 1951

"The World's Great Suspension Bridges: Comparative Magnitude"
Unit Date n.d.

Market Street East / URA Building Complex (Philadelphia; Bower and Fradley, architects)
Unit Date 1973-1974, n.d.
box-folder 2 (box)
Container 8 (folder)

Mercantile Tower Center (St. Louis; Thompson Ventulett, and Stainback, architects)
Unit Date 1972-1973, n.d.
box-folder 2 (box)
Container 9 (folder)

Municipal Stadium (Bayamon, Puerto Rico; Hernandez and Hernandez, consulting engineers)
Unit Date 1969, n.d.
box-folder 2 (box)
Container 10 (folder)

Narrows Bridge: David B. Steinman correspondence
Unit Date 1948-1950
box-folder 2 (box)
Container 11 (folder)

North Carolina National Bank (Charlotte, North Carolina)
Unit Date 1972, n.d.
box-folder 2 (box)
Container 12 (folder)

North Carolina National Bank Phase II (Charlotte, North Carolina)
Unit Date 1975
box-folder 2 (box)
Container 13 (folder)

Norton Dam (Norton, Virginia; R. Stuart Royer and Associates, designers)
Unit Date 1953, n.d.
box-folder 2 (box)
Container 14 (folder)
Extent [2 folders]

Thompson, Ramo and Wooldridge - engine test dolly
Unit Date 1962-1964, n.d.
box-folder 2 (box)
Container 15 (folder)

VPI Coliseum (Blacksburg, Virginia)
Unit Date 1966, n.d.
box-folder 2 (box)
Container 16 (folder)

Woodstock Dam (Woodstock, Virginia; R. Stuart Royer and Associates, consulting engineers)
Unit Date 1954-1957, n.d.
box-folder 2 (box)
Container 17 (folder)
Extent [3 folders]

Series II. Academic Research and Instruction
Unit Date 1934-1986

F. J. Maher personal data sheet
Unit Date 1981, n.d.
box-folder 2 (box)
Container 18 (folder)

F. J. Maher student paper on governors and lubricators
Unit Date 1934
box-folder 2 (box)
Container 19 (folder)

Academic correspondence

Unit Date 1964-1981
box-folder 2 (box)
Container 20 (folder)

Aerodynamic response of long H sections
Unit Date 1973-1979, n.d.
box-folder 2 (box)
Container 21 (folder)
Extent [4 folders]

Wind loads on domes
Unit Date 1970-1986, n.d.
box-folder 3 (box)
Container 1 (folder)

Wind loads on tall buildings (Rheinhold)
Unit Date 1978-1979, n.d.
box-folder 3 (box)
Container 2 (folder)

Wind pressure on structural shells
Unit Date 1964-1965
box-folder 3 (box)
Container 3 (folder)

Wind tunnel studies of interference and interactions of adjacent structures
Unit Date 1971-1977, n.d.
box-folder 3 (box)
Container 4 (folder)
Extent [4 folders]

Wind tunnel models and operations photographs
Unit Date n.d.
box-folder 3 (box)
Container 5 (folder)

General research correspondence
Unit Date 1965-1981, n.d.
box-folder 3 (box)
Container 6 (folder)

Engineering Science and Mechanics course materials
Unit Date 1963-1976, n.d.
box-folder 3 (box)
Container 7 (folder)

"Wind Engineering" lecture
Unit Date 1983, n.d.
box-folder 3 (box)
Container 8 (folder)

Background materials for talks

Background materials for talks
Unit Date 1960-1973, n.d.
box-folder 3 (box)
Container 9 (folder)

Maher articles and papers
Unit Date 1941-1979
box-folder 3 (box)
Container 10 (folder)
Extent [6 folders]

"Aerodynamic Forces in a Tall Building Model on a Turbulent Boundary Layer" (with T. A. Reinhold and H. W. Tieleman)
Unit Date 1977

"Aerodynamic Forces on a Tall Building in a Turbulent Boundary Layer" (with T. A. Reinhold and H. W. Tieleman)
Unit Date 1978

"Aerodynamic Modeling"
Unit Date n.d.

"Conception Actuelle des Batiments Eleves Tenant Compte des Charges de Vent"
Unit Date n.d.

"Design Courses - Yesterday, Today, Tomorrow"
Unit Date 1970

"Discussion of 'Strains Induced in Transmission Lines by Aeolian Vibration' by Robert F. Steidel, Jr."
Unit Date 1958, n.d.
Extent [3 typescript drafts]

"Dynamic Tests of Suspension Bridge Section Models" (with L. A. Becker; supplement by D. B. Steinman), Bulletin of the Virginia Polytechnic Institute, vol. 48, no. 6 (Engineering Experiment Station Series, no. 98)
Unit Date 1955

"The Effect of Wind Direction on the Static and Dynamic Wind Loads on a Square-Section Tall Building"
Unit Date 1978

"Effects of Turbulence on Bridge Model Torsional Stability" (with Timothy A. Reinhold and Henry W. Tieleman), Journal of the Structural Division
Unit Date 1976

"Helix Warping in Helical Compression Springs" (with D. H. Pletta), Bulletin of the Virginia Polytechnic Institute, v. 34, no. 15 (Engineering Experiment Station Series, no. 47)
Unit Date 1941

"Helix Warping in Helical Compression Springs"
Unit Date [1939?]

"Interactions of Square Prisms in Two Flow Fields" (with Timothy A. Reinhold and Henry W. Tieleman)

Unit Date n.d.

"Interaction of Square Prisms in Two Flow Fields" (with Timothy A. Reinhold and Henry W. Tieleman)

Unit Date 1977

"Investigation of a Grid Induced Turbulent Environment for Wind Tunnel Testing" (with T. A. Reinhold and H. W. Tieleman)

Unit Date 1974

"Load-Deflection Characteristics of Helical Springs" (with D. H. Pletta), Bulletin of the Virginia Polytechnic Institute, v. 34, no. 15 (Engineering Experiment Station Series, no. 47)

Unit Date 1941

"Mean and Fluctuating Forces and Torques on a Tall Building Model of Square Cross-Section" (with T. A. Reinhold, P. R. Sparks, and H. W. Tieleman)

Unit Date 1979

"Model Studies of Wind Loads on Flat-Top Cylinders" (with David M. Purdy and Daniel Frederick), Journal of the Structural Division, Proceedings of the American Society of Civil Engineers

Unit Date 1967

"Motivation in the Engineering Classroom"

Unit Date 1963

"Simulation of the Urban Neutral Boundary Layer for the Model Study of Wind Loads on Tall Buildings" (with T. A. Reinhold and H. W. Tieleman)

Unit Date 1978

"Tests Confirm Steinman Theory of Bridge Oscillations," Civil Engineering, vol. 23, no. 8

Unit Date 1953

"Wake Study of Stiffening Truss and Box Girder" (with Timothy A. Reinhold and Henry W. Tieleman), Journal of the Structural Division

Unit Date 1976

"Wind Engineering at Virginia Tech," The Virginia Engineer, vol. 28, no. 3

Unit Date 1978

"Wind Load Research: Some Unanswered Questions and Anticipated Problems"

Unit Date n.d.

"Wind Loads on Basic Dome Shapes," Journal of the Structural Division, Proceedings of the American Society of Civil Engineers

Unit Date 1965

"Wind Loads on Dome-Cylinder and Dome-Cone Shapes," Journal of the Structural Division, Proceedings of the American Society of Civil Engineers

Unit Date 1966

"Wind Loads on Kresge Auditorium and Traveler's Building," Journal of the Structural Division, Proceedings of the American Society of Civil Engineers

Unit Date 1969

"Wind Pressure on Structural Shells"

Unit Date 1965

"Wind Tunnel Model Tests of Coosa River Pipeline Bridge," Bulletin of the Virginia Polytechnic Institute, vol. 46, no. 6 (Engineering Experiment Station, no. 84)

Unit Date 1953

"Wind Tunnel Tests of Aqueduct Race Track Roof"

Unit Date 1957

"Wind Tunnel Tests of Suspension Bridge Section Models" (with D. Frederick, E. R. Estes, and David B. Steinman), Bulletin of the Virginia Polytechnic Institute, vol. 41, no. 6 (Engineering Experiment Station Series, no. 69)

Unit Date 1948

"Winds of Change Hit Modern Tall Buildings"

Unit Date 1974

Conference on Wind Loads on Structures

Unit Date 1970

box-folder 3 (box)

Container 11 (folder)

"Proceedings: Second U. S. National Conference on Wind Engineering Research"

Unit Date 1975

box-folder 3 (box)

Container 12 (folder)

"Technical Meeting Concerning Wind Loads on Buildings and Structures on Buildings and Structures"

Unit Date 1969

box-folder 3 (box)

Container 13 (folder)

Engineering printed materials

Unit Date 1934-1979

box-folder 3 (box)

Container 14 (folder)

Edwards, Llewellyn N., "The Evolution of Early American Bridges," Paper (Maine Technology Experiment Station, University of Maine), no. 15

Unit Date 1934

Gronquist, C. H., "Sault Ste. Marie Bridge Design," Engineering Journal

Unit Date 1961

Mason, A. Hughlett and Dean S. Carder," Vibration Frequencies of the Chesapeake Bay Bridge," Journal of the Structural Division, Proceedings of the American Society of Civil Engineers
Unit Date 1967

"Virginia Tech Claim Not Idle Boast," The Virginia Engineer, vol. 29, no. 1
Unit Date 1979

Series III. David B. Steinman
Unit Date 1941-1986

David B. Steinman correspondence and subject file
Unit Date 1948-1986, n.d.
box-folder 3 (box)
Container 15 (folder)

David B. Steinman articles and papers
Unit Date 1941-1960, n.d.
box-folder 3 (box)
Container 16 (folder)
Extent [8 folders]

"Aerodynamic Stability and the Mackinac Bridge," Technion Yearbook
Unit Date 1957

"Report: the Aerodynamic Stability of the Mackinac Bridge"
Unit Date 1955

"The Aerodynamic Stability of the Mackinac Bridge: Final Report" (with F. B. Farquharson)
Unit Date 1955

"Aerodynamic Theory of Bridge Oscillations," Paper, American Society of Civil Engineers, no. 2420
Unit Date 1950

Architecture and Design, vol. 18
Unit Date 1954-06

"Award of the Norman Model: Response"
Unit Date 1951

Beaute des Ponts
Unit Date 1953

"The Bridge," The American Engineer
Unit Date 1950-08

"Bridges: the Web of Modern Ground Transportation Is Only As Strong As Its Bridges. ...," Scientific American
Unit Date 1954-11

"Bridges: Steinman, Boynton, Gronquist & London"
Unit Date n.d.

"Bridges and Aerodynamics," American Toll Bridge Association Proceedings
Unit Date 1941

"Bridges and Aerodynamics," Transactions of the New York Academy of Sciences
Unit Date 1954-01

"Brucken mit grossen Spannweiten"
Unit Date n.d.

"Design of Bridges Against Wind: I. General Considerations--Aerostatic Stability," Civil Engineering, vol. 15, no. 10
Unit Date 1945-10

"Design of Bridges Against Wind: II. Aerodynamic Instability: Historical Background," Civil Engineering, vol. 15, no. 11
Unit Date 1945-11

"Design of Bridges Against Wind: III. Elementary Explanation of Aerodynamic Instability," Civil Engineering, vol. 15, no. 12
Unit Date 1945-12

"Design of Bridges Against Wind: IV. Aerodynamic Instability: Prevention and Cure," Civil Engineering, vol. 16, no. 1
Unit Date 1946-01

"Design of Bridges Against Wind: V. Criteria for Assuring Aerodynamic Stability," Civil Engineering, vol. 16, no. 2
Unit Date 1946-02

"Design of Bridges Against Wind: Symposium," Civil Engineering
Unit Date 1945-10-1946-02

"The Design of the Mackinac Bridge for Aerodynamic Stability," Journal of the Franklin Institute, vol. 262
Unit Date 1956-12

"Discussion of Aerodynamic Theory of Bridge Oscillations," Proceedings, American Society of Civil Engineers, vol. 76, separate no. D-XX
Unit Date 1950-07

A Dream Comes True: the Mackinac Bridge
Unit Date n.d.

"The Engineer: a Parable," The Virginia Tech Engineer
Unit Date 1952-02

"The Engineer in a Changing World," The Hudson Engineering Journal
Unit Date 1951-06

"Long-Span Bridges," The Indian & Eastern Engineer

Unit Date 1958-12

The Mackinac Bridge: Conquering the Impossible," Journal of the Boston Society of Civil Engineers

Unit Date 1956-01

"Mackinac Bridge: Designed for Complete Aerodynamic Stability," Civil Engineering

Unit Date 1956-05

"Mackinac Bridge: Superstructure Design and Construction," Civil Engineering

Unit Date 1959-01

"Mackinac Straits Bridge," Proceedings, American Society of Civil Engineers, vol. 80, separate no. 559

Unit Date 1954-12

"Michigan and Ontario will be Linked Near Sault St. Marie," The Holland Evening Sentinel

Unit Date 1959-06-27

"Modes and Natural Frequencies of Suspension Bridge Oscillations," Transactions of the E. I. C., vol. 3, no. 2

Unit Date 1959-07

"Ontario and Michigan Plan International Span"

Unit Date n.d.

"Problems of Aerodynamic and Hydrodynamic Stability," Proceedings of the Third Hydraulics Conference

Unit Date 1947

"Simple Model Tests Predict Aerodynamic Characteristics of Bridges, pt. 1: Response Curves Computed from Pressure Distribution Graphs," Civil Engineering

Unit Date 1957-01-1957-02

Songs of a Bridgebuilder (Grand Rapids, MI: Wm. B. Eerdmans),

Unit Date 1959

"La stabilita aerodinamica del ponte di Mackinac"

Unit Date 1956

"Suspension Bridges," American Scientist, vol. 42, no. 3

Unit Date 1954-07

"Suspension Bridges: the Aerodynamic Problem and Its Solution"

Unit Date 1953

"Suspension Bridges: the Aerodynamic Problem and Its Solution"

Unit Date 1954

"Three Dimensions of Man"

Unit Date 1960

"Today: Era of Great Bridges," The American City

Unit Date 1952-04

"U. S.-Canada Span Expected by 1961," The New York Times

Unit Date 1959-08-16

"Untersuchung der aerodynamischen stabilitat der Mackinac-Brucke," Internationalen Zeitschrift fur Stahlverwendung, no. 4

Unit Date 1956-04

"Verification de la stabilite aerodynamique du pont de Mackinac," Revue Internationale des Applications de l'Acier

Unit Date 1956-04

"Le Voyage Aerien a l'Expostion," Revue l'Ossature Metallique, no. 2

Unit Date 1934

"Wind-Tunnel Tests Reveal Serious Inadequacy of Present Bridge Specifications," Civil Engineering, vol. 17, no. 10

Unit Date 1947-10

"Wind Tunnel Tests Yield Aerodynamically Stable Bridge Sections," Civil Engineering

Unit Date 1947-12

"World's Longest Suspension Span is Proposed Messina Straits Bridge," Roads and Engineering Construction

Unit Date 1954-07

David B. Steinman plaque (Randolph Hall, Virginia Tech)

Unit Date 1957-1976, n.d.

box-folder 3 (box)

Container 17 (folder)