

# AMERICAN CONCRETE INSTITUTE

## 75th Anniversary Convention



WASHINGTON, D.C.

Capital Hilton Hotel

October 28—November 2, 1979

# PROGRAM

## 75th ANNIVERSARY CONVENTION

October 28-November 2, 1979  
Washington, D.C.

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### SUSTAINING MEMBERS OF THE AMERICAN CONCRETE INSTITUTE

Master Builders  
Division of Martin Marietta Corporation  
Cleveland, Ohio

Portland Cement Association  
Skokie, Illinois

Southwestern Portland Cement Company  
Los Angeles, California

Sika Chemical Corporation  
Lyndhurst, New Jersey

Marquette Company  
Nashville, Tennessee

Martin Marietta Cement  
Bethesda, Maryland

W.R. Grace, Construction Products Division  
Cambridge, Massachusetts



## Registration

Registration will be Sunday, October 28, 1:00 p.m.-5:00 p.m.; Monday, October 29, 7:30 a.m.-5:00 p.m.; Tuesday through Thursday, October 30-November 1, 8:00 a.m.-5:00 p.m.; Friday, November 2, 8:00 a.m.-10:30 a.m.

Registration fees cover attendance at all ACI technical and educational committee meetings, general session, symposia, and the Concrete Mixer. They do **not** cover the educational seminars on Tuesday for which there are separate charges.

### Fees

#### Registration

Member	\$60
NonMember	75
One-day, Member	30
One-day, NonMember	35
Friday morning only	20
Students	Free

#### Second Panamerican Symposium on Concrete Education

No fee

#### Student Activity Seminar

No fee

#### Admixture Seminar

Member	25
NonMember	35
Student	5

We regret we do not have the facilities for invoicing. We will accept personal checks both before and during the convention. You may charge your ACI convention registration and tour fees to your VISA or Master Charge.

### Special recognition for ACI Fellows & Members

A gold lapel pin especially created to recognize ACI Fellows. The pins are approximately of 1/2-in. size and feature the ACI emblem as well as Fellow indication. Price is \$7.25 each.

A lapel pin in blue enamel is also available for members at \$7.25 each.

Buy your lapel pin at the registration desk.

## SCHEDULE

### SUNDAY, OCTOBER 28

8:30 a.m.-6:00 p.m.

Administrative and technical committee meetings

### MONDAY, OCTOBER 29

8:30 a.m.-10:00 p.m.

Administrative, technical, and educational committee meetings

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

Concrete Research Activities by Washington-Based Organizations (ACI National Capital Chapter)

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

ACI-CEB Workshop on Creep

### TUESDAY, OCTOBER 30

8:30 a.m.-10:00 p.m.

Administrative, technical, and educational committee meetings

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

Experimental Methods in Concrete Structures for Practitioners (ACI National Capital Chapter in cooperation with National ASCE Committee on Experimental Analysis and Instrumentation)

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

Second Panamerican Symposium on Concrete Education

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

The Success Story of Metro in Washington, D.C., (ACI National Capital Chapter)

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

Seminar: Mineral and Chemical Admixtures for Concrete (ACI Committee E-701) (Registration fee \$25 ACI Members; \$35 Nonmembers; Students \$5)

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

ACI-CEB Workshop on Creep

### WEDNESDAY, OCTOBER 31

9:30 a.m.-11:30 a.m.

General Session

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

Administrative, technical, and educational committee meetings

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

ACI-CEB Workshop on Creep

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

Research on Plain and Reinforced Concrete (ACI Committee 115)

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

History of Concrete (ACI Committee 120)

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

Concrete Guideways (ACI Committee 358)

6:30 p.m.-7:00 p.m.

Dedication of Concrete Exhibit at the National Museum of History and Technology, Smithsonian Institution

6:30 p.m.-8:30 p.m.

Concrete Mixer at Smithsonian Institution



**THURSDAY, NOVEMBER 1**

8:30 a.m.-10:00 p.m.

Administrative, technical, and educational committee meetings

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

Symposium in Celebration of Chester P. Siess' Contributions to Research, Education, and Practice

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

Symposium on the Application and Use of Shotcrete (ACI Committee 506)

9:00 a.m.-5:30 p.m.

Symposium on Evaluation of Existing Concrete Structures (ACI Committee 437)

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

C.P. Siess Symposium Luncheon

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

Student Activities Program (ACI Committee E-801)

7:30 p.m.-10:00 p.m.

Forum: Cold Weather Concreting—Any Problems? (ACI Committees 114 and 306)

**FRIDAY, NOVEMBER 2**

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

Technical and educational committee meetings

8:30 a.m.-12:00 noon

Symposium on High-Range Water-Reducing Admixtures (Superplasticizers) (ACI Committee 212)

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

Segmental Bridges: New Developments in Design, Bidding, Construction, and Behavior (ACI Committee 343)

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

Concrete Shell Buckling (ACI-ASCE Committee 334)

**ACI FUTURE CONVENTIONS****1980 Annual Convention**

March 2-7

with World of Concrete  
Aladdin Hotel  
Las Vegas, Nevada**1980 Fall Convention**

September 21-26

Condado/La Concha Hotels  
San Juan, Puerto Rico**COMMITTEE MEETINGS**

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

**SUNDAY****OCTOBER 28****8:30 a.m.-12:30 p.m.**

— Technical Activities Committee Subgroup Pan American

**8:30 a.m.-4:00 p.m.**

544 Fiber Reinforced Concrete South American

**8:30 a.m.-6:00 p.m.**

— Technical Activities Committee Subgroup New York

— Technical Activities Committee Subgroup Michigan

**2:00 p.m.-4:00 p.m.**

— Institute &amp; Industry Advancement Committee Ohio

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

— Technical Activities Committee Pan American

**MONDAY****OCTOBER 29****8:30 a.m.-10:30 a.m.**

201 Durability of Concrete Federal

308 Curing Concrete Michigan

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

211 Task Group on Evaluating Mixes Caucus I

215 Fatigue of Concrete California

224 Cracking New York

301 Specifications for Structural Concrete Foyer #2

303 Architectural Concrete Executive Suite

423 Prestressed Concrete Congressional

533 Precast Panels South American

**8:30 a.m.-6:00 p.m.**

— Technical Activities Committee Pan American

— Educational Activities Committee Ohio

318 Standard Building Code Presidential

547 Refractory Concrete Gallery

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

120 History of Concrete Continental

223 Expansive Cement Concretes Federal

517 Accelerated Curing of Concrete at Atmospheric Pressure Massachusetts

532 Concrete Masonry Michigan

**2:00 p.m.-4:00 p.m.**

304 Measuring, Mixing, Transporting, and Placing Concrete Congressional

**2:00 p.m.-5:00 p.m.**— **CONCRETE RESEARCH ACTIVITIES BY WASHINGTON-BASED ORGANIZATIONS**

See Page 14 Federal

**2:00 p.m.-6:00 p.m.**— **ACI-CEB WORKSHOP ON CREEP OF CONCRETE**

(first session) See Page 15 South American

— Ad hoc Committee on Publications Foyer #2

E-701 Materials for Concrete Construction Continental



351	Subcommittee 2-Rotating & Reciprocating Machinery	Executive Suite
351	Subcommittee 3-Static Equipment	Caucus I
351	Subcommittee 4-Grout	Michigan
		<b>2:00 p.m.-9:30 p.m.</b>
515	Coatings for Concrete	New York
		<b>4:00 p.m.-6:00 p.m.</b>
207	Mass Concrete	Massachusetts
		<b>4:00 p.m.-9:30 p.m.</b>
442	Response of Buildings to Lateral Forces	Congressional
		<b>7:30 p.m.-9:30 p.m.</b>
435	Deflection of Concrete Building Structures	Gallery
516	High Pressure Steam Curing	Massachusetts
		<b>8:00 p.m.-10:00 p.m.</b>
—	Standards Board	Continental

## TUESDAY

OCTOBER 30

**8:30 a.m.-10:00 a.m.**

**LADIES BREAKFAST AND RAP SESSION** Senate  
See Page 40

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

325	Concrete Pavements	Congressional
332	Residential Concrete Work	New York

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

—	Construction Liaison Committee	Michigan
—	Planning	Caucus I

E-702	Designing Concrete Structures	Continental
117	Tolerances	Pan American

121	Quality Assurance Systems for Concrete	South American
221	Aggregates	California

318	Subcommittee 2-Concrete Quality and Construction Requirements	Presidential
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318	Subcommittee 5-Serviceability	Presidential
318	Subcommittee 10-Seismic Provisions	Presidential

348	Structural Safety	Foyer #2
351	Foundations for Equipment and Machinery	Massachusetts
358	Concrete Guideways	Presidential

**8:30 a.m.-6:00 p.m.**

506	Shotcreting	Gallery
547	Refractory Concrete	Ohio

**9:00 a.m.-12:00 p.m.**

### EXPERIMENTAL METHODS IN CONCRETE STRUCTURES FOR PRACTITIONERS

See Page 16 Federal

**10:30 a.m.-11:30 a.m.**

—	Information Services Committee	Executive Suite
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**10:30 a.m.-12:30 p.m.**

E-703	Concrete Construction Practices	New York
211	Subcommittee 1-Proportioning Lightweight Concrete	Congressional

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

### SECOND PANAMERICAN SYMPOSIUM ON CONCRETE EDUCATION

See Page 18 South American

### SEMINAR: MINERAL AND CHEMICAL ADMIXTURES FOR CONCRETE

See Page 17 Federal

**2:00 p.m.-4:00 p.m.**

—	Chapter Activities Committee	Caucus I
211	Proportioning Concrete Mixes	Continental
512	Precast Structural Concrete	Michigan

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

**THE SUCCESS STORY OF METRO IN WASHINGTON, D.C.**  
See Page 21 Congressional

### ACI-CEB WORKSHOP ON CREEP OF CONCRETE

(second session) See Page 15 Pan American

307	Reinforced Concrete Chimneys	California
309	Consolidation of Concrete	Massachusetts

318	Subcommittee 6—Flexure & Axial Loads	Presidential
318	Subcommittee 8—Two-Way slabs	Presidential

318	Subcommittee 12—Performance Code Concept	Presidential
336	Combined Footings and Pier Foundations	Presidential

357	Offshore Concrete Structures	New York
360	Design of Slabs on Grade	Foyer #2

503	Adhesives for Concrete	Executive Suite
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**4:00 p.m.-6:00 p.m.**

—	International Activities Committee	Continental
437	Strength Evaluation of Existing Concrete Structures	Caucus I

**4:00 p.m.-9:30 p.m.**

439	Steel Reinforcement	Michigan
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**7:30 p.m.-9:30 p.m.**

—	Board Committee on Metrification	Caucus I
210	Erosion of Concrete in Hydraulic Structures	Executive Suite

212	Admixtures	Pan American
213	Lightweight Aggregate and Lightweight Aggregate Concrete	Foyer #2

318	Task Group-Liaison	Caucus II
356	Industrialized Concrete Construction	Continental

421	Design of Reinforced Concrete Slabs	California
506	Shotcrete Subcommittee	Ohio

## WEDNESDAY

OCTOBER 31

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

340	Strength Design Handbook	New York
349	Working Group on Embedments	Executive Suite

408	Bond and Development of Reinforcement	Michigan
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**8:30 a.m.-6:00 p.m.**

349	Working Group on Materials	California
349	Working Group on Design	Foyer #2

**9:30 a.m.-11:30 a.m.**

### GENERAL SESSION

See Page 22 Congressional

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

### ACI-CEB WORKSHOP ON CREEP OF CONCRETE

(third session) See Page 15 Pan American



- 2:00 p.m.-4:00 p.m.  
 210 Erosion of Concrete in Hydraulic Structures Executive Suite  
 216 Fire Resistance and Fire Protection of Structures New York  
 222 Corrosion of Metals in Concrete Ohio  
 2:00 p.m.-5:00 p.m.

#### HISTORY OF CONCRETE

See Page 26 Federal

#### CONCRETE GUIDEWAYS

See Page 27 Congressional

#### RESEARCH ON PLAIN AND REINFORCED CONCRETE

See Page 23 Presidential

- 2:00 p.m.-6:00 p.m.  
 — Membership Recruitment Committee Massachusetts  
 — Convention Committee Continental  
 118 Use of Computers Gallery  
 318 Subcommittee 1-General Caucus II  
 318 Subcommittee 3-Details of Reinforcement Michigan  
 318 Subcommittee 4-Analysis and Safety Caucus I  
 548 Polymers in Concrete South American  
 4:00 p.m.-6:00 p.m.  
 — Construction Review Committee Executive Suite  
 116 Nomenclature Ohio  
 214 Evaluation of Results of Tests Used to Determine the Strength of Concrete New York

6:30 p.m.-7:00 p.m.

#### DEDICATION OF CONCRETE EXHIBIT AT THE NATIONAL MUSEUM OF HISTORY AND TECHNOLOGY, SMITHSONIAN INSTITUTION

See Page 27

### ACI CELEBRATES 75TH WHILE PENDULUM SWINGS

**THE CONCRETE MIXER....** In the Pendulum Room, Smithsonian Institution, Wednesday, October 31, 7:00 p.m.-8:30 p.m. The traditional "Concrete Mixer" which promotes fellowship among our great Institute will be held following the dedication of the Concrete Exhibit at the National Museum of History and Technology. You will be treated to complimentary cocktails and hors d'oeuvres, and English double-deck buses will be available to shuttle you to and from the Capital Hilton and Smithsonian.



## THURSDAY

### NOVEMBER 1

- 8:30 a.m.-10:30 a.m.  
 E-601 Seminars and Workshops Caucus I  
 114 Research and Development Caucus II  
 209 Creep and Shrinkage in Concrete California  
 8:30 a.m.-12:30 p.m.  
 311 Inspection of Concrete South American  
 315 Details of Concrete Reinforcement Ohio  
 318 Subcommittee 7-Shear & Torsion Executive Suite  
 345 Concrete Bridge Construction and Maintenance Massachusetts  
 355 Anchorage to Concrete New York  
 8:30 a.m.-6:00 p.m.  
 343 Concrete Bridge Design Foyer #2  
 349 Concrete Nuclear Structures Gallery  
 9:00 a.m.-6:30 p.m.  
 — Board of Direction Pan American  
 8:30 a.m.-9:30 p.m.  
 344 Circular Prestressed Concrete Structures Continental  
 9:00 a.m.-5:00 p.m.

#### SYMPOSIUM ON THE APPLICATION AND USE OF SHOTCRETE

See Page 32

Federal

9:00 a.m.-5:30 p.m.

#### SYMPOSIUM ON EVALUATION OF EXISTING CONCRETE STRUCTURES

See Page 31

Congressional

9:00 a.m.-6:30 p.m.

#### SYMPOSIUM IN CELEBRATION OF CHESTER P. SIESS' CONTRIBUTIONS TO RESEARCH, EDUCATION, AND PRACTICE

See Page 28

Presidential

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

- Specifications Review Committee Caucus I  
 441 Reinforced Concrete Columns Michigan  
 549 Ferrocement Caucus II  
 10:30 a.m.-4:00 p.m.  
 302 Construction of Concrete Floors California  
 2:00 p.m.-4:00 p.m.  
 306 Cold Weather Concreting Michigan  
 428 Inelastic Behavior of Reinforced Concrete Structures Ohio  
 2:00 p.m.-5:30 p.m.

#### STUDENT ACTIVITIES PROGRAM

See Page 35

South American

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

- 225 Hydraulic Cements New York  
 318 Task Group on Metrication Caucus II  
 318 Task Group on Plain Concrete Caucus I  
 318 Subcommittee 9-Prestressed, Precast and Composite Concrete Executive Suite  
 546 Repair of Concrete Massachusetts



- 115 Current Research Ohio  
 334 Subcommittee-Shell Reinforcement Michigan  
 504 Joint Sealants California
- 7:00 p.m.-11:00 p.m.  
 334 Concrete Shell Design and Construction New York
- 7:30 p.m.-9:30 p.m.  
 E-801 Student Concrete Projects California

**FORUM: COLD WEATHER CONCRETING—  
 ANY PROBLEMS?**

See Page 36 Federal

**FRIDAY**

**NOVEMBER 2**

- 8:30 a.m.-10:30 a.m.  
 104 Notation Michigan  
 352 Joints and Connections in Monolithic Concrete Structures New York  
 523 Insulating and Cellular Concretes Massachusetts

**SYMPOSIUM ON HIGH-RANGE WATER-  
 REDUCING ADMIXTURES (SUPERPLASTICIZERS)**

See Page 37 Presidential

- 8:30 a.m.-12:30 p.m.  
 318 Standard Building Code South American  
 347 Formwork for Concrete Pan American  
 444 Models of Concrete Structures Continental  
 445 Shear and Torsion Gallery

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

**CONCRETE SHELL BUCKLING**

See Page 38 Federal

**SEGMENTAL BRIDGES: NEW DEVELOPMENTS IN  
 DESIGN, BIDDING, CONSTRUCTION AND  
 BEHAVIOR**

See Page 37 Congressional



THE CAPITOL

**SPECIAL EVENTS**

**Publications Display** . . . in the upper lobby all week. See the latest ACI publications now available. Orders are taken at the ACI Registration Desk which is also in the Upper Lobby.

**Special Attraction** . . . The American Concrete Institute (ACI) and the Comite Euro-International du Beton (CEB) are sponsoring a Workshop on Creep of Concrete.

Monday, 2:00 p.m. - 6:00 p.m., South American Room

Tuesday, 2:00 p.m. - 6:00 p.m., Pan American Room

Wednesday, 1:30 p.m. - 5:30 p.m., Pan American Room

Come and listen to the international exchange of information and ideas.

**"Concrete Mixer"** . . . 7:00 p.m. - 8:30 p.m., Wednesday. This traditional event will be held at the Smithsonian Institution. Buses will shuttle you to and from the Smithsonian. Please wear your badge.

**Special Tours** . . . have been planned by the Local Convention Committee. Be sure to check the Family Program for tours of interest to you. There will be at least one and probably several. Don't miss them!

**Education at the Convention** . . . The Educational Activities Committee presents the Second Panamerican Symposium on Concrete Education on Tuesday, October 30, from 1:30 p.m. - 5:30 p.m. in the South American Room. This Symposium will bring together a group of panelists from various countries. The objective is to define the problems of education in the respective countries, and through a mutual sharing of ideas and information, arrive at solutions.

**Chester P. Siess Symposium** . . . Thursday, November 1, 9:00 a.m. - 5:00 p.m. Luncheon by ticket only (see Mete Sozen or Clyde Kesler) will be held from 12:30 p.m. - 2:15 p.m. the same day with a no-host cocktail party (cash bar) following in the evening. All functions will take place in the Presidential Ballroom. This Symposium is for the purpose of celebrating Chet Siess' contributions to engineering education and research. Come join us in saluting a great man!

**Special computer presentation** . . . "Developments in Concrete Design by Computer." A special presentation by Douglas F. Burnside, Sys Comp Corporation, Santa Monica, California, will be given at 2:00 p.m., Wednesday, October 31 in the Gallery Room. The program is sponsored by ACI Committee 118, Use of Computers. It is open to the public and all convention attendees are encouraged to attend.

**"Shotcrete in Prestressed Tank Construction"** . . . A special presentation by Lars Balck, Crom Corporation, Gainesville, Florida, will be given at 11:30 a.m., Tuesday, October 30 in the Gallery Room. The program is sponsored by ACI Committee 506 Shotcreting.



**MONDAY, OCTOBER 29**

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

Federal Room

## **CONCRETE RESEARCH ACTIVITIES BY WASHINGTON-BASED ORGANIZATIONS**

sponsored by National Capital Chapter, ACI

### **Introduction**

Neal FitzSimons, chairman, ACI National Capital Chapter Subcommittee on Technical Sessions, and principal, Engineering Counsel, Kensington, Maryland

### **Current Research in Concrete at National Bureau of Standards**

Edward O. Pfrang, chief, Structures and Materials Division, National Bureau of Standards, Washington, D.C.

### **Current Research in Concrete at Department of Housing and Urban Development**

G. Robert Fuller, structural engineer, U.S. Department of Housing and Urban Development, Washington, D.C.

### **Current Research in Concrete at Corps of Engineers**

James A. Rhodes, Office, Chief of Engineers, Washington, D.C.

### **Current Research in Concrete at Federal Highway Administration**

Thomas J. Pasko, Jr., chief, Paving and Structural Materials Group, Federal Highway Administration, Washington, D.C.

### **Current Research in Concrete at the Federal Railroad Administration on Prestressed Concrete Crossties**

Howard Moody, program manager, Office of Research and Development, Federal Railroad Administration, Washington, D.C.

### **Current Research in Concrete at National Concrete Masonry Association**

Gary Schoenfeld, National Concrete Masonry Association, McLean, Virginia

### **NSGA-NRMCA Joint Research Laboratory—A Link Between Research and Practice**

Richard C. Meininger, director of engineering research, National Sand and Gravel Association, National Ready Mixed Concrete Association, Silver Springs, Maryland

**MONDAY, OCTOBER 29**

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

South American room

**TUESDAY, OCTOBER 30**

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

Pan American room

**WEDNESDAY, OCTOBER 31**

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

Pan American room

## **ACI-CEB WORKSHOP ON CREEP OF CONCRETE**

The American Concrete Institute (ACI) and the Comite Euro-International du Beton (CEB) are sponsoring a special Workshop on Creep of Concrete.

**Co-Chairmen:** Domingo J. Carreira, Sargent & Lundy Engineers, Chicago, Illinois  
and

H.K. Hilsdorf, Institut fur Baustoff-technologie, Karlsruhe, West Germany

**Co-Moderators:** A.M. Neville, principal and vice chancellor, University of Dundee, Dundee, Scotland  
and  
R.E. Philleo, chief structures branch, Office, Chief of Engineers, Washington, D.C.

**Panelists:** Z.P. Bazant, Technological Institute, Northwestern University, Evanston, Illinois  
Dan E. Branson, Department of Civil Engineering, University of Iowa, Iowa City, Iowa

D.J. Carreira, Sargent & Lundy Engineers, Chicago, Illinois

M. Chiorino, Politecnico di Torino, Istituto di Scienza delle AbruZZi, Torino, Italy

Bruce R. Gamble, Department of Civil Engineering, University of Calgary, Calgary, Alberta, Canada

H.K. Hilsdorf, Institut fur Baustoff-technologie, Karlsruhe, West Germany

I.M. Illston, School of Engineering, Hatfield, Herts, England

D. Jungwirth, Dyckerhoff & Widmann AG, Munich, West Germany

R.L. L'Hermite, RILEM secretariat generale, Paris, France

Bernard L. Meyers, Bechtel Power Corporation, Gaithersburg, Maryland

Lauge Fuglsang Nielsen, Building Materials Laboratory, Technical University of Denmark, Lyngby, Denmark

Frederic Roll, Department of Civil and Urban Engineering, University of Pennsylvania, Philadelphia, Pennsylvania

H. Trost, Institut fur Massivbau, Aachen, West Germany

**TAC Coordinator:** Ignacio Martin, Capacete-Martin and Associates, Santurce, Puerto Rico



**TUESDAY, OCTOBER 30**

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

Federal Room

## **EXPERIMENTAL METHODS IN CONCRETE STRUCTURES FOR PRACTITIONERS**

sponsored by National Capital Chapter, ACI, in cooperation with the National ASCE Committee on Experimental Analysis and Instrumentation

### **Introduction**

Gajanan M. Sabnis, chairman, ASCE Committee, and associate professor, Department of Civil Engineering, Howard University, Washington, D.C.

### **Use of Elastic Models in Concrete Structures**

M. Saeed Mirza, associate professor, Department of Civil Engineering and Applied Mechanics, McGill University, Montreal, Quebec, Canada

### **Use of Ultimate Strength Models to Aid the Design of Concrete Structures**

Richard N. White, professor, director, School of Civil Engineering, Cornell University, Ithaca, New York

### **Use of Photoelastic and Moire Fringe Techniques**

Alex Redner, vice-president, Photolastic Inc., Malvern, Pennsylvania

### **Ultrasonic Testing to Determine Concrete Properties**

Tarun R. Naik, assistant professor of structural engineering, Department of Civil Engineering, University of Wisconsin-Milwaukee, Milwaukee, Wisconsin

### **Laboratory Methods for Analysis of Concrete Deterioration Problems**

B.D. Barnes, assistant professor of civil engineering, North Carolina State University, Raleigh, North Carolina; and Sidney Diamond, professor, School of Civil Engineering, Purdue University, Lafayette, Indiana

### **Instrumentation and Techniques of Full-Scale Testing of Structures**

O.C. Guedelhoefer, Rath, Rath & Johnson, Inc., Hinsdale, Illinois

### **Use of Holographic and Acoustic Emission Technique to Detect Structural Damage in Concrete Members**

Neil M. Hawkins, professor; and A.S. Kobayashi, Department of Civil Engineering, University of Washington, Seattle, Washington; and M.E. Fourney, professor, University of California, Berkeley, California

**TUESDAY, OCTOBER 30**

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

Federal Room

## **SEMINAR: MINERAL AND CHEMICAL ADMIXTURES FOR CONCRETE**

sponsored by ACI Committee E-701

**This seminar will be keyed to the needs of concrete technicians, inspectors, concrete plant personnel, and others involved in the production, control, or inspection of concrete containing admixtures.**

Special registration fees:

ACI Member \$25, Non member \$35, Student \$5.

Benefits of such materials, proper usage, and necessary precautions will be stressed. The speakers will discuss fly ash, natural pozzolans, air-entraining agents, water reducers, retarders, accelerators, and high range water reducers. Current wide-spread use of these admixtures requires an understanding of why they are used and how they should be used as well as possible disadvantages or undesirable side effects.

Moderator: George B. Southworth, chairman of the board, American Society for Concrete Construction and marketing consultant, Master Builders, Cleveland, Ohio

### **Fly Ash and Mineral Admixtures for Concrete**

John H. Faber, vice president, National Ash Association, Inc. Washington, D.C. and Robert W. Styron, Ash Consultant, Smyrna, Georgia

### **Air Entraining Admixtures**

Herman G. Protze III, director, Technical Services, W.R. Grace and Company, Cambridge, Massachusetts

### **Water Reducing and Set Controlling Admixtures**

Rolland L. Johns, director, Admixture Promotion, Master Builders, Cleveland, Ohio

### **High Range Water Reducing Admixtures (Superplasticizers)**

Michael Shydowski, manager, Sales and Engineering, American Admixtures Corporation, Chicago, Illinois

### **Admixture Dispensing Equipment**

John Portman, manager, Dispenser Engineering, Protex Industries, Inc. Denver, Colorado

### **Question and Answer Period by Panelists**



TUESDAY, OCTOBER 30

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

South American Room

## SECOND PANAMERICAN SYMPOSIUM ON CONCRETE EDUCATION

sponsored by ACI Educational Activities Committee

### Introduction

Cutberto Diaz-Gomez, chairman, Organizing Committee, and director, Mexican Cement and Concrete Institute, (IMCYC) Mexico, D.F., Mexico

**Moderator:** Harold W. Gilley, director of education, American Concrete Institute, Detroit, Michigan

### SECTION I: CRAFTSMEN AND TECHNICIANS

#### Chairman

**and Reporter:** Joseph A. Dobrowolski, concrete consultant, Altadena, California

**Speaker:** Jose Chacon-Toral, consulting engineer, Quito, Ecuador

**Panelists:** Edward L. Kawala, director of educational services, Portland Cement Association, Skokie, Illinois

Neil Mustard, manager, Civil Research Department, Ontario Hydro, Toronto, Ontario, Canada  
Juvencio Gutierrez, director, Training Institute of the Construction Industry (ICIC), Mexico, D.F., Mexico

Emilio Beltranena, director, Center for Research in Engineering, San Carlos University, Guatemala, Guatemala

### SECTION II: ENGINEERING

#### Chairman

**and Reporter:** William J. Wilhelm, dean of engineering, Wichita State University, Wichita, Kansas

**Speaker:** Russell S. Fling, president, R.S. Fling and Partners, Inc., Consulting Engineers, Columbus, Ohio

**Panelists:** John A. Bickley, general manager, Construction Testing Services, Ltd., Rexdale, Ontario, Canada

Luis Esteva, research engineer, Institute of Engineering, National University of Mexico, Mexico, D.F., Mexico

Celso A. Carbonell, president, Protex Panama, S.A., Panama, Panama

Oscar A. Andres, director, Engineering Department, National University of the South, Bahia Blanca, Argentina

### SECTION III: ARCHITECTURE

#### Chairman

**and Reporter:** Charles F. Scholer, professor of civil engineering, Purdue University, West Lafayette, Indiana

**Speaker:** Alberto Gonzalez-Pozo, chairman, College of Architects of Mexico, Mexico, D.F., Mexico

**Panelists:** Robert C. Bates, technical coordinator, Skidmore, Owings and Merrill, Architects, Engineers and Planners, Annapolis, Maryland  
Kai Holbek, president, Kai Holbeck Associates, Ltd., West Vancouver, British Columbia, Canada

Franz Jerome, architect, Port au Prince, Haiti  
Raul Marchetti, architect, Santiago, Chile

### SECTION IV: CONSTRUCTION

#### Chairman

**and Reporter:** Phillip R. Jackson, president, Jackson Construction Company, Inc., Dedham, Massachusetts

**Speaker:** Antonio Jose Guerra, director, Materials Laboratory, School of Engineering and Technology, National University Pedro Heriquez Urena, Santo Domingo, Dominican Republic

**Panelists:** Charles J. Pankow, president, Charles Pankow, Inc., Altadena, California

Louis A. Gottheil, director of quality control, Lesmir/Demix, Montreal, Quebec, Canada  
Guillermo Celis, head, Civil Engineering Department, Iberoamerican University, Mexico, D.F., Mexico

L.A. Falcao Bauer, president, L.A. Falcao Bauer Technological Center of Construction, Sao Paulo, Brasil





SECTION V: CONTINUING EDUCATION

**Chairman and Reporter:** Edwin G. Hedstrom, administrator, Special Products, Cement Division, Ideal Basic Industries, Denver, Colorado

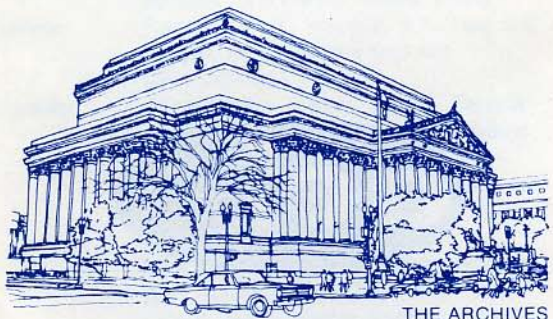
**Speaker:** V. Mohan Malhotra, head, Construction Materials Section, CANMET, Ottawa, Ontario, Canada

**Panelists:** John E. Breen, The J.J. McKetta Professor of Engineering, Department of Civil Engineering, University of Texas at Austin, Austin, Texas  
Juan Jose Vazquez-Pena, head, Industrial Research Department, Mexican Cement and Concrete Institute (IMCYC), Mexico, D.F., Mexico  
Emiliano Ruiz Pla, consulting engineer, San Juan, Puerto Rico  
Jesus H. Arango, director, Technical Department, Colombian Institute of Cement Producers, Medellin, Colombia

**CLOSING REMARKS:**

John F. McLaughlin, president, American Concrete Institute, and assistant dean of engineering, Purdue University, West Lafayette, Indiana

Dennis T. Smith, chairman, ACI Educational Activities Committee, and manager, Technical Services, Gulf and Western Marquette Company, Nashville, Tennessee



**TUESDAY, OCTOBER 30**

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

Congressional Room

**THE SUCCESS STORY OF METRO IN WASHINGTON, D.C.**

sponsored by the National Capital Chapter, ACI

**Introduction to Metro System in Washington, D.C.**

Robert A. Sloan, public information specialist, Washington Metropolitan Area Transit Authority, Washington, D.C.

**An Architectural Overview of Metro**

Emanuel Mevorah, assistant director, Office of Architecture, Washington Metropolitan Area Transit Authority, Washington, D.C.

**Engineering Aspects of Design and Construction of the Washington Metro**

Ado Valge, assistant director of engineering, Washington Metropolitan Area Transit Authority, Washington, D.C.

**Building Metro System**

(speaker to be announced)

**Ready Mixed Concrete for Metro Construction**

Edward T. McGinty, Super Concrete Corporation, Washington, D.C.

**Concrete Quality Control**

Douglas R. Lombard, assistant chief of materials inspection; and Calvin A. Knoke, project construction supervisor, Bechtel Associates, Washington, D.C.



THE JEFFERSON MEMORIAL



WEDNESDAY, OCTOBER 31

9:30 a.m.-11:30 a.m.

Congressional Room

## GENERAL SESSION

### Welcome

Gajanan M. Sabnis, general chairman, 1979 Fall Convention, and associate professor, Department of Civil Engineering, Howard University, Washington, D.C.

### Keynote Address

The Honorable Neil Goldschmidt, Secretary of Transportation, Washington, D.C.



Secretary Goldschmidt is one of the most articulate individuals to lead the Department of Transportation and has a broad knowledge of transportation issues.

### Raymond E. Davis Lecture: Something for Nothing—Almost

Paul Klieger, director, Concrete Materials Research Department, Portland Cement Association, Skokie, Illinois



WEDNESDAY, OCTOBER 31

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

Presidential Ballroom

## RESEARCH ON PLAIN AND REINFORCED CONCRETE

sponsored by ACI Committee 115

(Brief and confidential reports)

### Session

**Chairman:** Boris Bresler, chairman, ACI Committee 115, and senior consultant, Wiss, Janney, Elstner & Associates, Inc., Emeryville, California

**Secretary:** Charles F. Scholer, secretary, ACI Committee 115, and professor, Department of Civil Engineering, Purdue University, West Lafayette, Indiana

### Optimized Sections for Major Prestressed Concrete Girders

Basile G. Rabbat and M. Saatcioglu, senior structural engineers, Structural Development Department, Structural Analytical Section, Portland Cement Association, Skokie, Illinois

### Behavior of Columns Subjected to Simultaneously Varying Axial and Shear Force Reversals

Noreen D. Gilbertsen, research assistant in civil engineering, University of Illinois at Urbana-Champaign, Urbana, Illinois

### Seismic Resistance of Reinforced Concrete Floor Systems

Le-Wu Lu, professor of civil engineering and director, Building Systems Division, and Ti Huang, professor of civil engineering, Fritz Engineering Laboratory, Lehigh University, Bethlehem, Pennsylvania

### New Apparatus for Testing Air Content of Fresh Concrete In situ

K.W. Nasser, professor, and R. Beaton, Department of Civil Engineering, University of Saskatchewan, Saskatoon, Saskatchewan, Canada

### Ductile, Moment Resisting Beam-Column Connections in Precast Concrete

S.U. Pillai, visiting professor, Department of Civil Engineering, and Professor D.W. Kirk, head, Department of Civil Engineering, Royal Military College of Canada, Kingston, Ontario, Canada

### Progressive Collapse Simulation of Precast Concrete Large Panel Buildings

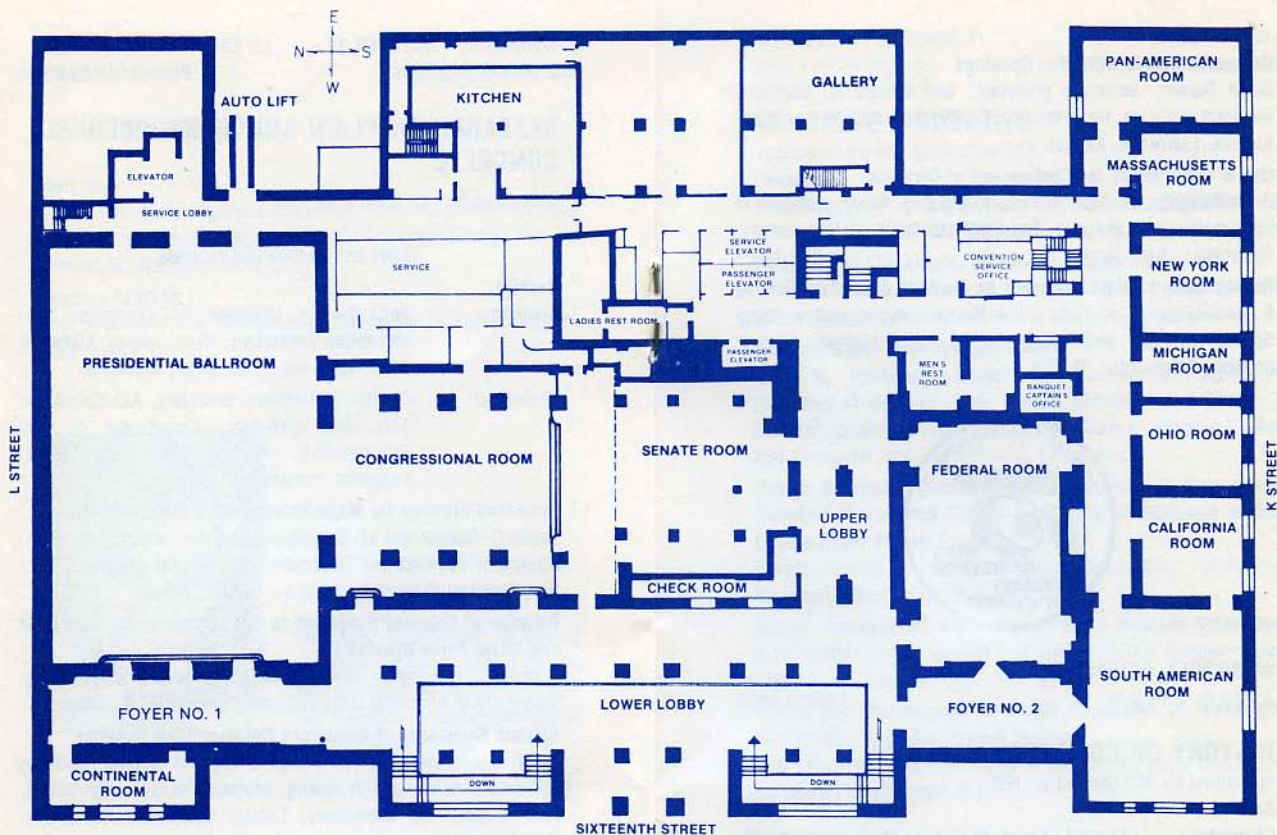
Harry G. Harris, professor of civil engineering, and John C. Muskivitch, research assistant, Drexel University, Philadelphia, Pennsylvania

### Segmentally Constructed Cooling Tower

Paul Zia, professor and department head; C. C. Tung, professor; J. Leroy Hulsey, adjunct assistant professor; and M. Talat Mostafa, Carolina State University at Raleigh, Raleigh, North Carolina

continued on page 26





# Capital Hilton Hotel

**Note: The following committee meetings' rooms are located on other floors.**

**Caucus I . . . . . Room 509 on Fifth Floor**

**Caucus II . . . . . Room 511 on Fifth Floor**

**Executive Suite . . . . . Fourth Floor**



## A HOME FOR OUR HERITAGE: THE SMITHSONIAN

In conjunction with the Smithsonian Institution, the American Concrete Institute has prepared an exhibit of documents and artifacts of special significance to the heritage of concrete in America. The exhibit will be displayed as a part of our 75th anniversary celebration and will ultimately become part of the Smithsonian's permanent collection. Join your fellow concrete professionals in this tribute to your profession!

The Smithsonian was founded in 1846 under the terms of the will of James Smithson, an English scientist who bequeathed his entire fortune of \$550,000 to the people of the United States to found in Washington "an establishment for the increase and diffusion of knowledge among man." It is estimated that there are over 60 million catalogued items in the Smithsonian collection.

Smithsonian Institution  
 Museum of History and Technology  
 Roger G. Kennedy, Director



Research continued

### Composite Beams with Web Openings

David Darwin, associate professor, and William C. Clawson, research assistant, Department of Civil Engineering, University of Kansas, Lawrence, Kansas

### Use of Ferrocement for Confinement of Concrete

P. N. Balaguru, assistant professor, and E. G. Nawy, professor of civil engineering, Rutgers, The State University of New Jersey, Piscataway, New Jersey

### Rehabilitation of Rigid Pavement by Methods Other than Overlay

R. Varadarajan, T.A. Iyob, Delon Hampton & Associates, Silver Spring, Maryland, and R.A. McComb, Federal Highway Administration, Washington, D. C.



WEDNESDAY, OCTOBER 31

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

Federal Room

## HISTORY OF CONCRETE

sponsored by ACI Committee 120

### Session

**Chairman:** Emory L. Kemp, chairman, ACI Committee 120, and professor, Department of Civil Engineering, West Virginia University, Morgantown, West Virginia

### Working Places

A film produced by Society of Industrial Archeology which shows adaptive reuse of structures.

### Historic Preservation of Concrete Bridges: The First Step is Inventory

Howard Newlon, Jr., assistant state highway research engineer, Virginia Highway Research Council, Charlottesville, Virginia

### Historic Preservation Through Recording

Emory L. Kemp, professor, Civil Engineering Department, West Virginia University, Morgantown, West Virginia

### The History of Concrete Construction in the 20th Century

Katharine Mather, chief, Engineering Sciences Division; and Bryant Mather, acting chief, Structures Laboratory, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi

### Mixing, Moving and Mashing Concrete — 75 Years of Progress?

William B. Ledbetter, professor of civil engineering, and Bonnie S. Ledbetter, assistant professor of history, Texas A&M University, College Station, Texas and Eugene H. Boeke, Jr., vice president, Beers Construction Company, Atlanta, Georgia

WEDNESDAY, OCTOBER 31

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

Congressional Room

## CONCRETE GUIDEWAYS

sponsored by ACI Committee 358

### Session

**Chairman:** Charles Dolan, chairman, ACI Committee 358, ABAM Engineers, Inc., Tacoma, Washington

### Planning the Los Angeles Downtown People Mover

Frank Condos, technical manager, Los Angeles Downtown People Mover, Los Angeles, California

### Planning a Downtown People Mover

Grant W. Hummer, manager, Gannett Fleming Corddry and Carpenter of Michigan, Inc., Detroit, Michigan, and Thomas B. Brenner, project manager, structures, Gannett Fleming Corddry and Carpenter, Inc., Harrisburg, Pennsylvania

### Design Concepts, Criteria and Cost Analysis of System-Wide Standard Prestressed Girders for the Aerial Guideway of Dade County Rapid Transit System

Sarosh Dhondy, assistant chief structural engineer, Kaiser Transit Group, Miami, Florida

### Design, Construction and Performance of At-Grade Guideways

A.R. Mettler, D. Joque, and T.A. Nettles, ABAM Engineers Inc., Tacoma, Washington

### Design and Construction of Aerial Structures of Washington Metropolitan Area Rail Transit System

Dah Fwu Fine, assistant chief engineer, De Leuw Cather and Company, Washington, D.C.



WEDNESDAY, OCTOBER 31

6:30 p.m. -7:00 p.m.

## DEDICATION OF CONCRETE EXHIBIT AT THE NATIONAL MUSEUM OF HISTORY AND TECHNOLOGY, SMITHSONIAN INSTITUTION

**Welcome from the National Museum of History and Technology**  
Robert M. Vogel, curator, Division of Mechanical and Civil Engineering, National Museum of History and Technology

### Welcome from ACI National Capital Chapter

Neal FitzSimons, chairman, ACI National Capital Chapter Subcommittee on Technical Sessions, and principal, Engineering Counsel, Kensington, Maryland

### Presentation and Dedication of Historical Material

John F. McLaughlin, president, American Concrete Institute, and assistant dean of engineering, Purdue University, West Lafayette, Indiana



THURSDAY, NOVEMBER 1

9:00 a.m.-10:40 a.m.

Presidential Ballroom

## **SYMPOSIUM IN CELEBRATION OF CHESTER P. SIESS' CONTRIBUTIONS TO RESEARCH, EDUCATION, AND PRACTICE**

### **Session**

**Chairman:** Eugene Zwoyer, executive director, American Society of Civil Engineers, New York, New York

### **SESSION 1A**

#### **Opening Remarks**

Joseph H. Appleton, University of Alabama-Birmingham, Birmingham, Alabama

#### **Load and Resistance Factor Design**

Ivan M. Viest, assistant manager, Sales Engineering Division, Bethlehem Steel Corporation, Bethlehem, Pennsylvania

#### **Applications of Theory to Practice in Scandinavia**

Rolf J. Lenschow, professor, Technical University of Norway, Trondheim, Norway; S.O. Olesen, director, BKF-Centralen, Lyngby, Denmark; and Sven Sahlin, professor, Department of Structural Mechanics, Chalmers Technical University, Goteborg, Sweden

#### **Recent Japanese Developments in Earthquake Resistant Design of Reinforced Concrete Buildings**

Hiroyuki Aoyama, professor, and Shunsuke Otani, associate professor, Department of Architecture, University of Tokyo, Tokyo, Japan

#### **Structural Walls**

W. Gene Corley, director, Engineering Development Department; and Anthony E. Fiorato, manager, Construction Methods Section, Portland Cement Association, Skokie, Illinois

#### **Role of Cover and Bar Spacing in Concrete**

Peter Gergely, professor of structural engineering, School of Civil and Environmental Engineering, Cornell University, Ithaca, New York

#### **Reinforced and Prestressed Concrete Slabs**

William L. Gamble, professor of civil engineering, University of Illinois at Urbana, Urbana, Illinois; and Ned H. Burns, professor of civil engineering, University of Texas at Austin, Austin, Texas

11:00 a.m.-12:15 p.m.

### **SESSION 1B**

#### **Session**

**Chairman:** Armas Laupa, Rand Corporaton, Santa Monica, California

#### **Impact of Research on Prestressed Concrete Design Specifications**

Neil M. Hawkins, associate professor of civil engineering, University of Washington, Seattle, Washington

#### **Beam-Column Joints: Irrational Solutions to a Rational Problem**

James O. Jirsa, professor, Balcones Research Center, University of Texas, Austin, Texas

#### **Codes for Structural Concrete**

James G. MacGregor, professor of civil engineering, University of Alberta, Edmonton, Alberta, Canada

#### **Equivalent Frame Analysis of Unbraced Concrete Frames**

M. Daniel Vanderbilt, professor of civil engineering, Colorado State University, Fort Collins, Colorado

#### **Torsion in Reinforced Concrete**

J. Warwaruk, professor of civil engineering, University of Alberta, Edmonton, Alberta, Canada

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

### **LUNCHEON**

#### **Master of**

**Ceremonies:** C.E. Kesler, University of Illinois, Urbana, Illinois

#### **That Is The Question!**

Eivind Hognestad, director, Technical and Scientific Development, Portland Cement Association, Skokie, Illinois

2:30 p.m.-3:30 p.m.

### **SESSION 2**

#### **Session**

**Chairman:** Edward O. Pfrang, National Bureau of Standards, Washington, D.C.

#### **Computers in Engineering**

Joseph H. Appleton, professor of civil engineering, University of Alabama-Birmingham, Birmingham, Alabama

#### **Education in Mexico**

Roger Diaz de Cossio, Secretary for Culture and Recreation, Mexico, D.F., Mexico

#### **Role of Engineering in a General Education**

W.E. Fluhr, professor of civil engineering, U.S. Air Force Academy, Colorado Springs, Colorado

#### **Experiential Learning in Engineering Education**

Richard E. Woodring, dean of college of engineering, Drexel University, Philadelphia, Pennsylvania



3:45 p.m.-5:00 p.m.

SESSION 3

Session

**Chairman:** James R. Gaston, Arnold Stone Company, Greensboro, North Carolina

**The Haunched Girder Concept for High-Rise Office Buildings**

Joseph P. Colaco, Colaco Engineers, Inc., Houston, Texas

**A Prefabricated Housing System with a Low-Cost Site Factory**

Gregorio Hernandez C., partner, Hernandez and Hernandez, San Juan, Puerto Rico

**Reinforced Concrete for Tall Buildings—Creative Teaching to Innovative Application**

Fazlur R. Khan, partner, Skidmore, Owings and Merrill, Chicago, Illinois

**Design Consideration for Construction of Two Long Concrete Buildings in the Southwest**

Walter P. Moore, Walter P. Moore and Associates, Inc., Houston, Texas

**The Captive Engineer**

Hedley E.H. Roy, managing partner, Neish, Owen, Rowland and Roy, Toronto, Ontario, Canada

**Special Event:** Presidential Ballroom, 5:30 p.m., no-host cocktail party for "all friends and enemies of Chester Paul Siess."

Special thanks are extended to Mete A. Sozen, Department of Civil Engineering, University of Illinois at Urbana-Champaign, Urbana, Illinois, and the committee consisting of J.H. Appleton, University of Alabama-Birmingham, Birmingham, Alabama, chairman; Eivind Hognestad, Portland Cement Association, Skokie, Illinois; Armas Laupa, Rand Corporation, Santa Monica, California; Ivan Viest, Bethlehem Steel Corporation, Bethlehem, Pennsylvania, and Eugene Zwoyer, American Society of Civil Engineers, New York, New York, for organizing this symposium.



THURSDAY, NOVEMBER 1

9:00 a.m.-12:30 p.m.

Congressional Room

**SYMPOSIUM ON EVALUATION OF EXISTING CONCRETE STRUCTURES**

sponsored by ACI Committee 437

Session

**Chairman:** Tarun R. Naik, chairman, ACI Committee 437, and assistant professor of structural engineering, Department of Civil Engineering, The University of Wisconsin-Milwaukee, Milwaukee, Wisconsin

Session I

**Evaluation of Existing Concrete Structures by Full Scale Load Tests**

Dov Kaminetzky, partner, Feld, Kaminetzky and Cohen, P.C., New York, New York

**Load Tests on Prestressed Concrete Multi-Girder Bridge Decks**

J. Kirkpatrick, A.E. Long, head; and W.M.C. Stevenson, and A. Thompson, Department of Civil Engineering, Queen's University of Belfast, Belfast, Northern Ireland

**Failure of a Reinforced Concrete Silo**

Fred W. Beaufait, chairman and professor of civil engineering, West Virginia University, Morgantown, West Virginia

**Big Eddy Dam Investigation**

John A. Bickley, vice-president; J.A. Franklin; and John C. Payne, manager, Concrete Technology Division, Trow Group Limited, Rexdale, Ontario, Canada

**Structural Performance and Bending Test of Deteriorated Reinforced Concrete—Concrete Bridges**

Takeshi Oshiro, professor, Department of Architectural Engineering; and Sumio Hamada, associate professor, Department of Civil Engineering, University of the Ryukyus, Okinawa, Japan

**Composite Strength—A Probabilistic Evaluation**

Achintya Haldar, assistant professor of civil engineering, Georgia Institute of Technology, Atlanta, Georgia

**Earthquake Damage Assessment of Reinforced Concrete Buildings**

Christian Meyer, associate professor of civil engineering, and Masanobu Shinozuka, Renwick professor of civil engineering, Department of Civil Engineering and Engineering Mechanics, Columbia University, New York, New York



THURSDAY, NOVEMBER 1

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

Federal Room

## SYMPOSIUM ON THE APPLICATION AND USE OF SHOTCRETE

sponsored by ACI Committee 506

**Moderator:** Richard A. Kaden, materials engineer, U.S. Corps of Engineers, Washington, D.C.

Session I

### Introduction

Theodore R. Crom, chairman, Committee 506, and The Crom Corporation, Gainesville, Florida

### Refractory Shotcrete—Current State-of-the-Art

I. Leon Glassgold, president, Masonry Resurfacing and Construction Company Inc., Baltimore, Maryland

### Durability of Shotcrete

Thomas J. Reading, consultant, Omaha, Nebraska

### Steel Fiber Shotcrete—A Laboratory Study

D.R. Morgan, manager, Materials Engineering Division, Hardy Associates (1978) Limited, Vancouver, British Columbia, Canada

### New Methods for Determining Rebound and Water/Cement Ratio in Shotcrete

Magne Maage, assistant professor of civil engineering, University of Trondheim, Trondheim, Norway (currently at Purdue University, West Lafayette, Ind.)

### Shotcrete Repairs of Concrete Structures in Marine Environment

Joseph Heneghan, president, Gunite Masonry Company, Inc., North Bellmore, New York

THURSDAY, NOVEMBER 1

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

Federal Room

## SYMPOSIUM ON THE APPLICATION AND USE OF SHOTCRETE

sponsored by ACI Committee 506

**Moderator:** P.T. Seabrook, B.H. Levelton and Associates, Ltd., Vancouver, British Columbia, Canada

Session II

### Shotcrete Lining for Pip Tunnels

Elwyn H. King, assistant vice-president, and William Pease, associate, Parson, Brinckerhoff, Quade and Douglas, Inc., San Francisco, California

### A Comparative Evaluation of Fiber Shotcretes

L.J. Fowler; V. Ramakrishnan, professor of civil engineering; and William V. Coyle, professor of civil and structural engineering, South Dakota School of Mines and Technology, Rapid City, South Dakota; and Ernest K. Schrader, materials specialist, U.S. Army Corps of Engineers, Walla Walla, Washington

### Comparative Evaluation of Protective Thin Shotcrete Coatings

E.K. Schrader, materials specialist, U.S. Army Corps of Engineers, Walla Walla, Washington; Dwight C. Gill; and James T. Dikeou, Dikeou Associates, Englewood, Colorado

### Tunnel Shotcrete Lining—A Washington Metro Experience

E.S. Plotkin, MacLean Grove and Company, Inc., Greenwich, Connecticut

### A Guide for Certification of Shotcrete Nozzlemen

Committee 506 draft report presented by John C. Fredericks, California Gunite Company, Inc., Los Angeles, California

### Experience with the Application of the New German Standard DIN 18551 "Shotcrete"

Gunter Ruffert, senior engineer, Torkret GmbH, Essen, Germany



## ACI NATIONAL CAPITAL CHAPTER OFFICERS

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National Ready Mixed Concrete Association and  
National Sand and Gravel Association

### Vice-President

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Howard University  
Neal FitzSimons  
Engineering Counsel

The officers, staff, and members of ACI would like to thank the Local Committee, the Hostesses, and the National Capital Chapter for their part in the 1979 Fall Convention!



THURSDAY, NOVEMBER 1

2:00 p.m.-5:30 p.m.

Congressional Room

## SYMPOSIUM ON EVALUATION OF EXISTING CONCRETE STRUCTURES

sponsored by ACI Committee 437

### Session

**Chairman:** Craig A. Ballinger, structural research engineer, Federal Highway Administration, Washington, D.C.

### Session II

#### Diagnosis of Structural Concrete Deficiencies

Neal FitzSimons, principal, Engineering Counsel, Kensington, Maryland

#### Load Capacity Evaluation of the Bronson Avenue Canal Bridge

Claudius A. Carnegie, structural evaluation engineer; and David C. Marett, chief structural engineer, Transportation Department, Regional Municipality of Ottawa-Carleton, Ontario, Canada

#### Structural Evaluation of Existing Underground Reinforced Concrete Tanks for Radioactive Waste Storage

F.R. Vollert, staff engineer, Rockwell Hanford Operations, Rockwell International, Richland, West Virginia

#### Evaluation of a Reinforced Concrete Bridge

William L. Gamble, professor of civil engineering, University of Illinois at Urbana-Champaign, Urbana, Illinois

#### Features of Assessment of Precast Pretensioned Beams in Structures

J.H. Bungey, lecturer, Department of Civil Engineering, Liverpool University, Liverpool, England

#### In-Situ Testing for Concrete Strength—A Review

V.M. Malhotra, head, and G.G. Carette, materials engineer, Construction Materials Section, CANMET, Department of Energy, Mines and Resources, Ottawa, Ontario, Canada

#### Strength Evaluation of the Manotick Bridge Piers

G.A. Hartley, professor; G.T. Suter; and H. Keller, Department of Civil Engineering, Carleton University; and D.C. Marett, chief structural engineer, Transportation Department, Ottawa, Ontario, Canada

THURSDAY, NOVEMBER 1

2:00 p.m.-5:30 p.m.

South American

## STUDENT ACTIVITIES PROGRAM

sponsored by ACI Committee E-801

This program has three main goals:

1. To create student interest and familiarity with ACI;
2. To stimulate interest in working on concrete projects at both the undergraduate and graduate levels;
3. To show students some of the existing careers in concrete construction and design.

### Session

**Chairman:** Robert John Craig, chairman, ACI Committee E-801, and assistant professor, Department of Civil and Environmental Engineering, New Jersey Institute of Technology, Newark, New Jersey

#### Discussion of the Technical Activities of ACI

Robert E. Price, member of the Technical Activities Committee and consulting engineer, Denville, New Jersey, will explain what the committee does and will give a brief presentation on some technical concrete projects.

#### Codes and Specifications for Design and Construction

Gerald B. Neville, secretary, Committee 318, and manager, Structural Codes, Portland Cement Association, Skokie, Illinois, will briefly describe the function of the committee and go through the procedure of how the codes and specifications are set up.

#### Careers in Concrete Construction and Design

William E. Brewer, associate professor, consulting technology, Bowling Green State University and principal, Brewer and Associates, Bowling Green, Ohio, will outline career prospects.

#### Concrete Canoe Racing Program

Charles F. Scholer, professor of civil engineering, Purdue University, West Lafayette, Indiana, and Peter J. Tavino, Jr., manager of student services and membership development, American Society of Civil Engineers, New York, New York, will bring the students up to date on this activity. A short film from I.I.T. will be shown of a typical race. Slides may also be shown of the construction of a concrete canoe.

#### Student Involvement in Concrete Projects in Civil Engineering

Robert John Craig, chairman of ACI Committee E-801, and assistant professor, Civil and Environmental Engineering Department, New Jersey Institute of Technology, Newark, New Jersey, will present a couple of concrete projects on which students have worked as undergraduates. A discussion on how ACI Committee E-801 can develop interest in student projects will be included.



THURSDAY, NOVEMBER 1

7:30 p.m.-10:00 p.m.

Federal Room

## FORUM: COLD WEATHER CONCRETING—ANY PROBLEMS?

sponsored by ACI Committees 114 and 306

**Chairman:** Robert L. Henry, chairman, Committee 114, and chief engineer, Texas Testing Laboratories, Dallas, Texas

**Moderator:** George R.U. Burg, manager of field evaluations, Master Builders, Cleveland, Ohio

**Panelists:** John M. Scanlon, chief, Engineering Mechanics Division, Structures Laboratory, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi

Philip E. Bruce, supervising quality assurance engineer, Perini Power Constructors, Inc., Seabrook, New Hampshire

Jules Houde, professor, Ecole Polytechnique, Campus Universite de Montreal, Montreal, Quebec, Canada

Irwin H. Hahn, Jr., administrative vice-president, National Mobile Concrete Corporation, Berrien Springs, Michigan

The objective of this forum is to bring together specifiers, engineers, constructors, and owners to consider how to adequately specify, produce, transport, place, and protect concrete during cold weather.

Different geographical locations present unique problems for cold weather concreting. The ACI has no "standard specification" for cold weather concreting. Economics play a vital role in cold weather concreting.

Particular questions to be explored will include the following:

- How can the specifier use the ACI Cold Weather Committee's report to establish Cold Weather Concreting Specifications?
- How realistic is it to specify absolute minimum and maximum temperatures of concrete "as mixed" and "as placed"?
- When and where is the "as mixed" or "as placed" concrete temperature taken?
- How can the concrete producer supply specified cold-weather concrete economically when his plant is located in an area that only occasionally encounters "cold weather"?
- When should concrete damaged by frost or freezing be removed?
- How do we know when the concrete placed during cold weather is safe for form removal or use?

The forum will consist of prepared presentations and then the session will be opened for discussion with the speakers remaining as panelists.

FRIDAY, NOVEMBER 2

8:30 a.m.-12:00 noon

Presidential Ballroom

## HIGH-RANGE WATER-REDUCING ADMIXTURES (SUPERPLASTICIZERS)

sponsored by ACI Committee 212

### Introductory Remarks

Edward J. Hyland, executive vice-president, American Admixtures Corporation, Chicago, Illinois

### The Place for Superplasticizers

James M. Shilstone, Sr. president, The Concrete Associates, Inc., Dallas, Texas

### Flowing Concrete in Europe

Dieter Freese, research director, Sibo-Gruppe, GmbH & Company KG, Osnabruck, West Germany

### Structural Properties of Superplasticized Concrete

Gajanan M. Sabnis, associate professor; and A. Ghorbanpoor, graduate student, Department of Civil Engineering, Howard University, Washington, D.C.

### Practical Use of Superplasticizers in Residential Concrete

Michael Zummo, corporate concrete specialist, Fox & Jacobs, Carrollton, Texas; and Robert L. Henry, chief engineer, Texas Testing Laboratories, Inc., Dallas, Texas

### The Use of Superplasticizers with Fiber Reinforced Concrete

David R. Lankard, president, Lankard Materials Laboratory, Inc., Columbus, Ohio

FRIDAY, NOVEMBER 2

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

Congressional Room

## SEGMENTAL BRIDGES: NEW DEVELOPMENTS IN DESIGN, CONSTRUCTION AND BEHAVIOR

sponsored by ACI Committee 343

### Innovations in U.S. Segmental Bridge Design and Construction

Eugene C. Figg, Jr., president, Figg and Muller Engineers, Inc., Tallahassee, Florida

### A Contractor's Viewpoint on Alternate Designs

J.B. Michael, Jr., president, Michael Construction Company, Chattanooga, Tennessee

### The Evolution of Concrete Cable-Stayed Bridges

Walter Podolny, Jr., Bridge Division, Federal Highway Administration, Washington, D.C.

### Temperature Effects on Segmental Bridges

K.N. Shiu, structural engineer, Structural Development Department; and W. Gene Corley, director, Engineering Development Division, Portland Cement Association, Skokie, Illinois

### The Design and Use of Sectional Prestressed Girders for Longspan Bridges

Francis J. Jacques, vice-president, Engineering, Stanley Structures, Denver, Colorado



FRIDAY, NOVEMBER 2

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

Federal Room

## CONCRETE SHELL BUCKLING

sponsored by ACI-ASCE Committee 334

### Session

**Chairman:** Stefan J. Medwadowski, chairman ACI-ASCE Committee 334 and consulting engineer, San Francisco, California

### Concrete Shell Buckling—An Overview

Egor P. Popov, professor, University of California, Berkeley, California; and Stefan J. Medwadowski, consulting engineer, San Francisco, California

### Stability of Cylindrical Reinforced Concrete Shells

Paul Seide, professor, University of Southern California, Los Angeles, California; and Avinadav Siev, associate, Weidlinger Associates, New York, New York

### Domes and Hyperbolic Paraboloids

Alexander C. Scordelis, professor of civil engineering, University of California, Berkeley, California

### The Buckling of Reinforced Concrete Folded Plate Structures

Sidney A. Guralnick, provost, Illinois Institute of Technology, Chicago, Illinois; Stuart E. Swartz, professor of civil engineering, Kansas State University, Manhattan, Kansas; and Antole Longinow, engineering advisor, IIT Research Institute, Chicago, Illinois.

### Buckling of Concrete Cooling-Tower Shells

John F. Abel, associate professor of civil engineering, Cornell University, Ithaca, New York; and Phillip L. Gould, professor and chairman, Department of Civil Engineering, Washington University, St. Louis Missouri

### Analytical Methods

W.C. Schnobrich, professor, Department of Civil Engineering, University of Illinois, Urbana, Illinois

### Experimental Methods

David P. Billington, professor, Department of Civil Engineering, Princeton University, Princeton, New Jersey; and Harry G. Harris, associate professor of civil engineering, Drexel University, Philadelphia, Pennsylvania

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Wire Reinforcement Institute



LINCOLN MEMORIAL



# THE FAMILY TOUR PROGRAM

## MONDAY, OCTOBER 29

- 9:30 a.m. **Local Orientation**—Introduction to the Washington scene; its many attractions, how to get to them, and get the most out of your trip.
- 10:30 a.m. **Genealogical Research**—Methods and Sources; getting the most out of your visits to the Nation's Capital's repositories. A basic introduction, including handouts, given by Mrs. Donna R. Hotelling, G.R.S., Executive Secretary of the Board for Certification of Genealogists, Washington, D.C.
- 1:30 p.m. **Behind the Scenes at Metro Central**—What Makes a Subway Tick; all you've ever wanted to know about how to run a rapid transit system but didn't know who to ask. A personally guided "fun and games" tour conducted by Cody Pfanstiehl, Director of Community Services for the Washington Metropolitan Area Transit Authority. Return by 4:00 p.m.

## TUESDAY, OCTOBER 30

- 8:30 a.m. **Breakfast for the Ladies.** A chance for all the ladies to find out everything they want to know about ACI. The session will be moderated by ACI President John McLaughlin and Executive Director George Leyh. Come and air your views and your questions!
- 10:30 a.m. **Shopping at White Flint Mall, Rockville.** The spectacular enclosed mall shopping center that's the rage of Washington! At least that's what a lot of ladies tell us. You be the judge for this five-hour jaunt into the world of fashion, gifts, specialties, and of course food. Return by 4:00 p.m.
- 10:30 a.m. See the **National Bureau of Standards**, Gaithersburg. An education in itself! A lightly oriented technical tour including concrete highlights. Cement relations with the meter bar (or is it metre bar?). Find out for yourself why we lost the metric wars. Return by 4:00 p.m.
- 8:30 p.m. **Washington by Night**—Bus Tour. A riding, lectured tour with three stops; the Library of Congress on Capitol Hill, Jefferson Memorial and Lincoln Memorial; lasting approximately three hours.

### LADIES HOSPITALITY

Every day of the Convention complimentary coffee and sweet rolls will be provided to the ladies in their hospitality suite, "Senate".

## WEDNESDAY, OCTOBER 31

- 1:00 p.m. **Inspirations of Church and State**—Bus Tour. A riding, lectured tour with three stops; the Washington Cathedral, National Shrine and Franciscan Monastery; with 4:30 p.m. return to Capital Hilton.

## THURSDAY, NOVEMBER 1

- 10:00 a.m. **Olde Towne Alexandria and Mount Vernon, Virginia**—Bus Tour. Eight hours of Colonial Americana. A combination of riding and strolling with appropriate lectures. Stops at Christ Church, Cafe Rembrant for lunch, and George Washington's plantation estate. Admissions and lunch included in the cost.

## FRIDAY, NOVEMBER 2

- 9:00 a.m. **Last Chance Washington**—Bus Tour. An eight hour riding, lectured tour with six stops; the White House, Capitol, Smithsonian Museum's History and Technology Buildings, Arlington Cemetery, Jefferson Memorial and Lincoln Memorial; to give you that "last chance" to pay yourself back for all those long hours in committee or seminar that kept you from viewing your Nation's capital earlier.

## FRIDAY, NOVEMBER 2 &

## SATURDAY, NOVEMBER 3

### THE POST-CONVENTION OVERNIGHT SPECIAL BUS TOUR!

- 9:00 a.m. **Colonial Virginia—Overnight Bus Tour.** Only the best; Jamestown, Williamsburg and Yorktown; with accommodations at the Williamsburg Hilton Motor Hotel. Also includes all admissions, bus transport, day one evening meal and day two breakfast for an inclusive cost.

*This tour will return to the Capital Hilton Hotel, Washington, D.C., not later than 6:00 p.m. on Saturday, November 3, 1979, in plenty of time to transfer to airport limousine service or taxicabs and make your return flight home. Plan your flight departure for no earlier than 8:00 p.m. if you take this tour. Otherwise spend the night in Washington, returning home at your leisure on Sunday, November 4.*

## SATURDAY, NOVEMBER 3 &

## SUNDAY, NOVEMBER 4

### THE ABSOLUTELY LAST POST-CONVENTION OVERNIGHTER!!! IDENTICAL TO THE ABOVE. JUST ADD ONE DAY TO TIME.

- 9:00 a.m. **Colonial Virginia—Overnight Bus Tour.** (For details see day above.)



## TOUR FEE SCHEDULE

### WASHINGTON BY NIGHT—BUS TOUR

Adults-\$9.00, and Children aged 12 and under-\$4.50

### INSPIRATIONS OF CHURCH AND STATE—BUS TOUR:

Adults-\$11.00, and Children aged 12 and under-\$6.50

### OLDE TOWNE ALEXANDRIA AND MOUNT VERNON—BUS TOUR:

Adults-\$17.50, and Children aged 12 and under-\$11.00

### WASHINGTON BY DAY—BUS TOUR:

Adults-\$15.00, and Children aged 12 and under-\$7.50

### COLONIAL VIRGINIA—OVERNIGHT BUS TOUR:

Adults: Double Occupancy-\$119.00; Single Supplement-\$15.50;  
Children, when occupying the same room as the parents-\$103.00

*NOTE: The tour operator reserves the right to cancel any offering for which less than twenty-five (25) registers. All monies will be refunded in such event.*

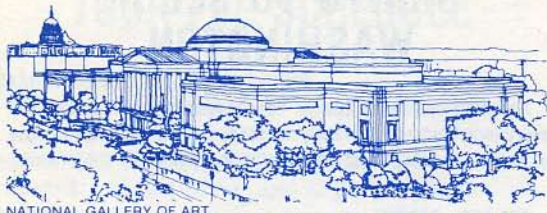


## SIGHTS TO SEE IN WASHINGTON

Sometime during the October 28—November 2 ACI Convention, every registrant and his family should find the time to visit a score of Federal Buildings and historical monuments.

- **THE U.S. CAPITOL** shouldn't be missed. In the Senate and House Chambers and Statuary Hall are sculptures and other art treasures immortalizing the history of America and the men who helped build it.
- **THE U.S. SUPREME COURT** is located two blocks east of the Capitol. Court room presentations are made every half hour, from 9:30 a.m. until 4 p.m., except when court is in session.
- **THE WHITE HOUSE (Executive Mansion)**, where every president lived but George Washington, was completed in 1800, eight years after the cornerstone was laid. When the building was burned by British troops in 1814 during the war of 1812, white paint was applied to cover fire damage...and the White House got its common name.
- **THE LINCOLN MEMORIAL**. Dedicated on Memorial Day (then called Decoration Day) in 1922, the 21-ft (6.4 m) statue of the seated Lincoln, 16th president, is surrounded by 36 marble columns, one for each state in the union when the great emancipator died. Fifty-six steps, one for every year of his life, lead up to the inner chamber where his imposing statue stands.
- **THE JEFFERSON MEMORIAL**, honoring the third U.S. president, reflects the classic style Thomas Jefferson used in designing the rotunda at the University of Virginia and his home, Monticello. In the center of the circular Memorial Room stands the 19 ft (5.8 m) Rudolph Evans statue of the man who drafted the Declaration of Independence.
- **MUSEUM OF HISTORY AND TECHNOLOGY**—14th St. and Constitution Ave., N.W. Huge Smithsonian facility contains Star Spangled Banner, locomotives, gowns of first ladies.
- **MUSEUM OF NATURAL HISTORY (SMITHSONIAN)** 10th and Constitution Ave., N.W. World's largest stuffed elephant, dinosaur bones, stuffed whale, Hope Diamond.
- **NATIONAL AIR AND SPACE MUSEUM (SMITHSONIAN)**, 7th and Independence Ave., S.W. Houses the Wright brothers' airplane, the Spirit of St. Louis, a special effects theater, and Spacearium.
- **THE JOHN F. KENNEDY CENTER FOR THE PERFORMING ARTS**, is one of the world's finest cultural facilities, housing four major theaters, a concert hall, an opera house, a drama theater, and a film theater.





NATIONAL GALLERY OF ART

- **ART GALLERIES.** Washington is the only city with seven major art galleries. **The National Gallery of Art** is spectacular with its new East Building, displaying treasures of French art from the Ailsa Mellon Bruce Collection, as well as other classic and modern works in the West Building, the only American gallery to own a Leonardo da Vinci; the **National Collection of Fine Arts** has a spectacular collection of Americana; **The Freer Gallery** specializes in Oriental art; **The National Portrait Gallery** displays portraits of great Americans; and **The Corcoran** is one of the world's outstanding privately-owned museums, with free admission on Tuesday and Wednesday. **The Phillips Collection**, although not extensive, is of internationally-acclaimed quality. The unique **Hirshhorn Museum and Sculpture Garden** is of donut shape and has a beautiful outdoor courtyard in the center. The Hirshhorn houses an unprecedented collection of paintings and monumental sculpture of the past 125 years. Other things of interest:

- **MOUNT VERNON**—Home of George Washington. Admission: \$1.50 for adults, 75¢ for youth 6-11 years.
- **ARLINGTON NATIONAL CEMETARY**—Tomb of the Unknown Soldier, Amphitheater, Arlington House, graves of John F. Kennedy and William Howard Taft. Changing of the guard at the Tomb of the Unknown Soldier every hour.
- **BUREAU OF ENGRAVING AND PRINTING**—14th and C Streets, S.W. See money and stamps made.
- **EXPLORERS HALL, NATIONAL GEOGRAPHIC SOCIETY**—17th and M Streets, N.W. Displays depict archaeology, astronomy, adventure, and discovery.
- **FEDERAL BUREAU OF INVESTIGATION**—E Street between 9th and 10th Streets, N.W. Closed Saturdays and Sundays. Hour tours every 15 minutes.
- **FORD'S THEATER AND LINCOLN MUSEUM**—511 10th St., N.W. Free except for theater performances.
- **NATIONAL AQUARIUM**—Basement of Department of Commerce, 14th and Constitution Ave., N.W. Over 2000 specimens of fresh water and marine animals displayed in 68 aquariums. Sharks, octopus, exotic tropical fish, and rare endangered species.

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