PHILADELPHIA
1976
AMERICAN
CONCRETE
INSTITUTE
ANNUAL
CONVENTION

MARCH 28-APRIL 2
BENJAMIN FRANKLIN HOTEL
BOARD OF DIRECTION

President
JOSEPH H. WALKER

Vice-Presidents
RUSSELL S. FLING
RICHARD C. MIELENZ

Directors
JOHN E. BREEN
T. Z. CHASTAIN
JOHN L. GOETZ
IB FALK JORGENSEN
JAMES R. LIBBY
JAMES G. MacGREGOR
IGNACIO MARTÍN
JOHN F. McLAUGHLIN
CLARKSON W. PINKHAM
MORRIS SCHUPACK
NORMAN L. SCOTT
ROBERT E. TOBIN

Past Presidents
EDWARD COHEN
ROBERT E. PHILLEO
CHESTER P. SIESS

Executive Director
GEORGE F. LEYH*

*American Concrete Institute
P.O. Box 19150
Detroit, Michigan 48219

TECHNICAL ACTIVITIES COMMITTEE

PAUL KLIEGER, Chairman
SAMUEL J. HENRY, Secretary*
JOHN E. BREEN
T. Z. CHASTAIN
RICHARD D. GAYNOR
HOWARD NEWLON, JR.
CHARLES J. PANKOW
EDWARD O. PFRANG
THOMAS J. READING
PETER SMITH
PAUL ZIA

EDUCATIONAL ACTIVITIES COMMITTEE

EMERY FARKAS, Chairman
GILBERT E. SEELEY, Secretary*
WILLIAM E. BREWER
CUTBERTO DIAZ-GOMEZ
EDWARD L. KAWALA
EMORY L. KEMP
BOYD C. RINGO
DENNIS T. SMITH

GENERAL ACTIVITIES COMMITTEE

CHARLES W. WILSON, Chairman
ROBERT E. WILDE, Secretary*
W. BURR BENNETT
HALVARD W. BIRKELAND
JAMES R. LIBBY
V. M. MALHOTRA
NORMAN L. SCOTT
BERTOLD E. WEINBERG

*American Concrete Institute
P.O. Box 19150
Detroit, Michigan 48219
# PROGRAM
72nd ANNUAL CONVENTION
March 28 - April 2, 1976
Philadelphia, Pennsylvania

Registration fees cover attendance at all ACI technical and educational committee meetings, general session, and symposia. They do not cover the educational seminars on Wednesday and Thursday nor the Awards Luncheon on Thursday for which there are extra charges.

## contents

<table>
<thead>
<tr>
<th>Activity</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast for new committee chairman</td>
<td>4</td>
</tr>
<tr>
<td>Breakfasts for program participants</td>
<td></td>
</tr>
<tr>
<td>Schedule</td>
<td>3</td>
</tr>
<tr>
<td>Special events</td>
<td>4</td>
</tr>
<tr>
<td>Committee meetings</td>
<td>7</td>
</tr>
<tr>
<td>Floor plan of meeting rooms</td>
<td>15</td>
</tr>
<tr>
<td>Educational Seminar: Concrete Construction</td>
<td></td>
</tr>
<tr>
<td>Education Conference</td>
<td>14</td>
</tr>
<tr>
<td>Chapter Forum</td>
<td>4</td>
</tr>
<tr>
<td>Exhibits information</td>
<td>27</td>
</tr>
<tr>
<td>General Session</td>
<td>18</td>
</tr>
<tr>
<td>ACI-CEB-PCI-FIP Symposium (first session)</td>
<td>19</td>
</tr>
<tr>
<td>Tolerances</td>
<td>19</td>
</tr>
<tr>
<td>Educational Seminar: Formwork Design Workshop</td>
<td>20</td>
</tr>
<tr>
<td>Educational Seminar: Aggregates in Concrete</td>
<td>22</td>
</tr>
<tr>
<td>Progress in Concrete Construction</td>
<td>22</td>
</tr>
<tr>
<td>ACI-CEB-PCI-FIP Symposium (second session)</td>
<td>21</td>
</tr>
<tr>
<td>ACI-CEB-PCI-FIP Symposium (third session)</td>
<td>23</td>
</tr>
<tr>
<td>Living With Our Available Materials in the Energy Shortage</td>
<td>24</td>
</tr>
<tr>
<td>Sealing Joints in Concrete Pavements</td>
<td>25</td>
</tr>
<tr>
<td>Research on Plain and Reinforced Concrete</td>
<td>25</td>
</tr>
<tr>
<td>Awards Luncheon</td>
<td>6</td>
</tr>
<tr>
<td>Program for Family Members</td>
<td>28</td>
</tr>
<tr>
<td>Future ACI Conventions</td>
<td>31</td>
</tr>
<tr>
<td>1976 ACI Seminar Program</td>
<td>29</td>
</tr>
<tr>
<td>ACI Philadelphia Convention Committee</td>
<td>33</td>
</tr>
<tr>
<td>Canoe Race</td>
<td>32</td>
</tr>
</tbody>
</table>

## SCHEDULE

### SUNDAY, MARCH 28
8:30 a.m. — 6:00 p.m.
Technical and administrative committee meetings

### MONDAY, MARCH 29
8:30 a.m. — 10:00 p.m.
Administrative and technical committee meetings

### TUESDAY, MARCH 30
8:30 a.m. — 10:00 p.m.
Administrative and technical meetings
9:00 a.m. — 5:00 p.m.
ECAC Concrete Construction Education Conference
1:00 p.m. — 5:00 p.m.
Exhibits Open
2:00 p.m. — 6:00 p.m.
Chapter Forum

### WEDNESDAY, MARCH 31
8:00 a.m.
General Session
10:00 a.m. — 5:00 p.m.
Exhibits Open
2:00 p.m. — 5:00 p.m.
ACI-CEB-PCI-FIP Symposium (1st of 3 sessions)
2:00 p.m. — 5:00 p.m.
Tolerances (Committee 117)
2:00 p.m. — 6:00 p.m.
Seminar on Formwork Design (registration fee: $20.00)
2:00 p.m. — 6:00 p.m.
Technical and educational committee meetings
6:30 p.m. — 8:00 p.m.
Concrete Mixer

### THURSDAY, APRIL 1
8:30 a.m. — 10:00 p.m.
Technical and educational committee meetings
9:00 a.m. — 12:00 noon
ACI-CEB-PCI-FIP Symposium (2nd of 3 sessions)
9:00 a.m. — 12:00 noon
Progress in Concrete Construction
9:00 a.m. — 5:30 p.m.
Seminar on Aggregates for Concrete (registration fee: $40.00 Members; $60.00 Non-members)
10:00 a.m. — 5:00 p.m.
Exhibits Open
12:15 p.m.
Awards Luncheon
2:30 p.m. — 5:30 p.m.
ACI-CEB-PCI-FIP Symposium (3rd of 3 sessions)
2:30 p.m. — 5:30 p.m.
Living With Our Available Materials in the Energy Shortage

### FRIDAY, APRIL 2
8:30 a.m. — 12:30 p.m.
Technical and educational committee meetings
9:00 a.m. — 12:00 noon
Sealing Joints in Concrete Pavements (Committees 325 and 504)
9:00 a.m. — 12:00 noon
Research on Plain and Reinforced Concrete (Committee 115)
SPECIAL EVENTS

Publications Display... in the Franklin Suite all week. See the latest ACI publications now available. Orders are taken at the Registration Desk which is also in the Franklin Suite.

Photo Display... all week in the Franklin Suite. Take a good look at the innovative structures built by the concrete industry!

Education at the Convention... One half-day workshop and two full-day seminars are being presented. The all-day seminar on Tuesday is included in the convention registration fee; the half-day workshop on Wednesday and the all-day seminar on Thursday will each require a separate registration fee as noted below. Since enrollment is limited, early registration is advised.

Concrete Construction Education Conference... 9:00 a.m. - 5:00 p.m., Tuesday, March 30, in the Garden Terrace. A number of organizations have been invited to discuss their programs as they relate to concrete construction education. The objective is to identify problems and solutions in construction education... especially those programs conducted by industry associations and professional and technical societies. There is no registration fee for this conference.

Formwork Design Workshop... 2:00 p.m. - 6:00 p.m., Wednesday, March 31, in the Ballroom Foyer. Designers, engineers and constructors concerned with the safety of formwork for concrete construction will benefit from attendance at this program. Registration fee is $20.00. Bona fide full-time students may register for $2.00.

Aggregates for Concrete Seminar... 9:00 a.m. - 5:30 p.m., Thursday, April 1, in the Ballroom Foyer. Users in evaluating properties of aggregates in terms of their influence on the properties of concrete will be aided by attending this program. Registration fee is $40.00 for ACI Members; $60.00 for Non-members, $5.00 for bona fide full-time students.

Educational-Technical Exhibits... Tuesday through Thursday in the Franklin Suite. See the latest tools and services available to the concrete industry.

Hospitality Suite... for Exhibitors only. Monday, March 29, 6:30 p.m. - 7:30 p.m.

Chapter Forum... 2:00 p.m. - 6:00 p.m., Tuesday, March 30, in Betsy Ross A. An informal roundtable on chapter activities and programs. The emphasis will be placed on educational programs sponsored by chapters, and the problems and benefits inherent in such programs.

"Concrete Mixer"... Wednesday, March 31, 6:30 p.m. - 8:00 p.m. This traditional affair will be held at the University Museum at the University of Pennsylvania campus. The Local Convention Committee has rented buses for our use to get there and back. Departure times are 6:00 p.m. and 6:45 p.m. Please use your green ticket for boarding buses and wear your ACI badge for identification.

Awards Luncheon and New Officer Installation... Thursday, 12:15 p.m., in the Garden Terrace. Good food and drink and multi-media presentations are combined into a pleasing format. Get your ticket early!

Breakfasts (by invitation only):
Tuesday, March 30, 7:00 a.m.
Breakfast for newly appointed chairmen of technical committees. Philadelphia room.
Wednesday, March 31, 7:00 a.m.
Breakfast for program participants in the General Session, session on Tolerances, and the first session of the ACI-CEB-PCI-FIP Symposium. Philadelphia room.
Thursday, April 1, 7:00 a.m.
Breakfast for program participants in both remaining sessions of the ACI-CEB-PCI-FIP Symposium, the session on Progress in Concrete Construction, and the session on Living With Our Available Materials in the Energy Shortage. Betsy Ross suite.
Friday, April 2, 7:00 a.m.
Breakfast for program participants in the session on Sealing Joints in Concrete Pavements and the session on Research on Plain and Reinforced Concrete. Betsy Ross suite.

Special tours... have been planned by the Local Convention Committee. Be sure to check the Family Members' program in the back of this booklet for tours of interest to you. There will be at least one and probably several. Don't miss them!

Construction Tour... Friday, April 2, to the Philadelphia Electric Company Nuclear Power Station in Limerick, Pennsylvania. The buses will leave the Benjamin Franklin Hotel promptly at 8:30 a.m. and return at 1:30 p.m.

CONCRETE CANOE RACE... this special event has been planned for Saturday, April 3, starting at 10:00 a.m., at the Schuylkill River racing course in Fairmount Park. Twenty-three schools are competing and it promises to be an exciting race. Don't miss it!
AWARDS LUNCHEON
THURSDAY, APRIL 1, 12:15 P.M.
Garden Terrace
Come meet the awardees and new ACI officers at noon. Have fun, enjoy a good lunch, and watch the multi-media awards presentation show.

PROGRAM
Honorary Memberships:
Paul W. Abeles  
Samuel D. Burks  
Eivind Hognestad  
W. Gordon Plewes  
Emilio Rosenbleuth  
John P. Thompson

Delmar L. Bloom Distinguished Service Awards:
Joseph A. Dobrowolski  
John M. Hanson  
T. E. Northrup

Henry C. Turner Medal:
Phil M. Ferguson

Alfred E. Lindau Plaque:
Hubert Rüsch

Henry L. Kennedy Award:
Thomas J. Reading

Charles S. Whitney Medal:
The Research and Development Division of the Cement and Concrete Association

Arthur R. Anderson Medal:
T. C. Powers

Roger H. Corbetta Concrete Construction Award:
Phillip R. Jackson

Joe W. Kelly Award:
Mete A. Sozen

Construction Practice Award:
William Rohde  
Kenneth D. Wheeler  
Jesse Schwartz  
Raymond C. Heun  
Charles Shimel  
Joseph R. Wolf

Wason Medal for Most Meritorious Paper:
Milton H. Wills, Jr.

Wason Medal for Materials Research:
Colin D. Johnston  
Ronald A. Coleman

Raymond C. Reese Structural Research Award:
Denis Mitchell  
Michael P. Collins  
Gajanan M. Sabnis

Chapter Activities Committee Award:
Recognition of Retiring Officers

Report of Tellers

Introduction of New Officers
New President's Address

Presentation of Memento to Retiring President

COMMITTEE MEETINGS

Be sure to check bulletin board for last minute changes or added meetings.

COMMITTEE
Meeting Room

Sunday
MARCH 28  
8:30 a.m. - 12:30 p.m.
318 Subcommittee G, Flexure and Axial Loads  
Valley Forge A  
318 Subcommittee I, Slab Systems  
Valley Forge B  
318 Subcommittee N, Earthquake Resistant Design Requirements  
Jefferson A  
2:00 p.m. - 6:00 p.m.
----- Technical Activities Committee  
Lafayette
318 Subcommittee B, Concrete Quality, Mixing, and Placement  
Jefferson A
318 Subcommittee E, Analysis and Strength Requirements  
Valley Forge B
318 Subcommittee L, Prestressed Concrete  
Jefferson B  
7:30 p.m. - 9:30 p.m.
----- Planning Committee  
Independence
318 Subcommittee A, General Building Code  
William Penn
318 Subcommittee C, Formwork, Embedded Pipes, and Construction Joints  
Valley Forge A
318 Subcommittee J, Footings  
Valley Forge B
318 Subcommittee M, Shells and Folded Plates  
Jefferson B
318 Task Group on Composite Construction  
Jefferson B
318 Task Group on Plain Concrete  
Poor Richard B
318 Task Group on Progressive Collapse  
Poor Richard A

Monday
MARCH 29  
8:30 a.m. - 10:30 a.m.
----- Technical Activities Committee  
Lafayette
----- Educational Activities Committee  
Independence
----- Chapter Activities Committee  
William Penn
313 Concrete Bins and Silos  
Valley Forge B
318 Subcommittee D, Details and Development of Reinforcement  
Jefferson B
318 Subcommittee F, Serviceability  
Ballroom Foyer
318 Subcommittee H, Shear and Torsion  
Poor Richard A
318 Subcommittee K, Precast and Composite Concrete  
Room 438
318 Task Group on Code Simplification  
Room 422
318 Task Group on Systems Building  
Jefferson A
340 Strength Design Handbook  
Room 439
344 Circular Prestressed Concrete Structures  
Room 423
351 Foundations for Equipment and Machinery  
Betsy Ross B
443 Concrete Bridge Design  
Poor Richard B
531 Masonry Structures  
Betsy Ross A
533 Precast Panels  
Philadelphia
546 Repair of Concrete  
Garden Terrace
547 Refractory Concrete  
Valley Forge A
Tuesday

MARCH 30

8:30 a.m. - 10:30 a.m.

Board of Direction
William Penn

201 Durability of Concrete
Betsy Ross B

209 Subcommittee II, (Creep and Shrinkage in Concrete)
Robert Morris

209 Subcommittee III, (Creep and Shrinkage in Concrete)
Room 422

211 Proportioning Concrete Mixes
Lafayette

212 Admixtures
Poor Richard A

313 Concrete Bins and Silos
Valley Forge B

315 Detailing Reinforced Concrete Structures
Jefferson B

318 Standard Building Code
Ballroom Foyer

358 Concrete Guideways
Jefferson A

423 Prestressed Concrete
Lafayette

438 Torsion
Room 438

512 Precast Structural Concrete
Indepenence

515 Coatings for Concrete
Poor Richard B

531 Masonry Structures
Betsy Ross A

547 Refractory Concrete
Valley Forge A

9:00 a.m. - 5:00 p.m.

CONCRETE CONSTRUCTION EDUCATION CONFERENCE (Sponsored by ACI Educational Activities Committee) See Page 14

Garden Terrace

10:30 a.m. - 12:30 p.m.

Board of Direction
William Penn

201 Durability of Concrete
Betsy Ross B

207 Mass Concrete
Poor Richard A

211 Proportioning Concrete Mixes
Lafayette

213 Lightweight Aggregates and Lightweight Aggregate Concrete
Room 422

214 Evaluation of Results of Tests Used to Determine the Strength of Concrete
Betsy Ross B

216 Fire Resistance and Fire Protection of Structures
Robert Morris

313 Concrete Bins and Silos
Valley Forge B

315 Detailing Reinforced Concrete Structures
Jefferson B

318 Standard Building Code
Ballroom Foyer

423 Prestressed Concrete
Jefferson A

435 Deflection of Concrete Building Structures
Indepenence

438 Torsion
Room 438

515 Coatings for Concrete
Poor Richard B

547 Refractory Concrete
Valley Forge A

12:30 p.m. - 2:00 p.m.

Institute and Industry Advancement Committee
Contact R. Wilde

EXHIBITS OPEN See Page 27

Franklin Suite
Wednesday

MARCH 31

GENERAL SESSION See Page 18
8:00 a.m.
Ballroom

10:00 a.m. - 5:00 p.m.

EXHIBITS OPEN See Page 27
12:30 p.m. - 2:00 p.m.
Franklin Suite

103 Monographs
2:00 p.m. - 4:00 p.m.
Contact R. Wilde

118 Use of Computers
Poor Richard B

209 Creep and Shrinkage in Concrete
Lafayette

311 Inspection of Concrete
Jefferson A

325 Concrete Pavements
Valley Forge B

345 Concrete Bridge Construction and
Maintenance
Robert Morris

349 Concrete Nuclear Structures (Working Group)
Jefferson B

349 Concrete Nuclear Structures (Working Group)
William Penn

349 Concrete Nuclear Structures (Working Group)
Poor Richard A

548 Polymers in Concrete
Valley Forge A

549 Ferrocement
Philadelphia

E-601 Seminars and Workshops
Independence

2:00 p.m. - 5:00 p.m.

TOLERANCES See Page 19
Betsy Ross Suite

ACI-CEB-PCI-FIP SYMPOSIUM (Sponsored by
American Concrete Institute; Comité Européen du
Béton; Prestressed Concrete Institute; and Fédération
Internationale de la Précontrainte) (first session)
See Page 19

2:00 p.m. - 6:00 p.m.

FORMWORK DESIGN SEMINAR (Sponsored by ACI
Committee E-702) See Page 20

Ballroom

4:00 p.m. - 6:00 p.m.

118 Use of Computers
Poor Richard B

215 Fatigue of Concrete
Philadelphia

311 Inspection of Concrete
Jefferson A

325 Concrete Pavements
Valley Forge B

345 Concrete Bridge Construction and
Valley Forge B

349 Concrete Nuclear Structures (Working Group)
Jefferson B

349 Concrete Nuclear Structures (Working Group)
William Penn

349 Concrete Nuclear Structures (Working Group)
Poor Richard A

356 Industrialized Concrete Construction
Valley Forge A

523 Insulating and Cellular Concretes
Valley Forge A

E-701 Materials for Concrete Construction
Independence
Thursday

APRIL 1

8:30 a.m. - 10:30 a.m.

- Standards Board
  120 History of Concrete
  349 Concrete Nuclear Structures (Working Group)
  349 Concrete Nuclear Structures (Working Group)
  349 Concrete Nuclear Structures (Working Group)
  421 Design of Reinforced Concrete Slabs
  503 Adhesives for Concrete
  504 Joint Sealants

9:00 a.m. - 12:00 noon

ACI-CEB-PCI-FIP SYMPOSIUM (second session)
See Page 21

PROGRESS IN CONCRETE CONSTRUCTION
See Page 22

SEMINAR ON AGGREGATES FOR CONCRETE
(Sponsored by ACI Committee E-701) (first session)
See Page 22

10:00 a.m. - 5:00 p.m.

EXHIBITS OPEN
See Page 27

10:30 a.m. - 12:30 p.m.

- 349 Concrete Nuclear Structures (Working Group)
- 349 Concrete Nuclear Structures (Working Group)
- 349 Concrete Nuclear Structures (Working Group)
- 421 Design of Reinforced Concrete Slabs
- 444 Models of Concrete Structures
- 503 Adhesives for Concrete
- E-702 Designing Concrete Structures

12:15 p.m. - 2:30 p.m.

AWARDS LUNCHEON
See Page 6

1:30 p.m. - 5:30 p.m.

SEMINAR ON AGGREGATES FOR CONCRETE
(second session)
See Page 22

2:30 p.m. - 4:30 p.m.

----- New Board of Direction
----- Convention Committee
  305 Hot Weather Concreting
  307 Reinforced Concrete Chimneys
  349 Concrete Nuclear Structures (Working Group)
  349 Concrete Nuclear Structures (Working Group)
  349 Concrete Nuclear Structures (Working Group)
  360 Design of Slabs on Grade
  E-703 Concrete Construction Practices
  E-801 Student Concrete Projects

2:30 p.m. - 5:30 p.m.

ACI-CEB-PCI-FIP SYMPOSIUM (third session)
See Page 23

LIVING WITH OUR AVAILABLE MATERIALS IN THE ENERGY SHORTAGE
See Page 24

Friday

APRIL 2

8:30 a.m. - 12:30 p.m.

- 426 Shear and Diagonal Tension
  9:00 a.m. - 12:00 noon

SEALING JOINTS IN CONCRETE PAVEMENTS
(Sponsored by ACI Committees 325 and 504)
See Page 25

RESEARCH ON PLAIN AND REINFORCED CONCRETE
(Sponsored by ACI Committee 115)
See Page 25

4:30 p.m. - 6:30 p.m.

----- New Board of Direction
----- Convention Committee
  120 History of Concrete
  305 Hot Weather Concreting
  307 Reinforced Concrete Chimneys
  349 Concrete Nuclear Structures (Working Group)
  349 Concrete Nuclear Structures (Working Group)
  349 Concrete Nuclear Structures (Working Group)
  360 Design of Slabs on Grade
  E-801 Student Concrete Projects

7:30 p.m. - 9:30 p.m.

308 Curing Concrete
357 Offshore Concrete Structures
360 Design of Slabs on Grade

7:30 p.m. - 9:30 p.m.

Independence

Garden Terrace Poor Richard B
Tuesday, March 30
9:00 a.m. - 5:00 p.m.
CONCRETE CONSTRUCTION EDUCATION CONFERENCE
sponsored by ACI Educational Activities Committee

Garden Terrace

Moderator: William E. Brewer, vice president, Kuhlman Corporation, Toledo, Ohio, and member, ACI Educational Activities Committee

Welcome and Introductions
Emery Farkas, general manager, Rock Processing Chemicals, Construction Products Division, W. R. Grace and Company, Cambridge, Massachusetts, and chairman, ACI Educational Activities Committee

Keynote Address
Cornelius Wandmacher, professor of engineering education, College of Engineering, University of Cincinnati, Cincinnati, Ohio

Education in the Construction Industry
Speaking for the American Concrete Institute: Emery Farkas, chairman, ACI Educational Activities Committee
Speaking for the Portland Cement Association: Edward L. Kawala, director, Educational Services Department
Speaking for the National Board of Boiler and Pressure Vessel Inspectors: S. F. Harrison, executive director
Speaking for the National Concrete Masonry Association: Thomas B. Redmond, director of technical services
Speaking for the American Society for Concrete Construction: William M. Avery, executive director
Speaking for the American Society for Engineering Education: M. H. Jordan, chairman, Constituent Committee on Construction Education
Speaking for the Prestressed Concrete Institute: Fromy Rosenberg, director, Structural Precast Division
Speaking for the National Ready Mixed Concrete Association: Richard D. Gaynor, vice president of engineering and research
Speaking for the American Society of Civil Engineers: Boris Bresler, chairman, Structural Division, Executive Committee
Speaking for the American Concrete Paving Association: William A. Yjansson, director of engineering
Speaking for the Wire Reinforcement Institute: Walter L. Manifold, managing director
Speaking for the American Society of Safety Engineers: William S. Wood
Speaking for the Concrete Reinforcing Steel Institute: Victor A. Walther, director of marketing

Luncheon (by invitation only)
Synergy in Concrete Construction Education
Gary Woolgar, general manager, Dufferin Concrete Products, Toronto, Ontario, Canada

Conference Summary
Wednesday, March 31
2:00 p.m. — 5:00 p.m.
ACI-CEB-PCI-FIP SYMPOSUM
co-sponsored by American Concrete Institute, Comité Européen du Béton, Prestressed Concrete Institute, and Fédération Internationale de la Précontrainte

Garden Terrace

Session Chairman: George F. Leyh, executive director, American Concrete Institute, Detroit, Michigan

Session I: Limit States Design
Introduction
George F. Leyh, session chairman

General Approach to Safety, Serviceability, and Limit States Philosophy
R.E. Rowe, director of research and development, Cement and Concrete Association, Wexham Springs, England

Loadings—CEB Approach
M. Henri Mathieu, chief, Division des Ouvrages d'Art B, Service d'Etudes Techniques des Routes et Autoroutes, Bagneux, France

Safety and Serviceability—ACI Approach
George Winter, professor of structural engineering, Cornell University, Ithaca, New York

Limit States Design for Reinforced and Prestressed Concrete—CEB Approach
Georgio Macchi, professor, Istituto di Scienza e Tecnica delle Costruzioni, Universita di Pavia, Pavia, Italy

Summary and Comparison of CEB and ACI Provisions Concerning Safety and Serviceability
C.P. Siess, head, Department of Civil Engineering, University of Illinois at Urbana-Champaign, Urbana, Illinois

Wednesday, March 31
2:00 p.m. — 5:00 p.m.
TOLERANCES

sponsored by ACI Committee 117

Betsy Ross Suite

Session Chairman: Robert D. Bay, chairman, ACI Committee 117, and director of technical services, Laclede Steel Company, St. Louis, Missouri

Construction Tolerances in Reinforced Concrete Beams/Joists
Daniel M. Brown, associate professor of civil engineering, Vanderbilt University, Nashville, Tennessee; and Joseph P. Connolly, senior structural engineer, McDermott Hudson Engineering Division of J. Ray McDermott & Company, Inc., New Orleans, Louisiana

Establishing Tolerances in Concrete Construction
Dean E. Stephan, Jr., project manager, Charles Pankow, Inc., Altadena, California and Alan D. Murk, superintendent, Charles Pankow, Inc., San Francisco, California
European Concepts of Construction Tolerances
Kai Holbek, principal, Kai Holbek Associates Ltd., West Vancouver, British Columbia, Canada; and Povl R. Andersen, partner, Povl R. Andersen & Lars Gravesen, Consulting Engineers, Copenhagen, Denmark

Tolerances Involving Reinforcing Bars
A. Ernest Fisher, III, assistant chief engineer, Bethlehem Steel Corporation, Bethlehem, Pennsylvania

Wednesday, March 31
2:00 p.m. — 6:00 p.m.
FORMWORK DESIGN WORKSHOP
sponsored by ACI Committee E-702

Ballroom Foyer

Design and construction problems associated with a multi-story concrete building will constitute the workshop activity. A team of instructors will assist in solving some problems emphasizing safety and construction efficiency. Enrollment is limited so early registration is advised. Registration fee is $20.00, students, $2.00.

PROGRAM

Moderator: William J. Wilhelm, chairman, ACI Committee E-702, and chairman, Department of Civil Engineering, West Virginia University, Morgantown, West Virginia

2:00 p.m. - 2:15 p.m.
Introduction

2:15 p.m. - 3:00 p.m.
Selection of Framing System
Economy of Materials
Economy of Placing and Forming
Instructor: James R. Cagley, Martin & Cagley, Washington, D.C.

3:00 p.m. - 4:00 p.m.
Selection of Forming System
Construction Schedule
Construction of Formwork
Shoring and Reshoring
Instructor: Carl Guse, Miller Davis Company, Melrose Park, Illinois

4:00 p.m. - 4:15 p.m.
Stretch break

4:15 p.m. - 5:15 p.m.
Formwork Design
Form Loads
Proper Loads for Shoring and Reshoring
Design of Shoring and Reshoring
Instructor: James P. Hanagan, Donley's, Cleveland, Ohio

5:15 p.m. - 6:00 p.m.
Discussion

Thursday

April 1
9:00 a.m. — 12:00 noon
ACI-CEB-PCI-FIP SYMPOSIUM

Ballroom

Session Chairman: Andrew Short, president, Comité Européen du Béton, and senior principal scientific officer, Building Research Station, Garston, Watford, England

Session II: Shear and Torsion
Introduction
Andrew Short, session chairman

Design of Beams, Deep Beams and Corbels for Shear — ACI 318-71 and Revisions Proposed by ACI Committee 426
James G. MacGregor, professor of civil engineering, University of Alberta, Edmonton, Alberta, Canada

Shear Strength of Reinforced and Prestressed Concrete Beams — CEB Approach
Bruno Thürlimann, professor, Eidgenössische Technische Hochschule, Zurich, Switzerland

Torsional Strength of Reinforced and Prestressed Concrete — CEB Approach
Bruno Thürlimann, professor, Eidgenössische Technische Hochschule, Zurich, Switzerland

Torsion Design and ACI 318-71
Alan H. Mattock, head, Division of Structures and Mechanics, University of Washington, Seattle, Washington

Comparison of Shear and Torsion Design in the ACI and CEB

Shear in Slabs — ACI Approach
W. Gene Corley, director, Engineering Development Department, Portland Cement Association, Skokie, Illinois

Punching Shear Resistance
M.P. Nielsen, professor, Structural Research Laboratory, Technical University of Denmark, Lyngby, Denmark

Comparison of Design for Shear in Slabs in the ACI and CEB
Eugene P. Holland, president, Wiesinger-Holland, Ltd., Chicago, Illinois
Thursday, April 1
9:00 a.m. - 12:00 noon
PROGRESS IN CONCRETE CONSTRUCTION

Betsy Ross Suite

Session Chairman: Charles J. Pankow, president and treasurer, Charles Pankow, Inc., Altadena, California

Making the Concrete Construction Process Work
James M. Shilstone, president, Architectural Concrete Consultants, a division of General Portland Inc., Dallas, Texas

Construction of Reinforced Concrete Buildings by Casting Interleaved Walls and Slabs as a Stack
Pablo Cortina, structural engineer, Sistema Cortina de Construcciones, Mexico, D.F., Mexico

Architectural Concrete in the City
Vincent G. Kling, managing partner, Vincent G. Kling and Partners, Philadelphia, Pennsylvania

Construction of the Birmingham-Jefferson Civic Center Coliseum
Frank A. Kozeliski, materials engineer, Law Engineering Testing Company, Birmingham, Alabama

Weathering of Concrete in an Industrial Atmosphere
C. Douglas Goode, senior lecturer in civil engineering, Simon Engineering Laboratories, University of Manchester, Manchester, England

Construction of a Precast Concrete Office Building in San Francisco
Alan D. Murk, superintendent, Charles Pankow, Inc., San Francisco, California

Thursday, April 1
9:00 a.m. - 5:30 p.m.
AGGREGATES FOR CONCRETE sponsored by ACI Committee E-701

Ballroom Foyer

In the selection and use of aggregates in concrete you want to look at engineering properties and characteristics other than just strength and economy. This seminar will assist producers, specifiers, and users in evaluating characteristics of aggregates in terms of their influence on the engineering properties of concrete.

Do you have concrete related aggregate problems? Bring them with you and we'll discuss them and maybe solve them.

Enrollment is limited so early registration is advised.

Registration fee is $40.00 for ACI Members, $60.00 for non-members, $5.00 for students.

PROGRAM

9:00 a.m. - 12:00 noon

Session One


Basic Characteristics and Tests of Aggregates
Grading: maximum size, fineness modulus, absorption, standard test methods will be described as well as effects of aggregate characteristics upon concrete.

Dr. Ward R. Malisch, associate professor, University of Missouri-Rolla, Rolla, Missouri

Specifications of Aggregate Quality
Emphasis will be on the specifications contained in ASTM C33-74 and identifying why the specification is important.

Fred R. Allen, director of technical services, National Crushed Stone Association, Washington, D.C.

Practical Aspects of Selecting and Using Aggregate in Concrete
Properties of normal weight aggregates as they affect concrete performance will be discussed.

R.C. Meininger, assistant director of engineering, National Ready Mixed Concrete Association, Silver Spring, Maryland

Plant Production Control of Construction Aggregates
Organization of a quality control program, use of control charts, and use of test data will be discussed.

John T. Molnar, materials engineer, Standard Slag Company, Youngstown, Ohio

Meeting Concrete Specifications Using Lightweight Aggregates

John M. Albinger, assistant manager of quality control, Material Service Corporation, Chicago, Illinois

Problem and discussion session.

Thursday, April 1
2:30 p.m. - 5:30 p.m.
ACI-CEB-PCI-FIP SYMPOSIUM

Ballroom

Session Chairman: Arthur W. Hill, secretary general, Fédération Internationale de la Précontrainte, and technical director, Cement and Concrete Association, Wexham Springs, Slough, England

Session III: Prestressed Concrete: Special Concepts and New Applications

Introduction
Arthur W. Hill, session chairman

Fire Resistance: Rational Design
Armand H. Gustafsson, consulting engineer, The Consulting Engineers Group, Inc., Glenview, Illinois

Fire Resistance, A Rational Approach — Basic Philosophy
Jan Bobrowski, senior partner, Jan Bobrowski and Partners, London, England

Partial Prestressing Design Philosophy and Approach
T.Y. Lin, professor of civil engineering, University of California, Berkeley, California

Partial Prestressing Design philosophies
Fritz Leonhardt, professor, Institut für Massivbauer, Universität Stuttgart, Stuttgart, Germany
Code Provisions for Special Structures
Arthur R. Anderson, principal, ABAM Engineers, Inc.,
Tacoma, Washington; Eivind Hognestad, director, Technical
and Scientific Development, Portland Cement Association,
Skokie, Illinois; Ben C. Gerwick, Jr., professor of
construction engineering and management, University of
California, Berkeley, California

Design with Unbonded Tendons
C.L. Freyermuth, director, Post-Tensioning Division, Pre-
stressed Concrete Institute, Chicago, Illinois

Design with Unbonded Tendons
Walter Thorpe, Simon Carves Ltd., Cheadle Heath, Stock-
port, Cheshire, England

Thursday, April 1
2:30 p.m. — 5:30 p.m.
LIVING WITH OUR AVAILABLE
MATERIALS IN THE ENERGY
SHORTAGE

Betsy Ross Suite

Session Chairman: Robert E. Philleo, chief, Concrete
Branch, Engineering Division, Directorate of Civil Works, Office of the Chief of
Engineers, Washington, D.C.

Energy and Environment — Problems and Solutions in the
Cement Industry
K.D. Simmons, vice-president research, Martin Marietta
Cement, Rockville, Maryland

Cementitious Properties from Low Energy Materials
R.H. Brink, consultant, McLean, Virginia

Maintaining the Availability of Conventional Aggregates
Frank P. Nichols, Jr., vice president - engineering, National
Crushed Stone Association, Washington, D.C.

Quality Aggregates from Junk
S.A. Bortz, director, Mechanics of Materials Research Divi-
sion, Illinois Institute of Technology Research Institute,
Chicago, Illinois

Recycled Concrete as a Source of Aggregate
A.D. Buck, petrographer, U.S. Army Engineer Waterways
Experiment Station, Vicksburg, Mississippi

Notes

Friday
April 2
9:00 a.m. — 12:00 noon
SEALING JOINTS IN CONCRETE
PAVEMENTS

Sponsored by ACI Committees 325
and 504

Ballroom

Session Chairman: Thomas J. Pasko, chairman, ACI Com-
mmittee 325, and highway research engi-
eer, Federal Highway Administration,
Annandale, Virginia

A Discussion of the Principles of Zero Maintenance Solutions
as Applied to the Kinetics of Our Modern Bridges and
Structures
Stewart C. Watson, president, Watson-Bowman Associates,
Inc., Buffalo, New York

Performance of Transverse Joints in Prestressed and Rein-
forced Concrete Airfield Pavements
Michel A. Sargious, associate professor, Department of Civil
Engineering, University of Calgary, Calgary, Alberta, Canada

Effect of Joint Design on Performance of Heavily Trafficked
Concrete Pavements
Ernest J. Barenberg, professor, and Michael L. Darter, assistant
professor, Department of Civil Engineering, University of
Illinois at Urbana, Urbana, Illinois

Comparison of Automobile Tire/Pavement Noise Levels for
Various PCC Surface Finishes
William R. Fuller, staff scientist, Science Applications, Inc.,
El Segundo, California

Steel Fiber Reinforced Concrete for Pavement Overlays
Amir N. Hanna, senior transportation engineer, Transporta-
tion Development Section, Portland Cement Association,
Skokie, Illinois

Performance of Sealed Longitudinal Pavement-Shoulder
Joints
Richard D. Barksdale, professor, School of Civil Engineering,
Georgia Institute of Technology, Atlanta, Georgia; and R.G.
Hicks, professor Department of Civil Engineering, Oregon
State University, Corvallis, Oregon

Friday, April 2
9:00 a.m. — 12:00 noon
RESEARCH ON PLAIN AND
REINFORCED CONCRETE
(Brief and confidential unpublished reports)

Sponsored by ACI Committee 115

Franklin Suite

Session Chairman: Herbert K. Cook, chairman, ACI Com-
mmittee 115, and vice-president of engi-
eering, Master Builders, Cleveland,
Ohio

Secretary: M.A. Ward, secretary, ACI Committee
115, and professor, Department of Civil
Engineering, University of Calgary, Cal-
gary, Alberta, Canada
Seismic Resistance of Precast Concrete Panel Buildings
J.M. Becker, assistant professor, and J.M. Biggs, professor, Department of Civil Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts

Nonlinear Behavior of Reinforced Concrete Columns
S.A. Mahin, assistant research engineer, and V.V. Bertero, professor of civil engineering, University of California, Berkeley, California

Tests of Precast Concrete Slabs with Ineffective Internal Support
E.F.P. Burnett, visiting senior structural engineer, and N.W. Hanson, principal structural engineer, Structural Development Section, Engineering Development Department, Portland Cement Association, Skokie, Illinois

High Temperature Effects on Nuclear Concrete Structures in Accident Situations
Zdenek P. Bazant, professor of civil engineering, Northwestern University, Evanston, Illinois

Prevention of Shear Strength Decay in Reinforced Concrete Members During Earthquakes
James K. Wight, assistant professor of civil engineering, and Charles F. Scribner, research assistant, University of Michigan, Ann Arbor, Michigan

A.J. BOASE AWARD OF THE REINFORCED CONCRETE RESEARCH COUNCIL

Dugald J. Cameron has been selected by the Reinforced Concrete Research Council to receive the 1976 Arthur J. Boase Award "... in recognition of a lifetime of untiring effort on behalf of concrete construction, as a driving force and catalyst in working with contractors and engineers for better use of concrete and reinforcing, and of his constant endeavor to obtain improvement in construction details."

Evaluation and Control of Steel Corrosion in Marine Concrete Structures
Odd E. Gjov, associate professor, University of Trondheim, Trondheim, Norway

Strength and Behavior of Anchor Bolts
G.B. Hassel wander, research assistant, J.O. Jirsa, professor, and J.E. Breen, professor, Department of Civil Engineering, University of Texas at Austin, Austin, Texas

Microcracking and Macrocacking of Concrete under Compressive Stress Fields
W.W. Payne, professor of civil engineering, and K.N. Derucher, graduate student, Virginia Polytechnic Institute and State University, Blacksburg, Virginia

Investigation of Properties and Performance of Styropor Concrete for Pavement Subbases
Amir N. Hanna, senior transportation engineer, Transportation Development Section, Portland Cement Association, Skokie, Illinois; and Arthur Rady-Penteck, Civil Engineering Applications, BASF Wyandotte Corporation, Parsippany, New Jersey

Steel Fiber Concrete Mix Proportioning
J.E.C. Moens, project manager, N.V. Bekaert, SA, Zwelgem, Belgium

EXHIBITION
Franklin Suite

hours:
Tuesday 1:00 p.m. to 5:00 p.m.
Wednesday 10:00 a.m. to 5:00 p.m.
Thursday 10:00 a.m. to 5:00 p.m.

Exhibitors:


American Society for Concrete Construction

Bekaert Steel Wire Corporation - Concrete reinforcement.

Concrete Reinforcing Steel Institute - General design aids, technical books.

Gifford-Hill & Company, Inc., Chemical Division - Concrete Admixtures, grouts.

Hercules Concrete Pumps, Inc. - Concrete pumping products.

Intrusion-Prepakt, Inc. - Pressure grouting, piles, erosion control, restoration of concrete and masonry structures.

Labrado Forms, Inc. - Form liners for architectural concrete.

Lammas Equipment - Reusable concrete cylinder mold.

National Ash Association, Inc. - Concrete aggregate products with ash.

Watson Bowman Associates, Inc. - Expansion joint sealing systems.

Windsor Probe Test Systems, Inc. - Test systems.
FAMILY MEMBERS’ PROGRAM

Hospitality: Mezzanine Gallery, Chestnut Street

Morning coffee and light refreshments will be provided in the Hospitality room starting Monday morning at 9:00 a.m.

Bus Tours
"Circles & Squares" — Tuesday, Thursday 9:30-12:00
Introductory overview of Center City Philadelphia. Includes historic and cultural highlights of Society Hill, Independence Park, Old City and other areas between the Delaware and Schuylkill rivers.

"Longwood/Brandywine" — Wednesday 9:30-4:00
A visit to Longwood Gardens in nearby Chester County with year-round conservatory, fountains, formal and informal gardens. A stop at Brandywine Museum in an old grist mill, with exhibits of Maxfield Parrish, the Wyeth family, and others. (Luncheon facilities at Longwood Gardens)

"Winterthur" — Friday 9:30-4:00
A trip to a duPont estate near Wilmington, housing 14 period rooms, internationally famous for quality and accuracy. Lovely grounds, shrubs and gardens featuring Delaware plants. (Luncheon included)

Guided Walking Tours — each 1½ hours long—scheduled to permit maximum coverage:
"Independence" — Historic area around Independence Hall, Dolley Todd's house, historic mansions, restored and contemporary townhouses.

"Stars and Stripes" — Companion tour in area containing Christ Church, Elfreth's Alley, tiny Loxely Court and a Quaker Meeting House near Franklin's grave.

"Secret Gardens" — A walking visit to see many gardens (rooftop, window, 18th century, magnolia, rose) and flower-filled walkways.

"Olde Towne" — A quiet street reflecting Philadelphia of the 1840's. Lovely brownstone mansions, deep gardens, ornamental ironwork and architectural detail on mansions of the literary world of the Lippincotts, Agnes Repplier and Charles Dickens.

"Penn's Holy Experiment" — Many historic churches of varied denominations that live in harmony. A new insight into the place of the church in the minds of our forefathers.

"Candlelight Strolls" — Through historic streets and walkways to city mansions and tiny homes. Dolley Todd's house, an 18th century garden, an historic church, and contemporary townhouses.

TOUR SCHEDULE

WALKING TOURS
Wed., Mar. 31 Independence .................................. 10-11:30
Secret Gardens .................................................. 10-11:30
Stars & Stripes ................................................. 1-2:30

Thurs., Apr. 1 Stars & Stripes .................................. 10-11:30
Olde Towne ..................................................... 10-11:30
Independence .................................................. 2-3:30
Penn's Holy Experiment ...................................... 2-3:30
Candlelight Stroll ............................................ 7-8:30

Fri., Apr. 2 Stars & Stripes .................................. 10-11:30
Independence .................................................. 10-11:30
Secret Gardens ................................................ 2-3:30
Candlelight Stroll ............................................ 7-8:30

BUS TOURS
Tues., Thurs. Circles & Squares .......................... 9:30-12
Wed., Mar. 31 Longwood/Brandywine .................. 9:30-4
Fri., Apr. 2 Winterthur ....................................... 9:30-4

Scheduled tours will go rain or shine, leave from the hotel, and return promptly.

ACI EDUCATIONAL SEMINARS

SCHEDULE FOR 1976

April 7
ACI Code and Strength Design (318-71)
Anchorage, Alaska

April 8
Concrete Materials
Anchorage, Alaska

April 9
Concrete Construction Practices
Anchorage, Alaska

April 15
ACI Code 318-71 and Strength Design
Ames, Iowa

May 21
ACI Code 318-71 and Strength Design
Los Angeles, California

May
Quality Assurance and Quality Control in Concrete
Construction
Washington, D.C.

May
High Strength Concrete
New Orleans, Louisiana

September 22, 23
Concrete Housing: Design, Specifications and
Construction
Detroit, Michigan
As a service to our membership, ACI has arranged roundtrip chartered flights to Mexico City. In order to qualify for the charter, one must have been a member of ACI for 6 months prior to the time of departure or be related to a member who is attending.

This represents a great opportunity to bring along the family for a South of the Border holiday. An enjoyable, though relaxing, program has been planned for wives and children alike while convention functions are in process.

Charters will depart from Chicago and New York City on October 23, according to the following table. Lunch, two complimentary drinks and a movie are included on the flight. Both aircraft will depart Mexico City for their original points on Sunday, October 31.

<table>
<thead>
<tr>
<th>City</th>
<th>Charter Cost*</th>
<th>Regular Airfare</th>
</tr>
</thead>
<tbody>
<tr>
<td>From Chicago</td>
<td>$200</td>
<td>$290</td>
</tr>
<tr>
<td>From New York</td>
<td>217</td>
<td>356</td>
</tr>
</tbody>
</table>

Seat price is a pro rata share of total charter costs and is subject to increase or decrease depending on the number of participants.

*$50.00 per person must accompany the initial reservation, with the balance due by June 1, 1976. In the event of cancellation prior to July 23, ACI will keep the $50 deposit. For cancellations after July 23, the entire airfare will be forfeited unless member can make arrangements with Kearney Travel Service for a seat replacement.

Besides the money you can save over the cost of regular airfare, the charter offers several conveniences including transfers from the airport directly to their hotel, baggage handling, and arrangements for connecting flights to and from the charter departure points for those who wish it.
UNIVERSITY OF PENNSYLVANIA'S FOURTH ANNUAL CONCRETE CANOE RACE

Date: Saturday, April 3, 1976
Time: 10:00 a.m. to 1:00 p.m.
Place: Schuylkill River racing course
    Fairmount Park, Philadelphia
Type of Canoe: Class A - Hydraulic cement with no more than
    1% additive; ferrous reinforcement
Size of Canoe: Maximum length 14'; Maximum width 3'
Size of Crew: Two
Length of Race: ¼ mile straight run.

Participating Schools:
    Penn State University
    Rutgers University
    United States Merchant Marine Academy
    Princeton University
    Union College
    Tufts University
    University of Rhode Island
    Brown University
    New Jersey Institute of Technology
    University of Delaware
    Spring Gardens College
    Drexel University
    University of Pittsburgh at Johnstown
    State University of New York at Buffalo
    Widener College
    West Virginia University
    Lehigh University
    Polytechnic Institute of New York
    Swarthmore College
    Roger Williams College
    Villanova University
    Lafayette University
    University of Pennsylvania

PHILADELPHIA CONVENTION COMMITTEE

General Chairman
Randall C. Cronin

Publicity
Harry F. Irwin, Chairman
Jacob J. Creskoff
Leo Goldstein
Loyd H. King, Jr.

Membership
George H. Ayres, Chairman
William D. Elton
Theodore D. Robinson

Construction Inspection Tours
Charles W. Fleming, Chairman
    Frank R. Haus
    Donald D. Meisel
    John P. DiRenzo

Student Monitors
Ralph Kolinier, Chairman
Nimitchali Smithband
Hyman Carroll
Richard E. Woodring
John L. Rumpf

Family Members' Program and Hospitality
Frederic Roll, Chairman
    Frank G. Rennis
    Hyman Carroll
Putinas V. Masalaitis
    Charles A. Keelen
    Christine Roll
    Mary Rennis
    Ethel Carroll
    Anilia Masalaitis
    Lois Keelen
    Elizabeth Irwin
    Mildred Creskoff
    Sybil Goldstein
    Emily King
    Ruth Ayres
    Marilyn Elton
    Amy Robinson
    Nancy Fleming
    Alina Haus
    Marilyn Meisel
    Lee DiRenzo
    Selma Kolinier
    Adeline Cronin
    Marie Woodring
    Patricia Rumpf

The officers, staff, and members of ACI would like to thank the Local Committee, the Hostesses, and the Delaware Valley Chapter for their part in the 1976 Annual Convention.