An aerial photograph of San Diego, California, showing the coastline, mountains, and a large body of water. The image is in a teal color scheme.

American  
Concrete  
Institute

# 1989 FALL CONVENTION

October 29-November 3, 1989  
San Diego, California

Convention Theme:  
Marine and Water  
Resources Facilities

**AMERICAN CONCRETE  
INSTITUTE  
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Skokie, Illinois

**Post-Tensioning Institute**  
Phoenix, Arizona



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# TABLE OF CONTENTS

---

## ACI Fall Convention

October 29 - November 3, 1989  
San Diego Marriott Hotel & Marina  
San Diego, California

Convention Theme:  
*Marine and Water Resources Facilities*

ACI President's Welcome .....	5
ACI San Diego International Chapter Convention Committee .....	10
ACI San Diego International Chapter Officers .....	9
Board of Direction .....	2
Computer Software Demonstration .....	52-53
Contractors' Day Luncheon and Events .....	40-41
Convention Committee .....	75
Daily Events .....	14-22
Educational Activities Committee .....	75
Future Conventions .....	76
General Session .....	55
Hotel Map .....	See insert in convention registration packet
Hotel Room Index .....	36
Numerical Committee Meeting Listing .....	23-27
Personal Log .....	37-39
Publication Discount Offer .....	11
Rap Session .....	54
Registration Information .....	13
San Diego Mayor's Welcome .....	6
Social Activities Program .....	28-29
Special Events .....	12-13
Sponsors .....	8
Sustaining Members of ACI .....	3
Technical Activities Committee .....	75
Technical Sessions/ Educational Seminars/Forums .....	30-35, 40-74
U.S. Senator's Welcome .....	7





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**american concrete institute**



P.O. BOX 19150  
22400 WEST SEVEN MILE ROAD  
DETROIT, MICHIGAN 48219

October 1989

Dear ACI Convention Delegates:

It's convention time again!

As president of the American Concrete Institute, it is my pleasure to welcome you to San Diego and to extend ACI's best wishes for an exciting, fun-filled, week-long learning experience.

San Diego is a combination of things – an old Spanish town, a modern thriving metropolis, and a laid-back, carefree, ocean resort. We hope you will take the time to explore the area and enjoy all the attractions and charm of this beautiful, sunny region of Southern California.

As usual, our program this week is crowded with meetings, technical sessions, forums, symposia, social events, spouse tours, and more. You'll find it difficult but hopefully not impossible to attend everything that you want to take in. Chances are that this will be a busy week for you but that's the hallmark of ACI conventions – busy.

Don't forget to take the time to attend the Concrete Mixer, the General Session, the "rap" breakfast, and the many other events that have become traditional at Institute meetings. When it's over on Friday, let us know what you think and pass along any ideas you might have to make ACI conventions even better and more appealing to our members.

Enjoy this time away from the office, relax and explore the area, greet old friends again, and benefit from the fact that the world's leading concrete experts are here.

Dora and I look forward to greeting each of you personally. If we or anyone on the ACI staff or local convention committee can be of help, feel free to ask. You're among friends – so take advantage of it!

Paul Zia  
President  
American Concrete Institute

*progress through knowledge*



THE CITY OF  
**SAN DIEGO**

AMERICA'S FINEST CITY

**MAUREEN O'CONNOR**  
MAYOR

GREETINGS  
TO  
THE AMERICAN CONCRETE INSTITUTE  
ON THE OCCASION OF  
YOUR FALL CONVENTION

May I extend my best personal regards and greetings to the members of the American Concrete Institute and your distinguished guests as you come together for your Fall Convention October 29-November 3, 1989, at the San Diego Marriott Hotel and Marina.

We take particular pride in the natural, God given blessings of a temperate climate and jewel-like setting on the Pacific Ocean. We are particularly proud of beautiful Balboa Park with its famous zoo, the revitalized Centre City, our incomparable harbor, beaches and bay, the glorious Cuyamaca mountains, and the exciting international border shared with our friends in Tijuana, Mexico. Also, during your stay we will be hosting the San Diego Arts Festival: Treasures of the Soviet Union with fabulous displays of Imperial Faberge Eggs and priceless Georgian Icons.

I hope you will have the opportunity during your stay to tour some of the many attractions which are available for your cultural enrichment, recreation and relaxation. It is a great honor for the City of San Diego to be selected for your visit.

Sincerely,

A handwritten signature in cursive script that reads "Maureen".

Maureen O'Connor  
Mayor



UNITED STATES SENATE  
WASHINGTON, D C 20510

PETE WILSON  
CALIFORNIA

October 5, 1989

TO THE PARTICIPANTS OF THE AMERICAN  
CONCRETE INSTITUTE CONVENTION:

It is my pleasure to welcome those attending the American Concrete Institute's 1989 Fall Convention being held here in San Diego from October 29 to November 3, 1989. San Diego is proud of its reputation as one of the world's most lovely and exciting cities.

The innovation of concrete has enabled our nation to develop its beautiful skylines and remarkable roadways. It is, quite literally, the foundation upon which communities build. Through the years your institute has accepted the challenge of developing imaginative applications for concrete. Your meeting, here in San Diego, will give rise to the exchange of ideas and information that will insure an increased knowledge of its uses. Hopefully, you will also have a chance to see our beautiful city.

Please accept my wishes for a very memorable and informative conference. We look forward to doing everything possible to make your time here a complete success.

With warm regards,

A handwritten signature in cursive script that reads "Pete Wilson".

PETE WILSON





---

## CONVENTION SPONSORS

---

### *PLATINUM*

CalMat Company  
W. R. Grace & Company  
Master Builders, Inc.  
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Phoenix Cement Company  
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*The American Concrete Institute and  
the ACI San Diego International Chapter  
deeply appreciate their support.*

# **SAN DIEGO INTERNATIONAL CHAPTER**

---

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*The officers, staff and members of ACI would like to thank the Local Convention Committee, the Hostesses, and the ACI San Diego International Chapter for their contribution to a successful 1989 Fall Convention.*

*THANK YOU!*

---

**ACI SAN DIEGO  
INTERNATIONAL CHAPTER  
CONVENTION COMMITTEE**

---

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Pre-Mixed Concrete Company

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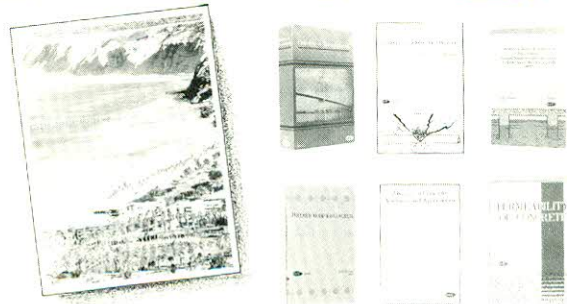
**Nazmi Sharabi**

San Diego State University



**10% OFF ALL BOOKS RELATED TO THE  
SAN DIEGO CONVENTION THEME!**

**Marine & Water Resources Facilities**



- 201.2R-77(82) Guide to Durable Concrete
- 210R-87 Erosion of Concrete in Hydraulic Structures
- 222R-85 Corrosion of Metals in Concrete
- 336.3R-72(85) Suggested Design and Construction Procedures for Pier Foundations
- 343R-88 Analysis and Design of Reinforced Concrete Bridge Structures
- 344R-T Design and Construction of Circular Prestressed Concrete Structures with Circumferential Tendons
- 344R-W Design and Construction of Circular Wire and Strand Wrapped Prestressed Concrete Structures
- 345.1R-83 Routine Maintenance of Concrete Bridges
- 346-81 / 346-81 Standard Specification for Cast-in-Place Nonreinforced Concrete Pipe and Recommendations
- 350R-83 Concrete Sanitary Engineering Structures
- 357R-84 Guide for the Design and Construction of Fixed Offshore Concrete Structures
- 357.1R-85 State-of-the-Art Report on Offshore Concrete Structures for the Arctic
- 357.2R-88 State-of-the-Art Report on Barge-Like Concrete Structures
- 515.1R-79(85) Guide to the Use of Waterproofing, Dampproofing, Protective, and Decorative Barrier Systems for Concrete
- 546.1R-80 Guide for Repair of Concrete Bridge Superstructures
- 548.1R-86 Guide for the Use of Polymers in Concrete
- SP-49 Corrosion of Metals in Concrete
- SP-65 Performance of Concrete in Marine Environment
- SP-69 Applications of Polymer Concrete
- SP-89 Polymer Concrete: Uses, Materials and Properties
- SP-93 Concrete in Transportation
- SP-99 Polymer Modified Concrete
- SP-102 Corrosion, Concrete, and Chlorides
- SP-108 Permeability of Concrete
- SP-109 Concrete in Marine Environment
- SP-116 Polymers in Concrete: Advances and Applications



**10% off the member price of any of these  
publications if ordered before December 1, 1989**

## SPECIAL EVENTS

### OPENING RECEPTION

Sunday, October 29, 1989  
5:30 - 7:00 PM

San Diego Ballroom B, C

Welcome to San Diego! Meet the San Diego International Chapter members as they host tonight's event — and compliment them on a job well done!

### COFFEE BAR

Monday through Friday  
8:00 - 10:00 AM

Marriott Hall Foyer

### 4:30 REHABILITATION (Cash Bar)

Tuesday, October 31, 1989  
4:30 - 6:30 PM

The Yacht Club

After a long day full of meetings, join your colleagues before your evening plans begin. We are meeting at the Yacht Club on the first floor of the Bayside Pavilion. The bar has both indoor and outdoor beverage service.

### CONCRETE MIXER

Wednesday, November 1, 1989  
6:30 - 8:00 PM

Marriott Hall 3, 4, 5, 6

Let's "mix" at the mixer sponsored by the San Diego International Chapter. Your ticket is complimentary with a full week's registration fee.



### PAUL KLIEGER RECEPTION AND DINNER

Thursday, November 2, 1989

San Diego Ballroom A

6:30-7:00 PM Reception (Cash Bar)  
7:00-10:00 PM Dinner \$30.00/person  
(Cash Bar available)

Join ACI as we honor Paul Klieger, an Honorary Member of the Institute with almost 50 years of membership, whose dedication to ACI is respected by all. Please purchase tickets in advance at the ACI Registration Desk located in Marriott Hall.

### CONTINENTAL BREAKFAST MEETINGS

(by invitation only)

Monday, October 30, 1989	7:00 - 8:30 AM
318 Steering Committee Breakfast	Executive Conference Rm.
Tuesday, October 31, 1989	7:00 - 8:30 AM
E903 Chairmen Training Breakfast	Torrey 2,3
Wednesday, November 1, 1989	7:00 - 8:30 AM
EAC Seminar Planning Breakfast	Columbia 2
E702 Educators Roundtable Breakfast	Newport Beach
Thursday, November 2, 1989	7:00 - 8:30 AM
E903 Toronto Session Chairmen and Speakers Breakfast	Santa Rosa

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# SPECIAL EVENTS

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## SOCIAL ACTIVITIES PROGRAM

An excellent program has been planned by the ACI San Diego International Chapter. Please purchase tour tickets in advance at the ACI Registration Desk located in Marriott Hall. See pages 28-29 for further details.

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## REGISTRATION INFORMATION

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The ACI staff is eager to answer any questions you may have pertaining to the convention. Our registration desk is open to serve you during the following hours:

Sunday	October 29	1:00 PM - 5:00 PM
Monday	October 30	7:30 AM - 5:00 PM
Tuesday	October 31	8:00 AM - 5:00 PM
Wednesday	November 1	8:00 AM - 5:00 PM
Thursday	November 2	8:00 AM - 5:00 PM
Friday	November 3	8:00 AM - 10:00 AM

## BADGES:

Wear your badge on the right side at all times. (In shaking hands, the eyes normally fall at shoulder level on the right side of the individual being greeted.) The convention badges are color coded for identification as follows:

Member: White	Spouse: Beige	Nonmember: Peach
Student: Blue	Fellow: White	



# DAILY EVENTS

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

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## SATURDAY / SUNDAY / MONDAY

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DAY / TIME	FUNCTION	ROOM
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### SATURDAY, October 28, 1989

#### 8:00 AM - 6:00 PM

TAC	Technical Activities Committee (Mtg. 1)	Torrance
-----	--------------------------------------------	----------

### SUNDAY, October 29, 1989

#### 8:00 AM - 6:00 PM

TAC	Review Group 1	Torrance
TAC	Review Group 2	La Jolla
TAC	Review Group 3	Irvine
TAC	Review Group 4	Los Angeles

#### 9:00 AM - 5:00 PM

EAC	Educational Activities Committee (Mtg. 1)	Torrey 3
-----	----------------------------------------------	----------

#### 10:00 AM - 1:00 PM

CLC	Construction Liaison Committee	Newport Beach
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#### 2:00 PM - 3:30 PM

TCRC	Construction Review Committee	Newport Beach
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#### 2:00 PM - 5:00 PM

	Planning Committee	Columbia 3
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#### 5:30 PM - 7:00 PM

	<b>Opening Reception</b> (Sponsored by the ACI San Diego International Chapter)	<b>San Diego B,C</b>
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### MONDAY, October 30, 1989

#### 8:00 AM - 1:00 PM

TAC	Technical Activities Committee (Mtg. 2)	Torrance
-----	--------------------------------------------	----------

#### 8:30 AM - 10:00 AM

E902	Certification (Mtg. 1)	Leucadia
120	History of Concrete	Newport Beach
213-A	High-Strength Lightweight Concrete	Point Loma
308-R	State-of-the-Art Report	Del Mar
325-E	RCC Pavements	Green Room
330	Parking Lots	Century City

#### 8:30 AM - 11:30 AM

304	Measuring, Mixing, Transporting and Placing	Rancho Las Palmas
554	Bearing Systems	Board Room

#### 8:30 AM - NOON

E801	Student Concrete Projects	Carlsbad
------	---------------------------	----------

		MONDAY
DAY/TIME	FUNCTION	ROOM

## MONDAY, October 30, 1989

### 8:30 AM - 1:00 PM

117	Tolerance	Torrey 3
229	Controlled Low-Strength Material	Cardiff
344	Circular Prestressed Concrete Structures	Torrey 2

### 8:30 AM - 5:00 PM

543	Concrete Piling	Encinitas
-----	-----------------	-----------

### 10:00 AM - 11:30 AM

213-C	By-Product Lightweight Aggregates	Solana
308-S	Specification	Del Mar

### 10:00 AM - 1:00 PM

E902A	Field Technician I	Leucadia
211-D	High Strength	Newport Beach
211-E	Evaluation	Desert Springs
212	Chemical Admixtures	Columbia 2,3
307	Chimneys	Oceanside
318	Standard Building Code (Mtg.1)	Santa Rosa
347	Formwork for Concrete	Green Room
437	Strength Evaluation of Existing Concrete Structures	Point Loma

### 10:00 AM - 5:00 PM

552	Cement Grouting	Columbia 1
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### 11:30 AM - 1:00 PM

308	Curing Concrete	Del Mar
325-F	316R-82 Report	Exec. Conf. Rm.
504	Joint Sealants and Joint Systems	Board Room

### 2:00 PM - 3:30 PM

E702	Designing Concrete Structures	La Jolla
E902G	Certification Shotcrete Nozzlemen	Exec. Conf. Rm.
JBRC	International Joints and Bearings Research Council	Board Room
118-UG	Computer User Group	Rancho Las Palmas
325-G	Paver Block Pavements	Cardiff
367	Precast Conc. Chimneys	Oceanside

### 2:00 PM - 5:00 PM

E703	Construction Practices	Desert Springs
201	Durability of Concrete	Torrance
228	Nondestructive Testing of Concrete	Santa Rosa
302	Construction of Concrete Floors	Columbia 2,3
349	Subcommittee 1	Torrey 3
358	Concrete Guideways	Irvine
533	Precast Panels	Del Mar
546-1	Underwater Repair	Carlsbad
548-A	Polymer Modified Conc.	Green Room

### 2:00 PM - 5:00 PM TECHNICAL SESSIONS

	Research in Progress (123)	Marriott Hall 1
	Seismic Base Isolation (554)	Marriott Hall 5
★	Perspective on Marine Construction (ACI San Diego International Chapter)	Marriott Hall 2

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**MONDAY/TUESDAY**

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DAY/TIME	FUNCTION	ROOM
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**MONDAY, October 30, 1989****2:00 PM - 5:30 PM TECHNICAL SESSION and  
EDUCATIONAL SEMINAR**

Educator/Student Program and Seminar (E801)	Manchester 1,2
------------------------------------------------	----------------

★★ Controlled Low-Strength Material: Environmental and Construction Solutions (232,229)	Marriott Hall 6
-----------------------------------------------------------------------------------------------	-----------------

**2:00 PM - 6:30 PM**

E902B Lab Tech Certification	Century City
318-B Reinforcement and Development	Torrey 1
318-C Serviceability/Safety	Solana
318-D Flexure and Axial Loads	Leucadia
318-F Two-Way Slabs	Point Loma
349 Subcommittee 2 (Mtg. 1)	Los Angeles
349 Subcommittee 3 (Mtg. 1)	Newport Beach

**3:30 PM - 5:00 PM**

E705 Educational Computer Activities	Torrey 2
E901 Scholarships	Exec. Conf. Rm.
IAC Int'l. Activities Comm.	Board Room
325 Concrete Pavements	Cardiff

**3:30 PM - 6:30 PM**

E902C Concrete Insp.-General	Oceanside
E902D Concrete Craftsman	Pacific
118 Use of Computers	Rancho Las Palmas
515 Coatings for Concrete	La Jolla

**5:00 PM - 6:30 PM**

E902F Formwork Designer	Columbia 1
RCRC-6 Concrete Durability	Board Room
221 Aggregates	Torrance
344 Subcommittee 1	Torrey 2
344 Subcommittee 2	Torrey 3

**7:00 PM - 8:30 PM**

349 Subcommittee 2 (Mtg.2)	Los Angeles
349 Subcommittee 3 (Mtg. 2)	Newport Beach

**TUESDAY, October 31, 1989****8:30 AM - 10:00 AM**

E903 Convention Training	Desert Springs
207 Mass Concrete	Columbia 3
216 Fire Resistance and Fire Protection of Structures	Oceanside
349 Nuclear Structures	Board Room
363 High-Strength Concrete	Green Room
544-1 Steel Fibers	Newport Beach
544-2 Glass Fibers	Rancho Las Palmas
548-D Sulfur Concrete	La Jolla

**TUESDAY, October 31, 1989****8:30 AM - 11:30 AM**

213-B	Lightweight Conc. for Parking Struc. and Bridge Decks	Columbia 2
318-G	Prestressed Precast	Solana
351-3	Static Equipment Foundations	Carlsbad
362	Parking Structures	Santa Rosa

**8:30 AM - 1:00 PM**

E902	Certification (Mtg. 2)	Leucadia
318-A	General, Concrete, Construction	Torrey 1
318-E	Shear and Torsion	Columbia 1
318-H	Seismic Provisions	Manchester 2
336	Footings	Point Loma
350	Environmental Engineering Concrete Structures	Del Mar
352	Joints and Connections in R/C Structures	Warner Center

**9:00 AM - NOON TECHNICAL SESSIONS and  
EDUCATIONAL SEMINAR**

★	Forum: Concrete Construction (TCRC)	Marriott Hall 2
★	Rehabilitation of Marine and Water Resources Facilities (364)	Marriott Hall 5
★	State-of-the-Art Concrete Bridges (343/345)	Marriott Hall 1
	Spreadsheets on Concrete Technology and Design - Part I (E705)	Marriott Hall 6
	Open Paper Session - Part I: Material Properties and Structural Performance (TAC)	San Diego A

**10:00 AM - 11:30 AM**

346	CIP Nonreinforced Concrete Pipe	Pacific
523	Insulating and Cellular Concrete	Green Room
544-3	Synthetic Fibers	Rancho Las Palmas
544-4	Vegetable Fibers	Newport Beach

**10:00 AM - 1:00 PM**

E902Z	Training Courses	Oceanside
211-C	No Slump	Los Angeles
231	Properties of Concrete at Early Ages	Manchester 1
441	Reinforced Concrete Columns	Columbia 3
548-E	Structural and Design Analysis of Polymer Concrete	La Jolla

**11:30 AM - 1:00 PM**

E701	Construction Materials	Pacific
213	Lightweight Aggregates and Lightweight Aggregate Concrete	Santa Rosa
544-5	Structural Design	Rancho Las Palmas
544-6	State-of-the-Art	Newport Beach
549	Ferrocement	Green Room
555	Removal and Reuse of Concrete	Solana



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**TUESDAY**

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DAY/TIME	FUNCTION	ROOM
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**TUESDAY, October 31, 1989****11:30 AM - 2:00 PM**

	Ad hoc Comm. on Radon Control	Columbia 2
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**NOON - 2:00 PM**

	<b>Contractors' Day Luncheon</b> <b>\$18.00/person</b>	<b>San Diego C</b>
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**1:00 PM - 6:30 PM**

524	Plastering (Mtg. 1)	Board Room
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**2:00 PM - 3:30 PM**

RC	Responsibility in Concrete Construction	Manchester 1
223	Expansive Cement Concretes	Torrey 1
351	Foundations for Equipment and Machinery	Carlsbad
365	Service Life Prediction	Rancho Las Palmas

**2:00 PM - 5:00 PM**

	Convention Committee	Manchester 2
	Membership Committee	Los Angeles
	Publications Committee	La Jolla
CMRC	Concrete Materials Research Council	Torrance
116	Terminology and Notation	Columbia 1
210	Erosion of Concrete in Hydraulic Structures	Torrey 3
211-A	Edit and Coordination	Desert Springs
214	Strength Tests	Point Loma
215	Fatigue of Concrete	Newport Beach
309	Consolidation of Conc.	Torrey 2
332	Residential Concrete	Pacific
531	Concrete Masonry Structures	Columbia 3

**2:00 PM - 5:00 PM TECHNICAL SESSIONS and  
EDUCATIONAL SEMINAR**

★	Concrete Polymer Materials in Marine Environments (548)	Marriott Hall 5
★	State-of-the-Industry Cast-in-Place Concrete Pipe (346)	Marriott Hall 1
	Spreadsheets on Concrete Technology and Design - Part II (E705)	Marriott Hall 6
★	Concrete Construction Seminar (CLC)	Marriott Hall 2
	Open Paper Session - Part II: Structural Behavior and Testing (TAC)	San Diego A

**2:00 PM - 6:00 PM**

EAC	Educational Activities Committee (Mtg. 2)	Leucadia
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**2:00 PM - 6:30 PM**

230	Soil Cement	Oceanside
318	Standard Building Code (Mtg. 2)	Santa Rosa
360	Design of Slabs on Grade	Green Room
445	Shear and Torsion	Warner Center
506	Shotcreting	Solana

**3:30 PM - 6:30 PM**

368	Earthquake Resisting Members/Systems	Rancho Las Palmas
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DAY/TIME	FUNCTION	ROOM
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**TUESDAY, October 31, 1989****3:30 PM - 8:00 PM**

311	Inspection of Concrete	Del Mar
-----	------------------------	---------

**5:00 PM - 6:30 PM**

222	Corrosion of Metals in Concrete	Columbia 3
348	Structural Safety	Newport Beach

**7:30 PM - 10:00 PM TECHNICAL SESSION and EDUCATIONAL SEMINAR**

	Forum: Sealing Compounds for Concrete Surfaces (123)	Marriott Hall 6
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	Forum: Computer-Aided Design and Drafting (CAD/D) Systems (E705)	Marriott Hall 5
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**WEDNESDAY, November 1, 1989****8:30 AM - 9:45 AM**

	Rap Session and Continental Breakfast	Marriott Hall 1,2
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**10:00 AM - NOON**

	General Session	Marriott Hall 3,4
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**1:00 PM - 5:00 PM**

TSC	Specifications Committee	Oceanside
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**1:00 PM - 6:00 PM**

	Computer Software Demonstration	New York/Orlando
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**1:00 PM - 6:30 PM**

524	Plastering (Mtg. 2)	Board Room
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**2:00 PM - 3:30 PM**

	Standards Board	Exec. Conf. Rm.
211-B	Lightweight	Newport Beach
227	Radioactive/Hazardous Waste Management	Torrance

**2:00 PM - 5:00 PM**

CAC	Chapter Activities Comm.	Leucadia
315	Details of Concrete Reinforcement	Columbia 1
343	Concrete Bridge Design	Del Mar
345	Bridge Construction	Pacific
364	Rehabilitation	Warner Center
408	Bond and Development of Reinforcement	Point Loma
423	Prestressed Concrete	Solana
442	Lateral Forces	Green Room
503	Adhesives for Concrete	Rancho Las Palmas
550	Precast Conc. Structures	Torrey 1

**2:00 PM - 5:00 PM TECHNICAL SESSIONS**

	History of Concrete (120)	Columbia 2,3
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	Anchorage to Concrete (355)	Torrey 2,3
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	Scaled Models of Special Structures (444)	Manchester 1,2
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★	Offshore and Marine Concrete (357)	Marriott Hall 2
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**WEDNESDAY/THURSDAY**

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DAY/TIME	FUNCTION	ROOM
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**WEDNESDAY, November 1, 1989****2:00 PM - 5:30 PM TECHNICAL SESSION**

	Paul Klieger International Symposium on Performance of Concrete - Part I (201, 222)	San Diego A
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**2:00 PM - 6:30 PM**

E902E	Level III Conc. Insp.	San Francisco
544	Fiber Reinforced Conc.	Santa Rosa

**3:30 PM - 6:30 PM**

211	Proportioning Concrete Mixtures	Torrance
224	Cracking	Carlsbad

**5:00 PM - 6:30 PM**

121	Quality Assurance	Green Room
209	Creep and Shrinkage in Concrete	Rancho Las Palmas
233	Ground Slag in Concrete	Pacific
343/348	Task Committee on LRFD	Del Mar

**6:30 PM - 8:00 PM**

	<b>Concrete Mixer</b> (Sponsored by the ACI San Diego International Chapter)	<b>Marriott Hall 3,4,5,6</b>
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**THURSDAY, November 2, 1989****8:00 AM - 6:00 PM**

	Computer Software Demonstration	New York/Orlando
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**8:30 AM - 10:00 AM**

232-A	Natural Pozzolans in Concrete	Leucadia
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**8:30 AM - 11:30 AM**

122	Energy Conservation	Century City
124	Concrete Esthetics	Torrey 1
355	Anchorage to Concrete	Point Loma
439	Steel Reinforcement	Solana
546	Repair of Concrete	Columbia 2,3
548-B	Polymer Conc. Overlays	Carlsbad

**8:30 AM - NOON TECHNICAL SESSION**

	Paul Klieger International Symposium on Performance of Concrete - Part II (201, 222)	Marriott Hall 4
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**8:30 AM - 1:00 PM**

305	Hot Weather Concreting	Torrance
359-A	Design	Pacific
359-B	Materials Construction and Examination	Oceanside
524	Plastering (Mtg. 3)	Board Room

**8:30 AM - 5:00 PM**

343-A	Code Revision	Warner Center
551	Tilt-Up Concrete Const.	Rancho Las Palmas

**8:30 AM - 6:30 PM**

125	Lunar Concrete	Marriott Hall 5
301	Specifications for Concrete	Green Room

## THURSDAY, November 2, 1989

### 9:00 AM - NOON TECHNICAL SESSIONS

Effect of Concrete Constituents and Environment on Creep and Shrinkage - Part I (209)	Marriott Hall 1
Design of Beam to Column Joints - Part I: Design of Joints in Seismic Zones Cooperative U.S./Japan/New Zealand/China Project (352)	Torrey 2,3
New Developments in Measuring, Mixing, Transporting and Placing Concrete - Part I (304)	Marriott Hall 6
Thin-Section Fiber Reinforced Concrete and Ferrocement Products - Material Properties and Applications - Part I (544, 549)	Marriott Hall 3

### 9:00 AM - 6:00 PM

Board of Direction	Manchester 1,2
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### 10:00 AM - 11:30 AM

225-2 Expert Systems	Leucadia
232 Fly Ash and Natural Pozzolans in Concrete	Santa Rosa

### 11:30 AM - 1:00 PM

225-1 Math. Modeling	Leucadia
224 Task Group/Joints Report	Columbia 1
435 Deflection	Solana
444 Models of Concrete Structures (Mtg.1)	Encinitas
517 Accelerated Curing	Century City

### 12:30 PM - 1:30 PM

357-1 Serviceability	Torrey 1
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### 1:30 PM - 2:30 PM

357-2 Strength Design	Torrey 1
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### 2:00 PM - 3:30 PM

123 Research	Point Loma
224 Editorial Subcommittee	Columbia 1
225 Hydraulic Cements	Leucadia
444 Models of Concrete Structures (Mtg.2)	Encinitas
446-2 Fracture Mechanics and the Code	Carlsbad
446-4 Dynamic Fracture	Carlsbad

### 2:00 PM - 5:00 PM

234 Silica Fume	Torrance
303 Architectural Concrete	Solana
359 Nuclear Vessels	Pacific
442-SC Inelastic Design	Century City
548 Polymers in Concrete	Santa Rosa



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**THURSDAY / FRIDAY**

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DAY/TIME	FUNCTION	ROOM
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**THURSDAY, November 2, 1989****2:00 PM - 5:00 PM TECHNICAL SESSIONS**

	Effect of Concrete Constituents and Environment on Creep and Shrinkage- Part II (209)	Marriott Hall 1
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	Design of Beam to Column Joints- Part II (352)	Torrey 2,3
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	New Developments in Measuring, Mixing, Transporting and Placing Concrete- Part II (304)	Marriott Hall 6
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	Thin-Section Fiber Reinforced Concrete and Ferrocement Products- Material Properties and Applications- Part II (544, 549)	Marriott Hall 3
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**2:00 PM - 5:30 PM TECHNICAL SESSION**

	Paul Klieger International Symposium on Performance of Concrete- Part III (201,222)	Marriott Hall 4
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**2:00 PM - 6:30 PM**

306	Cold Weather Concreting	Board Room
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**2:30 PM - 3:30 PM**

357-3	Marine Structures	Torrey 1
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**3:30 PM - 6:30 PM**

340	Design Aids for ACI Building Codes	Leucadia
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357	Offshore and Marine Concrete	Torrey 1
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421	Design of Concrete Slabs	Bus. Center 7
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446	Fracture Mechanics	Carlsbad
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**6:30 PM - 7:00 PM**

	Paul Klieger Reception (Cash Bar)	San Diego A
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**7:00 PM - 10 :00 PM**

447	Finite Element Analysis of Reinforced Concrete Structures	Bus. Center 7
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**7:00 PM - 10:00 PM**

	Paul Klieger Dinner (Cash Bar Available) \$30.00/person	San Diego A
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**FRIDAY, November 3, 1989****9:00 AM - NOON TECHNICAL SESSIONS**

	Fracture of Concrete Under Special Environments and Loadings (446)	New York/Orlando
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	Effect of Concrete Constituents and Environment on Creep and Shrinkage- Part III (209)	Columbia 2,3
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	Paul Klieger International Symposium on Performance of Concrete- Part IV (201, 222)	Marriott Hall 3
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# NUMERICAL COMMITTEE MEETING SCHEDULE

COMM.	COMMITTEE SHORT TITLE	DATE	TIME	ROOM
	Board of Direction	11/2	9:00 AM- 6:00 PM	Manchester 1,2
	Standards Board	11/1	2:00 PM- 3:30 PM	Exec. Conf. Rm.
TAC	Technical Activities Committee (Mtg. 1)	10/28	8:00 AM- 6:00 PM	Torrance
TAC	Technical Activities Committee (Mtg. 2)	10/30	8:00 AM- 1:00 PM	Torrance
TAC	Review Group 1	10/29	8:00 AM- 6:00 PM	Torrance
TAC	Review Group 2	10/29	8:00 AM- 6:00 PM	La Jolla
TAC	Review Group 3	10/29	8:00 AM- 6:00 PM	Irvine
TAC	Review Group 4	10/29	8:00 AM- 6:00 PM	Los Angeles
EAC	Educational Activities Committee (Mtg. 1)	10/29	9:00 AM- 5:00 PM	Torrey 3
EAC	Educational Activities Committee (Mtg. 2)	10/31	2:00 PM- 6:00 PM	Leucadia
E701	Construction Materials	10/31	11:30 AM- 1:00 PM	Pacific
E702	Designing Concrete Structures	10/30	2:00 PM- 3:30 PM	La Jolla
E703	Construction Practices	10/30	2:00 PM- 5:00 PM	Desert Springs
E705	Educational Computer Activities	10/30	3:30 PM- 5:00 PM	Torrey 2
E801	Student Concrete Projects	10/30	8:30 AM- 12:00 PM	Carlsbad
E901	Scholarships	10/30	3:30 PM- 5:00 PM	Exec. Conf. Rm.
E902	Certification (Mtg. 1)	10/30	8:30 AM- 10:00 AM	Leucadia
E902	Certification (Mtg. 2)	10/31	8:30 AM- 1:00 PM	Leucadia
E902A	Field Technician I	10/30	10:00 AM- 1:00 PM	Leucadia
E902B	Lab Tech Certification	10/30	2:00 PM- 6:30 PM	Century City
E902C	Concrete Insp.- General	10/30	3:30 PM- 6:30 PM	Oceanside
E902D	Concrete Craftsman	10/30	3:30 PM- 6:30 PM	Pacific
E902E	Level III Conc. Insp.	11/1	2:00 PM- 6:30 PM	San Francisco
E902F	Formwork Designer	10/30	5:00 PM- 6:30 PM	Columbia 1
E902G	Certification Shotcrete Nozzlemen	10/30	2:00 PM- 3:30 PM	Exec. Conf. Rm.
E902Z	Training Courses	10/31	10:00 AM- 1:00 PM	Oceanside
E903	Convention Training	10/31	8:30 AM- 10:00 AM	Desert Springs
CAC	Chapter Activities Committee	11/1	2:00 PM- 5:00 PM	Leucadia
CLC	Const. Liaison Committee	10/29	10:00 AM- 1:00 PM	Manchester 1
	Convention Committee	10/31	2:00 PM- 5:00 PM	Manchester 2
IAC	Int'l. Activities Committee	10/30	3:30 PM- 5:00 PM	Board Room
	Membership Committee	10/31	2:00 PM- 5:00 PM	Los Angeles
	Planning Committee	10/29	2:00 PM- 5:00 PM	Columbia 3
	Publications Committee	10/31	2:00 PM- 5:00 PM	La Jolla
CMRC	Concrete Materials Research Council	10/31	2:00 PM- 5:00 PM	Torrance
TCRC	Const. Review Committee	10/29	2:00 PM- 3:30 PM	Newport Beach

COMM.	COMMITTEE SHORT TITLE	DATE	TIME	ROOM
RC	Responsibility in Conc. Construction	10/31	2:00 PM- 3:30 PM	Manchester 1
TSC	Specifications Committee	11/1	1:00 PM- 5:00 PM	Oceanside
JBRC	Int'l. Joints and Bearings Research Council	10/30	2:00 PM- 3:30 PM	Board Room
RCRC-6	Concrete Durability	10/30	5:00 PM- 6:30 PM	Board Room
116	Terminology and Notation	10/31	2:00 PM- 5:00 PM	Columbia 1
117	Tolerance	10/30	8:30 AM- 1:00 PM	Torrey 3
118	Use of Computers	10/30	3:30 PM- 6:30 PM	Rancho Las Palmas
118-UG	Computer User Group	10/30	2:00 PM- 3:30 PM	Rancho Las Palmas
120	History of Concrete	10/30	8:30 AM- 10:00 AM	Newport Beach
121	Quality Assurance	11/1	5:00 PM- 6:30 PM	Green Room
122	Energy Conservation	11/2	8:30 AM- 11:30 AM	Century City
123	Research	11/2	2:00 PM- 3:30 PM	Point Loma
124	Concrete Esthetics	11/2	8:30 AM- 11:30 AM	Torrey 1
125	Lunar Concrete	11/2	8:30 AM- 6:30 PM	Marriott Hall 5
201	Durability of Concrete	10/30	2:00 PM- 5:00 PM	Torrance
207	Mass Concrete	10/31	8:30 AM- 10:00 AM	Columbia 3
209	Creep and Shrinkage	11/1	5:00 PM- 6:30 PM	Rancho Las Palmas
210	Erosion in Hydraulic Structures	10/31	2:00 PM- 5:00 PM	Torrey 3
211	Proportioning	11/1	3:30 PM- 6:30 PM	Torrance
211-A	Edit and Coordination	10/31	2:00 PM- 5:00 PM	Desert Springs
211-B	Lightweight	11/1	2:00 PM- 3:30 PM	Newport Beach
211-C	No Slump	10/31	10:00 AM- 1:00 PM	Los Angeles
211-D	High Strength	10/30	10:00 AM- 1:00 PM	Newport Beach
211-E	Evaluation	10/30	10:00 AM- 1:00 PM	Desert Springs
212	Chemical Admixtures	10/30	10:00 AM- 1:00 PM	Columbia 2,3
213	Lightweight Aggregate Concrete	10/31	11:30 AM- 1:00 PM	Santa Rosa
213-A	High-Strength Light- weight Concrete	10/30	8:30 AM- 10:00 AM	Point Loma
213-B	Ltwt. Conc. for Parking Struct. & Bridges	10/31	8:30 AM- 11:30 AM	Columbia 2
213-C	By-Product Light- weight Aggregates	10/30	10:00 AM- 11:30 AM	Solana
214	Strength Tests	10/31	2:00 PM- 5:00 PM	Point Loma
215	Fatigue	10/31	2:00 PM- 5:00 PM	Newport Beach
216	Fire Resistance	10/31	8:30 AM- 10:00 AM	Oceanside
221	Aggregates	10/30	5:00 PM- 6:30 PM	Torrance
222	Corrosion	10/31	5:00 PM- 6:30 PM	Columbia 3
223	Expansive Cement	10/31	2:00 PM- 3:30 PM	Torrey 1
224	Cracking	11/1	3:30 PM- 6:30 PM	Carlsbad
224	Task Group/Joints Report	11/2	11:30 AM- 1:00 PM	Columbia 1
224	Editorial Subcommittee	11/2	2:00 PM- 3:30 PM	Columbia 1
225	Hydraulic Cements	11/2	2:00 PM- 3:30 PM	Leucadia
225-1	Math. Modeling	11/2	11:30 AM- 1:00 PM	Leucadia
225-2	Expert Systems	11/2	10:00 AM- 11:30 AM	Leucadia
227	Radioactive/ Hazardous Management	11/1	2:00 PM- 3:30 PM	Torrance
228	Nondestructive Testing	10/30	2:00 PM- 5:00 PM	Santa Rosa
229	Controlled Low-Strength	10/30	8:30 AM- 1:00 PM	Cardiff

COMM.	COMMITTEE SHORT TITLE	DATE	TIME	ROOM
230	Soil Cement	10/31	2:00 PM- 6:30 PM	Oceanside
231	Early Age	10/31	10:00 AM- 1:00 PM	Manchester 1
232	Fly Ash & Natural Pozzolans	11/2	10:00 AM- 11:30 AM	Santa Rosa
232-A	Natural Pozzolans in Concrete	11/2	8:30 AM- 10:00 AM	Leucadia
233	Ground Slag	11/1	5:00 PM- 6:30 PM	Pacific
234	Silica Fume	11/2	2:00 PM- 5:00 PM	Torrance
301	Specifications	11/2	8:30 AM- 6:30 PM	Green Room
302	Construction of Floors	10/30	2:00 PM- 5:00 PM	Columbia 2,3
303	Architectural Concrete	11/2	2:00 PM- 5:00 PM	Solana
304	Meas., Mix., Transp./Placing	10/30	8:30 AM- 11:30 AM	Rancho Las Palmas
305	Hot Weather	11/2	8:30 AM- 1:00 PM	Torrance
306	Cold Weather	11/2	2:00 PM- 6:30 PM	Board Room
307	Chimneys	10/30	10:00 AM- 1:00 PM	Oceanside
308	Curing	10/30	11:30 AM- 1:00 PM	Del Mar
308-R	State-of-the-Art Report	10/30	8:30 AM- 10:00 AM	Del Mar
308-S	Specification	10/30	10:00 AM- 11:30 AM	Del Mar
309	Consolidation	10/31	2:00 PM- 5:00 PM	Torrey 2
311	Inspection	10/31	3:30 PM- 8:00 PM	Del Mar
315	Detailing	11/1	2:00 PM- 5:00 PM	Columbia 1
318	Standard Building Code (Mtg. 1)	10/30	10:00 AM- 1:00 PM	Santa Rosa
318	Standard Building Code (Mtg. 2)	10/31	2:00 PM- 6:30 PM	Santa Rosa
318-A	General, Concrete, Construction	10/31	8:30 AM- 1:00 PM	Torrey 1
318-B	Reinforcement and Development	10/30	2:00 PM- 6:30 PM	Torrey 1
318-C	Serviceability/Safety	10/30	2:00 PM- 6:30 PM	Solana
318-D	Flexure and Axial Loads	10/30	2:00 PM- 6:30 PM	Leucadia
318-E	Shear and Torsion	10/31	8:30 AM- 1:00 PM	Columbia 1
318-F	Two-Way Slabs	10/30	2:00 PM- 6:30 PM	Point Loma
318-G	Prestressed Precast	10/31	8:30 AM- 11:30 AM	Solana
318-H	Seismic Provisions	10/31	8:30 AM- 1:00 PM	Manchester 2
325	Pavements	10/30	3:30 PM- 5:00 PM	Cardiff
325-E	RCC Pavements	10/30	8:30 AM- 10:00 AM	Green Room
325-F	316R-82 Report	10/30	11:30 AM- 1:00 PM	Exec. Conf. Rm.
325-G	Paver Block Pavements	10/30	2:00 PM- 3:30 PM	Cardiff
330	Parking Lots	10/30	8:30 AM- 10:00 AM	Century City
332	Residential	10/31	2:00 PM- 5:00 PM	Pacific
336	Footings	10/31	8:30 AM- 1:00 PM	Point Loma
340	Design Aids	11/2	3:30 PM- 6:30 PM	Leucadia
343	Bridge Design	11/1	2:00 PM- 5:00 PM	Del Mar
343-A	Code Revision	11/2	8:30 AM- 5:00 PM	Warner Center
343/ 348	Task Comm. on LRFD	11/1	5:00 PM- 6:30 PM	Del Mar
344	Circular Prestresd. Struct.	10/30	8:30 AM- 1:00 PM	Torrey 2
344	Subcommittee 1	10/30	5:00 PM- 6:30 PM	Torrey 2
344	Subcommittee 2	10/30	5:00 PM- 6:30 PM	Torrey 3
345	Bridge Construction	11/1	2:00 PM- 5:00 PM	Pacific
346	CIP Pipe	10/31	10:00 AM- 11:30 AM	Pacific
347	Formwork	10/30	10:00 AM- 1:00 PM	Green Room



COMM.	COMMITTEE SHORT TITLE	DATE	TIME	ROOM
348	Safety	10/31	5:00 PM- 6:30 PM	Newport Beach
348/ 343	Task Comm. on LRFD	11/1	5:00 PM- 6:30 PM	Del Mar
349	Nuclear Structures	10/31	8:30 AM-10:00 AM	Board Room
349	Subcommittee 1	10/30	2:00 PM- 5:00 PM	Torrey 3
349	Subcommittee 2 (Mtg. 1)	10/30	2:00 PM- 6:30 PM	Los Angeles
349	Subcommittee 2 (Mtg. 2)	10/30	7:00 PM- 8:30 PM	Los Angeles
349	Subcommittee 3 (Mtg. 1)	10/30	2:00 PM- 6:30 PM	Newport Beach
349	Subcommittee 3 (Mtg. 2)	10/30	7:00 PM- 8:30 PM	Newport Beach
350	Environmental Structures	10/31	8:30 AM- 1:00 PM	Del Mar
351	Equip. Foundations	10/31	2:00 PM- 3:30 PM	Carlsbad
351-3	Static Equipment Foundations	10/31	8:30 AM-11:30 AM	Carlsbad
352	Joints	10/31	8:30 AM- 1:00 PM	Warner Center
355	Anchorage	11/2	8:30 AM-11:30 AM	Point Loma
357	Offshore & Marine Structures	11/2	3:30 PM- 6:30 PM	Torrey 1
357-1	Serviceability	11/2	12:30 PM- 1:30 PM	Torrey 1
357-2	Strength Design	11/2	1:30 PM- 2:30 PM	Torrey 1
357-3	Marine Structures	11/2	2:30 PM- 3:30 PM	Torrey 1
358	Guideways	10/30	2:00 PM- 5:00 PM	Irvine
359	Nuclear Vessels	11/2	2:00 PM- 5:00 PM	Pacific
359-A	Design	11/2	8:30 AM- 1:00 PM	Pacific
359-B	Materials Construction and Examination	11/2	8:30 AM- 1:00 PM	Oceanside
360	Slabs on Grade	10/31	2:00 PM- 6:30 PM	Green Room
362	Parking Structures	10/31	8:30 AM-11:30 AM	Santa Rosa
363	High-Strength	10/31	8:30 AM-10:00 AM	Green Room
364	Rehabilitation	11/1	2:00 PM- 5:00 PM	Warner Center
365	Service Life	10/31	2:00 PM- 3:30 PM	Rancho Las Palmas
367	Precast Chimneys	10/30	2:00 PM- 3:30 PM	Oceanside
368	Earthquake Resistance	10/31	3:30 PM- 6:30 PM	Rancho Las Palmas
408	Bond and Development	11/1	2:00 PM- 5:00 PM	Point Loma
421	Slabs	11/2	3:30 PM- 6:30 PM	Bus. Center 7
423	Prestressed	11/1	2:00 PM- 5:00 PM	Solana
435	Deflection	11/2	11:30 AM- 1:00 PM	Solana
437	Strength of Structures	10/30	10:00 AM- 1:00 PM	Point Loma
439	Steel Reinforcement	11/2	8:30 AM-11:30 AM	Solana
441	Columns	10/31	10:00 AM- 1:00 PM	Columbia 3
442	Lateral Forces	11/1	2:00 PM- 5:00 PM	Green Room
442-SC	Inelastic Design	11/2	2:00 PM- 5:00 PM	Century City
444	Models (Mtg. 1)	11/2	11:30 AM- 1:00 PM	Encinitas
444	Models (Mtg. 2)	11/2	2:00 PM- 3:30 PM	Encinitas
445	Shear and Torsion	10/31	2:00 PM- 6:30 PM	Warner Center
446	Fracture Mechanics	11/2	3:30 PM- 6:30 PM	Carlsbad
446-2	Fracture Mechanics and the Code	11/2	2:00 PM- 3:30 PM	Carlsbad
446-4	Dynamic Fracture	11/2	2:00 PM- 3:30 PM	Carlsbad
447	Finite Element Analysis	11/2	7:00 PM- 10:00 PM	Bus. Center 7

COMM.	COMMITTEE SHORT TITLE	DATE	TIME	ROOM
503	Adhesives for Concrete	11/1	2:00 PM- 5:00 PM	Rancho Las Palmas
504	Joint Sealants	10/30	11:30 AM- 1:00 PM	Board Room
506	Shotcreting	10/31	2:00 PM- 6:30 PM	Solana
515	Coatings for Concrete	10/30	3:30 PM- 6:30 PM	La Jolla
517	Accelerated Curing	11/2	11:30 AM- 1:00 PM	Century City
523	Insulating and Cellular	10/31	10:00 AM-11:30 AM	Green Room
524	Plastering (Mtg. 1)	10/31	1:00 PM- 6:30 PM	Board Room
524	Plastering (Mtg. 2)	11/1	1:00 PM- 6:30 PM	Board Room
524	Plastering (Mtg. 3)	11/2	8:30 AM- 1:00 PM	Board Room
531	Concrete Masonry	10/31	2:00 PM- 5:00 PM	Columbia 3
533	Precast Panels	10/30	2:00 PM- 5:00 PM	Del Mar
543	Concrete Piling	10/30	8:30 AM- 5:00 PM	Encinitas
544	Fiber Reinforced Concrete	11/1	2:00 PM- 6:30 PM	Santa Rosa
544-1	Steel Fibers	10/31	8:30 AM-10:00 AM	Newport Beach
544-2	Glass Fibers	10/31	8:30 AM-10:00 AM	Rancho Las Palmas
544-3	Synthetic Fibers	10/31	10:00 AM-11:30 AM	Rancho Las Palmas
544-4	Vegetable Fibers	10/31	10:00 AM-11:30 AM	Newport Beach
544-5	Structural Design	10/31	11:30 AM- 1:00 PM	Rancho Las Palmas
544-6	State-of-the-Art	10/31	11:30 AM- 1:00 PM	Newport Beach
546	Repair of Concrete	11/2	8:30 AM-11:30 AM	Columbia 2,3
546-1	Underwater Repair	10/30	2:00 PM- 5:00 PM	Carlsbad
548	Polymers in Concrete	11/2	2:00 PM- 5:00 PM	Santa Rosa
548-A	Polymer Modified Concrete	10/30	2:00 PM- 5:00 PM	Green Room
548-B	Polymer Conc. Overlays	11/2	8:30 AM-11:30 AM	Carlsbad
548-D	Sulfur Concrete	10/31	8:30 AM-10:00 AM	La Jolla
548-E	Struct. & Design Analysis of Polymer Concrete	10/31	10:00 AM- 1:00 PM	La Jolla
549	Ferrocement	10/31	11:30 AM- 1:00 PM	Green Room
550	Precast Conc. Structures	11/1	2:00 PM- 5:00 PM	Torrey 1
551	Tilt-Up	11/2	8:30 AM- 5:00 PM	Rancho Las Palmas
552	Cement Grouting	10/30	10:00 AM- 5:00 PM	Columbia 1
554	Bearing Systems	10/30	8:30 AM-11:30 AM	Board Room
555	Removal and Reuse	10/31	11:30 AM- 1:00 PM	Solana
	Ad hoc Comm. on Radon Control	10/31	11:30 AM- 2:00 PM	Columbia 2

**NOTE:** Committees not listed did not request a meeting at this convention.

33

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# SOCIAL ACTIVITIES PROGRAM

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## SUNDAY, October 29, 1989

- 11:45 AM **Golf Tournament**—The ACI San Diego International Chapter is hosting a golf tournament at Singing Hills, one of the most scenic courses in Southern California. See Spouse/Guest brochure for complete details. **\$60.00/person**
- 1:00 PM - 5:00 PM **Spouse/Guest Registration**—Registration will be held today in Marriott Hall at ACI's designated registration area.
- 5:30 PM - 7:00 PM **Opening Reception**—Join us in San Diego Ballroom B,C for the Opening Reception. Sponsored by the ACI San Diego International Chapter.

## MONDAY, October 30, 1989

- 8:30 AM - 11:00 AM: **Marriott Hall 1,2 and  
11:00 AM - 3:00 PM: Bayside Pavilion  
Hospitality Room** — A hostess will be available to register new guests and to answer any questions you might have. Continental breakfast will be available from 8:30 AM - 11:00 AM.
- 10:00 - 11:00 AM **Overview of San Diego**—Attend a presentation in Marriott Hall 5,6 that will give you an overview of San Diego. There will be informational hand-outs on places to visit of cultural interest, restaurants and shopping. **No charge**
- 3:00 PM - 5:00 PM **Afternoon Tea**—Being hosted by Mrs. Dora Zia, visit President and Mrs. Zia's suite, the Marriott Suite, for our Afternoon Tea. Casual attire.

## TUESDAY, October 31 through THURSDAY, November 2, 1989

- 8:30 AM - 3:00 PM: **Bayside Pavilion  
Hospitality Room** — A hostess will be available to register new guests and to answer any questions you might have. Continental breakfast will be available from 8:30 AM - 11:30 AM.

## TUESDAY, October 31, 1989

- 10:00 AM - 1:30 PM **Culinary Arts Demonstration and Luncheon at the Hanalei Hotel**—Chef Rolf Jung, Executive Chef of the Atlas Hotel Chain, will demonstrate his expertise in the culinary arts. Enjoy the luncheon that follows. See the Spouse/Guest brochure for complete details. **\$22.00/person**
- 11:00 AM - 3:00 PM **Jewel of the Sea Shopping**—Enjoy a walking tour of La Jolla's shopping district on Prospect and Girard Streets. The "village" offers a variety of shops, galleries and boutiques that display everything from novelties to the works of famous artists, from classic tweeds to the most far-out modern fashions. Everyone falls in

love with La Jolla, "the Jewel," at first sight. See the Spouse/Guest brochure for complete details. **\$12.50/person**

**10:00 AM - 5:00 PM** **Enjoy it All!! Culinary Arts Demonstration, Luncheon at the Hanalei, and Jewel of the Sea Shopping** — Make a day of it — and enjoy it all!  
**\$30.00/person**

### **WEDNESDAY, November 1, 1989**

**9:00 AM - 1:00 PM** **Behind the Scenes at the San Diego Zoo**— See the Spouse/Guest brochure for complete details. **\$28.00/person**

**10:00 AM - NOON** **General Session**— Join us in Marriott Hall 3,4 for the General Session. Here you will enjoy our keynote speaker, Dr. Harold L. Hodgkinson, as he delivers his address, "Tomorrow's Engineers are Here Today." The General Session will also include the Phil M. Ferguson Lecture that will be presented by Professor Alan H. Mattock, entitled "Concrete — Challenge and Opportunity."

**6:30 PM - 8:00 PM** **Concrete Mixer**— Sponsored by the ACI San Diego International Chapter. Spend a festive evening with your friends and colleagues in Marriott Hall 3,4,5,6.

### **THURSDAY, November 2, 1989**

**9:30 AM - 1:30 PM** **Tijuana Shopping Spree**— Visit Tijuana, a friendly city with shopping unlike any other. See the Spouse/Guest brochure for complete details. **\$14.50/person**

**9:30 AM - 1:30 PM** **A Splash at Sea World**— Sea World brings life beneath the sea together with the world above it. See the Spouse/Guest brochure for complete details. **\$31.00/person**

**6:30 PM - 10:00 PM** **Paul Klieger Reception and Dinner**— Join ACI as we honor Paul Klieger, an Honorary Member of the Institute with almost 50 years of membership. Please come and enjoy one another's company and pay tribute to a man whose dedication to ACI is respected by all. Tonight's reception and dinner will be held in San Diego Ballroom A. **Dinner \$30.00/person**  
(Cash bar available)

### **FRIDAY, November 3, 1989**

**8:30 - 10:00 AM** **Hospitality Room - Bayside Pavilion**— Enjoy a continental breakfast while saying a fond farewell to your old friends and new acquaintances you have made during your stay in San Diego.

**NOTE:** Buses for tours will depart from the Marriott Hall driveway at the tour times listed. Refunds will only be given due to the cancellation of the tour.



# TECHNICAL SESSION

MONDAY, October 30, 1989

2:00 PM - 5:00 PM

Room: Marriott Hall 1

## RESEARCH IN PROGRESS

Sponsored by Committee 123

**Session Chairman:** Menashi D. Cohen  
Associate Professor  
School of Civil Engineering  
Purdue University  
West Lafayette, Indiana

**Session Co-Chairman:** Marwan A. Daye  
Senior Staff Engineer  
Bechtel Eastern Power Corporation  
Gaithersburg, Maryland

### Introduction

Menashi D. Cohen, Associate Professor, School of Civil Engineering, Purdue University, West Lafayette, Indiana

### Bond of Epoxy Coated Reinforcement Under Cyclic Loading 2:00

Douglas R. Cleary, Graduate Student, School of Civil Engineering, Purdue University, West Lafayette, Indiana; Julio A. Ramirez, Assistant Professor, School of Civil Engineering, Purdue University, West Lafayette, Indiana

### Response of Precast Columns to Reversed Cyclic Loading 2:20

Claude Pillette, Graduate Student, Department of Civil Engineering, McGill University, Montreal, Quebec, Canada; Denis Mitchell, Professor, Department of Civil Engineering, McGill University, Montreal, Quebec, Canada

### Post-Tensioned Connections for Precast Load-Bearing

#### Shear Wall Panels 2:40

Robin Hutchinson, Graduate Student, Department of Civil Engineering, University of Manitoba, Winnipeg, Manitoba, Canada; Sami Rozkalla, Professor and Head, Department of Civil Engineering, University of Manitoba, Winnipeg, Manitoba, Canada

### Cyclic Heating Effects on Concrete Properties 3:00

V. Ramakrishnan, Professor, Department of Civil Engineering, South Dakota School of Mines and Technology, Rapid City, South Dakota; George Wu, Civil Engineer, Naval Civil Engineering Laboratory, Soils and Pavements Division, Port Hueneme, California; P.C. Punit, Graduate Student, South Dakota School of Mines and Technology, Rapid City, South Dakota; H.A.F. Shafai, Graduate Student, South Dakota School of Mines and Technology, Rapid City, South Dakota

### Behavior of High Volume Fly Ash Low-Strength

#### Cement Composite 3:20

P. Balaguru, Professor, Department of Civil Engineering, Rutgers, The State University, Piscataway, New Jersey

MONDAY, October 30, 1989

2:00 PM – 5:00 PM

Room: **Marriott Hall 1****RESEARCH IN PROGRESS**

Sponsored by Committee 123

**Natural Remanent Magnetization of Cement Paste,  
Mortar, and Concrete****3:40**

Charles Farrell, Graduate Student, Department of Civil and Environmental Engineering, Cornell University, Ithaca, New York; Kenneth C. Hover, Associate Professor, Department of Civil and Environmental Engineering, Cornell University, Ithaca, New York; Peter Plumley, Department of Civil and Environmental Engineering, Cornell University, Ithaca, New York

**The Effect of Polypropylene Fiber Addition on Statistical  
Reliability of Mechanical Properties of Mortar Bars****4:00**

T. Elkorchi, Assistant Professor, Department of Civil Engineering, Worcester Polytechnic Institute, Worcester, Massachusetts; G. L. Leatherman, Worcester Polytechnic Institute, Worcester, Massachusetts; W.R. Bullock, Worcester Polytechnic Institute, Worcester, Massachusetts; D.A. Sunderland, Worcester Polytechnic Institute, Worcester, Massachusetts

**Lightweight Aggregate for All Applications****4:20**

V. Novokshchenov, Consultant, Concrete Clinic International, Buffalo Grove, Illinois; W. Whitcomb, Manager, 3M, St. Paul, Minnesota

**Reusability and Repair Evaluation of 20 Year-Old  
AASHTO Type III Girders****4:40**

Steven A. Olson, Research Assistant, Department of Civil and Mineral Engineering, University of Minnesota, Minneapolis, Minnesota; Catherine W. French, Assistant Professor, Department of Civil and Mineral Engineering, University of Minnesota, Minneapolis, Minnesota; Roberto T. Leon, Associate Professor, Department of Civil and Mineral Engineering, Minneapolis, Minnesota

## TECHNICAL SESSION

MONDAY, October 30, 1989

2:00 PM – 5:00 PM

Room: **Marriott Hall 5**

### SEISMIC BASE ISOLATION

Sponsored by Committee 554

**Session Moderator:** Edward Robert Fyfe  
President  
Fyfe Associates, Inc.  
Del Mar, California

**Session Co-Moderator:** Jim Iverson  
Engineer  
The Consulting Engineers Group  
Napa, California

- Status of "Guide to Earthquake Isolators for Concrete Structures"** 2:00  
Edward R. Fyfe, President, Fyfe Associates, Inc., Del Mar, California
- Acceptance of Base Isolation** 2:10  
Alexander Tarics, President, Base Isolation Consultants, San Francisco, California
- Base Isolation in a Zone Four Eight-Story Building** 2:25  
Jim Elm, Engineer, Englekirk and Hart, Los Angeles, California
- Seismic Isolation Design Practice** 2:40  
Thomas L. Anderson, Engineer, Fluor Daniel Corporation, Irvine, California
- Seismological and Geotechnical Issues in Base Isolation — Use of Neoprene Case History** 2:55  
T. P. Singh, President, Geospectra, Inc., Richmond, California
- Recent Experience in Retrofit** 3:10  
Nick Forell, Forell and Elsesser, San Francisco, California
- Base Isolation in Japan** 3:25  
James Kelly, University of California at Berkeley, Berkeley, California
- Base Isolation in Nuclear Application** 3:40  
Fred Tajirian, Engineer, Bechtel, Inc., San Francisco, California
- U.S.C. Hospital — Case History** 3:55  
Jeff Asher, Engineer, KPFF Engineers, Santa Monica, California
- Overview of Bridge Applications** 4:10  
Ronald Mayes, Engineer, DIS, Berkeley, California

## TECHNICAL SESSION

MONDAY, October 30, 1989

2:00 PM - 5:00 PM

Room: **Marriott Hall 2**

### PERSPECTIVE ON MARINE CONSTRUCTION

Sponsored by the ACI San Diego International Chapter

**Session Chairman:** Donald R. Libby  
Structural Engineer  
Libby Engineers  
San Diego, California

**Session Moderator:** Frieder Seible  
Professor  
AMES  
University of California at San Diego  
San Diego, California

**Ellen Browing Scripps Memorial Pier** 2:00

Ronald A. Dahlin, Structural Engineer, Ferver Engineering, San Diego, California

**Waterfront Construction - WESTDIV's Experience** 2:35

Domenic A. Zigant, Head Structural Branch, Western Division, NAVFAC, San Bruno, California

**Construction of Shamu 1987** 3:00

David J. Akers, Civil Engineer, Pre-Mixed Concrete Company, San Diego, California

**International Experience with the Performance of Concrete  
in the Marine Environment** 3:25

Ben C. Gerwick, Professor and Chairman, Ben C. Gerwick, Inc., San Francisco, California

## ★ THEME SESSION



# **EDUCATIONAL SEMINAR**

MONDAY, October 30, 1989

2:00 PM – 5:30 PM

Room: Manchester 1, 2

## **EDUCATOR / STUDENT PROGRAM AND SEMINAR**

Sponsored by Committee E801

**Session Moderator:** Noel J. Everard  
Consulting Engineer  
Arlington, Texas

<b>Introduction</b>	<b>2:00</b>
Noel J. Everard, Consulting Engineer, Arlington, Texas	
<b>What Civil Engineering Students Should Learn About Structures</b>	<b>2:10</b>
Douglas D. Lee, Consulting Engineer, Fort Worth, Texas	
<b>What Civil Engineering Students Should Learn About Structures</b>	<b>2:30</b>
James M. Shilstone, Sr., Shilstone and Associates, Inc., Dallas, Texas	
<b>Awarding of Plaques</b>	<b>2:50</b>
Noel J. Everard, Consulting Engineer, Arlington, Texas	
<b>Beam Testing Competition</b>	<b>3:40</b>
David R. Jenkins, Professor, University of Central Florida, Winter Park, Florida	

MONDAY, October 30, 1989

2:00 PM - 5:30 PM

Room: Marriott Hall 6

**CONTROLLED LOW-STRENGTH MATERIAL:  
ENVIRONMENTAL AND CONSTRUCTION  
SOLUTIONS**

Sponsored by Committees 232 and 229

**Session Chairman:** Peter G. Snow  
Director, Technical Marketing  
Monex Resources, Inc.  
San Antonio, Texas

**Introduction 2:00**

Peter G. Snow, Director, Technical Marketing, Monex Resources, Inc., San Antonio, Texas

**The Utilization of Coal Combustion By-Products as Pipe****Embedment and Backfill 2:05**

Bill Gehrman, Director of Engineering, Ash Management Division of JTM Industries, Houston, Texas; Bob Sparacino, Director of Product Development, JTM Industries, Marietta, Georgia

**Controlled Low-Strength Material Covers Metro Underground****Transit Stations 2:35**

Thomas A. Fox, Manager of Technical Services, Pozzolan International, Mercer Island, Washington; Vaughn R. Randall, Quality Control, Stoneway Concrete, Inc., Renton, Washington

**Environmental Uses of Controlled Low-Strength Materials 3:05**

Ronald L. Larsen, President, Mid-West Fly Ash and Materials, Inc., Council Bluffs, Iowa

**Project Ashreef: Coal Ash Materials as a Habitat for****Fish and Oysters 3:35**

Kent S. Price, Associate Dean, College of Marine Studies, University of Delaware, Lewes, Delaware

**A Common Sense Approach to Waste Solidification 4:05**

Robert L. Smith, Resource Materials Testing, Inc., Lakewood, Colorado

**Use of Controlled Low-Strength Material Fly Ash Slurry for****Filling Abandoned Underground Facilities 4:35**

Tarun R. Naik, Director, Center for By-Products Utilization and Associate Professor, Department of Civil Engineering, The University of Wisconsin-Milwaukee, Milwaukee, Wisconsin; Bruce W. Ramme, Senior Project Engineer, Wisconsin Electric Power Company, Milwaukee, Wisconsin; Henry J. Kolbeck, Assistant Director, Center for By-Products Utilization, The University of Wisconsin-Milwaukee, Milwaukee, Wisconsin

**Coal Fly Ash in Waste Stabilization Procedures 5:05**

Samuel S. Tyson, Director of Technical Services, American Coal Ash Association, Washington, D.C.; Roger D. Walker, Principal Structural Engineer, Cincinnati Gas and Electric Company, Cincinnati, Ohio

## WHERE'S THAT MEETING ROOM?

ROOM:	BUILDING:	LEVEL:
Anaheim .....	Marriott Pavilion .....	Lobby Level
Atlanta .....	Marriott Pavilion .....	Lobby Level
Bayside Pavilion - Poolside (Use Catwalk) .....	South Tower .....	Lobby Level
Board Room .....	South Tower .....	Level 3
Business Center 1-8 .....	South Tower .....	Level 3
Cardiff .....	South Tower .....	Level 3
Carlsbad .....	South Tower .....	Level 3
Century City .....	South Tower .....	Level 4
Chicago .....	Marriott Pavilion .....	Lobby Level
Columbia 1-3 .....	North Tower .....	Lobby Level
Del Mar .....	South Tower .....	Level 3
Desert Springs .....	South Tower .....	Level 4
Encinitas .....	South Tower .....	Level 3
Executive Conference Room .....	South Tower .....	Level 3
Green Room .....	South Tower .....	Level 3
Irvine .....	South Tower .....	Level 4
La Jolla .....	South Tower .....	Level 4
Leucadia .....	South Tower .....	Level 1
Los Angeles .....	South Tower .....	Level 4
Manchester 1-2 .....	North Tower .....	Lobby Level
Marriott Hall 1-6 .....	Marriott Pavilion .....	Lobby Level
New York .....	Marriott Pavilion .....	Lobby Level
Newport Beach .....	South Tower .....	Level 4
Oceanside .....	South Tower .....	Level 1
Orlando .....	Marriott Pavilion .....	Lobby Level
Pacific .....	South Tower .....	Level 1
Point Loma .....	South Tower .....	Level 1
Rancho Las Palmas .....	South Tower .....	Level 4
San Diego Ballroom A,B,C .....	North Tower .....	Lobby Level
San Francisco .....	Marriott Pavilion .....	Lobby Level
Santa Rosa .....	South Tower .....	Level 1
Solana .....	South Tower .....	Level 1
Torrance .....	South Tower .....	Level 4
Torrey 1-3 .....	North Tower .....	Lobby Level
Warner Center .....	South Tower .....	Level 4

**NOTE:** See the map of the hotel layout in your convention registration package.

**Detach  
This Section  
And Schedule Your Meetings**

**Personal Log  
1989 Fall Convention**

Delegate's Name \_\_\_\_\_

**Sunday, October 29, 1989**

5:30 PM -  
7:00 PM Opening Reception

San Diego Ballroom B, C

**Monday, October 30, 1989**

7:00 AM -  
8:30 AM \_\_\_\_\_

8:30 AM -  
10:00 AM \_\_\_\_\_

10:00 AM -  
11:30 AM \_\_\_\_\_

11:30 AM -  
1:00 PM \_\_\_\_\_

1:00 PM -  
2:00 PM \_\_\_\_\_

2:00 PM -  
3:30 PM \_\_\_\_\_

2:00 PM - **Sessions/Seminars:**  
5:00 PM Research in Progress

Seismic Base Isolation

★ Perspective on Marine Construction

2:00 PM - **Session/Seminar:**  
5:30 PM Educator/Student Program and Seminar

★ **HOT TOPIC** ★ Controlled Low-Strength Material:  
Environmental and Construction Solutions

3:30 PM -  
5:00 PM \_\_\_\_\_

5:00 PM -  
6:30 PM \_\_\_\_\_

6:30 PM -  
8:00 PM \_\_\_\_\_

**Tuesday, October 31, 1989**

Happy Halloween!

7:00 AM -  
8:30 AM \_\_\_\_\_

8:30 AM -  
10:00 AM \_\_\_\_\_

9:00 AM - **Sessions/Seminars/Forums:**  
12:00 PM ★ Forum: Concrete Construction

★ Rehabilitation of Marine and Water Resources Facilities

★ State-of-the-Art Concrete Bridges

Spreadsheets on Concrete Technology and Design - Part I

Open Paper Session - Part I



10:00 AM-  
11:30 AM \_\_\_\_\_

11:30 AM-  
1:00 PM \_\_\_\_\_

12:00 PM-  
2:00 PM **Contractors' Day Luncheon** **San Diego Ballroom C**

1:00 PM-  
2:00 PM \_\_\_\_\_

2:00 PM-  
3:30 PM \_\_\_\_\_

2:00 PM- **Sessions/Seminars:**  
5:00 PM ★ Concrete Polymer Materials in Marine Environments  
 ★ State-of-the-Industry, Cast-in-Place Concrete Pipe  
 Spreadsheets on Concrete Technology and Design - Part II  
 ★ Concrete Construction Seminar  
 Open Paper Session - Part II

3:30 PM-  
5:00 PM \_\_\_\_\_

5:00 PM-  
6:30 PM \_\_\_\_\_

6:30 PM-  
8:00 PM \_\_\_\_\_

7:30 PM- **Forums:**  
10:00 PM Forum: Sealing Compounds for Concrete Surfaces  
 Forum: Computer-Aided Design and Drafting (CAD/D) Systems

**Wednesday, November 1, 1989**

7:00 AM-  
8:30 AM \_\_\_\_\_

8:30 AM-  
9:45 AM **Rap Session Breakfast** **Marriott Hall 1, 2**

10:00 AM-  
12:00 PM **General Session** **Marriott Hall 3, 4**

1:00 PM-  
2:00 PM \_\_\_\_\_

2:00 PM-  
3:30 PM \_\_\_\_\_

2:00 PM- **Sessions/Seminar:**  
5:00 PM History of Concrete  
 Anchorage to Concrete  
 Scaled Models of Special Structures  
 ★ Offshore and Marine Concrete  
 Paul Klieger International Symposium on Performance of Concrete - Part I

3:30 PM-  
5:00 PM \_\_\_\_\_

5:00 PM-  
6:30 PM \_\_\_\_\_

6:30 PM-  
8:00 PM **Concrete Mixer** **Marriott Hall 3, 4, 5, 6**

## Thursday, November 2, 1989

7:00 AM - \_\_\_\_\_  
8:30 AM \_\_\_\_\_

8:30 AM - \_\_\_\_\_  
10:00 AM \_\_\_\_\_

9:00 AM - **Sessions/Seminars:**  
12:00 PM Paul Klieger International Symposium on Performance of Concrete - Part II  
(begins 8:30 AM)

Effect of Concrete Constituents and Environment on Creep and Shrinkage - Part I

Design of Beam to Column Joints - Part I

New Developments in Measuring, Mixing, Transporting and Placing Concrete - Part I

Thin-Section Fiber Reinforced Concrete and Ferrocement Products - Material Properties and Applications - Part I

1:00 PM - \_\_\_\_\_  
2:00 PM \_\_\_\_\_

2:00 PM - \_\_\_\_\_  
3:30 PM \_\_\_\_\_

2:00 PM - **Sessions/Seminars:**  
5:30 PM Paul Klieger International Symposium on Performance of Concrete - Part II

Effect of Concrete Constituents and Environment on Creep and Shrinkage - Part II

Design of Beam to Column Joints - Part II

New Developments in Measuring, Mixing, Transporting and Placing Concrete - Part II

Thin-Section Fiber Reinforced Concrete and Ferrocement Products - Material Properties and Applications - Part II

3:30 PM - \_\_\_\_\_  
5:00 PM \_\_\_\_\_

5:00 PM - \_\_\_\_\_  
6:30 PM \_\_\_\_\_

6:30 PM - \_\_\_\_\_  
10:00 PM Paul Klieger Reception/Dinner

San Diego Ballroom A

## Friday, November 3, 1989

7:00 AM - \_\_\_\_\_  
8:30 AM \_\_\_\_\_

8:30 AM - \_\_\_\_\_  
10:00 AM \_\_\_\_\_

9:00 AM - **Sessions/Seminars:**  
12:00 PM Fracture of Concrete Under Special Environments and Loadings

Effect of Concrete Constituents and Environment on Creep and Shrinkage - Part III

Paul Klieger International Symposium on Performance of Concrete - Part IV

10:00 AM - \_\_\_\_\_  
11:30 AM \_\_\_\_\_

11:30 AM - \_\_\_\_\_  
12:00 PM \_\_\_\_\_

# CONTRACTORS' DAY

TUESDAY, October 31, 1989

9:00 AM - 12:00 NOON

Room: **Marriott Hall 2**

## FORUM: CONCRETE CONSTRUCTION

Sponsored by the TAC Construction Review Committee

**Session Chairman:** Joseph A. Dobrowolski  
Civil Engineer  
Concrete Consultant  
Altadena, California

- Living With Floor Tolerances** 9:00  
John Rochford, Construction Manager,  
Snyder Langston Builders, Irvine, California
- Construction of the Los Angeles County Regional  
Transportation System** 9:30  
Ed McSpedon, Director of Design and Construction,  
Los Angeles County Transportation Commission
- Underwater Paving of the Coachella Canal** 10:00  
Conway Narby, Area Manager,  
Kiewit Pacific, Santa Fe Springs, California
- Producing Exposed Aggregate Finishes on Tilt-Up Panels  
Using Retarders** 10:30  
Ron Butterworth, Technical Representative,  
Fosroc-Preco, Plainview, New York
- An Overview of ACI's Concrete Craftsman Series Booklet 3:  
"Supported Beams and Slabs"** 11:00  
Peter D. Courtois, Senior Vice President - Engineering,  
Dayton Superior Corporation, Miamisburg, Ohio



### CONTRACTORS' DAY LUNCHEON

Topic: "Transportation in the 1990s"

Room: **San Diego Ballroom C**

Cost: **\$18.00/person**

**12:00 NOON - 2:00 PM**

Speaker: Russell Lightcap, Chief, Division of Project Development, California Department of Transportation

Everyone is welcome at the Contractors' Day Luncheon — it's not just for contractors. Join the session speakers and many top ACI members for a fine meal and an interesting talk on future concrete construction by the California Department of Transportation.

**Purchase tickets in advance at the ACI Registration Desk**

# CONTRACTORS' DAY

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TUESDAY, October 31, 1989

2:00 PM - 5:00 PM

Room: Marriott Hall 2

## CONCRETE CONSTRUCTION SEMINAR

Sponsored by the Construction Liaison Committee

**Session Chairman:** William R. Phillips  
Project Manager  
Yeargin Construction Company  
Simpsonville, South Carolina

- Those Little Failures That Cost Millions** 2:00  
Dov Kaminetzky, President, Feld, Kaminetzky & Cohen,  
New York, New York
- Pumping Lightweight Concrete 1038 ft in a Single Vertical Lift** 2:30  
C. Terry Dooley, Vice President,  
Morley Construction Company, Los Angeles, California
- Bad Concrete or Bad Testing?** 3:00  
Ken W. Day, Concrete Consultant,  
Concrete Advice Pty. Ltd., Croydon, Victoria, Australia
- Water-Cement Ratio is Passé** 3:30  
Robert Barton, Executive Vice President and C.E.O.,  
J.H. McNamara Inc., Allston, Massachusetts
- Elevated Floor Tolerances** 4:00  
Eldon Tipping, President,  
Structural Services Inc., Dallas, Texas



### **Contractors' Day Luncheon Menu**

*Spinach Salad with Poppyseed Dressing*  
*Swordfish with Cilantro Sauce*  
*Julienne of Carrots*  
*Wild and White Rice*  
*Rolls and Butter*  
*"Little Devil"*  
*(Chocolate Fudge Brownie,*  
*Vanilla Ice Cream with Hot Fudge)*  
*Coffee, Tea and*  
*Freshly Brewed Decaffeinated Coffee*





## TECHNICAL SESSION

TUESDAY, October 31, 1989

9:00 AM – 12:00 NOON

Room: **Marriott Hall 5**

### REHABILITATION OF MARINE AND WATER RESOURCES FACILITIES

Sponsored by Committee 364

**Session Chairman:** James E. McDonald  
Research Civil Engineer  
Concrete Technology Division  
Waterways Experiment Station  
Vicksburg, Mississippi

**Rehabilitation of the Foundation of the North Rankin A  
Offshore Platform 9:00**

Dale Berner, Consulting Engineer, San Francisco, California

**Ontario Power Generating Station - Headworks  
Rehabilitation - 1987 9:30**

Nick P. Bada, Field Supervisor, Ontario Hydro, Pickering, Ontario,  
Canada

**Underwater Repair of Red Rock Dam with Concrete Containing  
an Anti-Washout Admixture 10:00**

Billy D. Neeley, Civil Engineer, Waterways Experiment Station,  
Vicksburg, Mississippi; Jerry Wickersham, Concrete Technologist,  
U.S. Army Engineer District, Rock Island, Illinois

**Crack Sealing Repairs at Upper Stillwater Dam 10:30**

Glenn Smoak, Research Civil Engineer, Bureau of Reclamation,  
Denver, Colorado

**Remedial Waterstops that Substantially Reduce Water Leakage 11:00**

David L. Smedema, Technical Representative, Gelco Services, Salem,  
Oregon; Stephen T. Waring, Manager, Gelco Services, Kent,  
Washington

## THEME SESSION ★

TUESDAY, October 31, 1989

9:00 AM – 12:00 NOON

Room: Marriott Hall 1

**STATE-OF-THE-ART CONCRETE BRIDGES**

Sponsored by Committees 343 and 345

**Session Chairman:** John H. Clark  
Chief Bridge Engineer  
Andersen Bjornstad Kane Jacobs, Inc.  
Seattle, Washington

**Design and Construction Specification for Segmental  
Concrete Bridges** 9:00

Clifford L. Freyermuth, President, Clifford L. Freyermuth, Inc.,  
Phoenix, Arizona

**Alternative Methods to Reduce Bridge Costs in California** 9:25

James E. Roberts, Chief, Division of Structures, CALTRANS,  
Sacramento, California

**The Rehabilitation and Cathodic Protection of the Oregon Inlet  
Bridge in North Carolina** 9:50

Gerald M. White, Structures Project Engineer, Department of  
Transportation, Raleigh, North Carolina

**State-of-the-Art Elastomeric Bridge Bearing Design** 10:30

Charles W. Roeder, Professor, University of Washington, Seattle,  
Washington; John F. Stanton, Associate Professor, University of  
Washington, Seattle, Washington

**New AASHTO Design Specifications for Concrete Bridges** 10:55

R.C. Cassano, Special Projects Engineer, Imbsen and Associates,  
Sacramento, California

**Seismic Energy Dissipation in Partially Isolated  
Concrete Bridges** 11:20

Mary W. Goodson, Dynamic Isolation Systems, Berkeley, California;  
Trevor E. Kelly, Dynamic Isolation Systems, Berkeley, California;  
Ronald L. Mayes, Dynamic Isolation Systems, Berkeley, California;  
Richard P. Knight, Dynamic Isolation Systems, Berkeley, California

**Avoiding the Demons Lurking in Prestressed Bridges** 11:45

Charles Seim, Principal, T.Y. Lin International, San Francisco,  
California; James Tai, Principal, T.Y. Lin International, San  
Francisco, California

# EDUCATIONAL SEMINAR

TUESDAY, October 31, 1989

9:00 AM – 12:00 NOON

Room: Marriott Hall 6

## SPREADSHEETS ON CONCRETE TECHNOLOGY AND DESIGN — PART I

Sponsored by Committee E705

**Session Chairman:** Bob Barnett  
Bob Barnett, P.E.  
Cropwell, Alabama

- Introduction** 9:00  
Bob Barnett, Bob Barnett, P.E., Cropwell, Alabama
- Spreadsheet to Calculate Wind Forces on Frames per the  
Standard Building Code** 9:15  
Ronald E. Barnett, Boyle Engineering, Orlando, Florida
- Concrete Estimating Spreadsheet** 9:45  
Mark Donaldson, Senior Student, Department of Construction,  
Southern Illinois University at Edwardsville, Edwardsville, Illinois;  
Luke M. Snell, Professor and Chairman, Department of  
Construction, Southern Illinois University at Edwardsville,  
Edwardsville, Illinois; Robert S. Pocreva, Associate Professor,  
Department of Construction, Southern Illinois University at  
Edwardsville, Edwardsville, Illinois
- Spreadsheet Templates for Estimating, Adjusting, Analyzing  
and Selecting Mixture Proportions** 10:15  
Mikael P. J. Olsen, Principal, Jexen Engineering Services, Bryan,  
Texas; Ronald L. Dilly, Assistant Professor, College of Technology,  
University of Houston, Houston, Texas
- A Lotus Spreadsheet Mode for Using ACI 214** 10:45  
James M. Shilstone, Jr., Vice President, Shilstone and Associates,  
Inc., Dallas, Texas
- Panel Discussion** 11:15

**NOTE:** Part II of Spreadsheets on Concrete Technology and  
Design will be presented on Tuesday, October 31, 1989 from  
2:00 PM to 5:00 PM in Marriott Hall 6.

TUESDAY, October 31, 1989

9:00 AM - 12:00 NOON

Room: San Diego Ballroom A

**OPEN PAPER SESSION - PART I:  
MATERIAL PROPERTIES AND  
STRUCTURAL PERFORMANCE**

Sponsored by TAC

**Session Chairman:** Roberto T. Leon  
Associate Professor  
Department of Civil and Mineral Engineering  
University of Minnesota  
Minneapolis, Minnesota

**Session Co-Chairperson:** Sharon Wood  
Assistant Professor  
Department of Civil Engineering  
University of Illinois  
Urbana, Illinois

**An Analysis of the Concrete Strength Versus Water-Cement Ratio Relationship** 9:00  
Sandor Popovics, Professor, Department of Civil Engineering, Drexel University, Philadelphia, Pennsylvania

**Control of Plastic Shrinkage Cracking During Cold Weather Concreting Through the Use of Freezing Weather Admixture** 9:25  
E. Senbetta, Manager, Master Builders, Cleveland, Ohio; Mark A. Bury, Research Engineer, Master Builders, Cleveland, Ohio

**Properties of Superplasticized Concrete Containing Different Types of Fly Ashes** 9:50  
Sukhvarsh Jerath, Associate Professor, Department of Civil Engineering, University of North Dakota, Grand Forks, North Dakota

**Concrete Mixture Optimization** 10:15  
James M. Shilstone, Sr., President, Shilstone and Associates, Dallas, Texas

**Ductility of Steel Fiber Reinforced Concrete** 10:40  
Antonio Nanni, Assistant Professor, Department of Architectural Engineering, The Pennsylvania State University, University Park, Pennsylvania; Jimmy S. Juwana, Graduate Student, Department of Architectural Engineering, The Pennsylvania State University, University Park, Pennsylvania; Chao-Kuang Ku, Graduate Student, Department of Architectural Engineering, The Pennsylvania State University, University Park, Pennsylvania

**Excessive Deflections in Flat Plate Floors** 11:05  
Stephen J. Sopko, Associate, Ryan-Biggs Associates, Troy, New York

**Nonmagnetic Concrete Pier for the U.S. Navy** 11:30  
V. K. Kumar, Project Manager, ABAM Engineers, Federal Way, Washington; Philip W. Birkeland, Senior Vice President, ABAM Engineers, Federal Way, Washington; Domenic A. Zigant, Professional Engineer, WESTNAVFACENGCOCOM, Department of the Navy, San Bruno, California; Rich Cellon, Assistant ROICC, Department of the Navy, San Bruno, California



TUESDAY, October 31, 1989  
2:00 PM – 5:00 PM

Room: San Diego Ballroom A

## **OPEN PAPER SESSION PART II: STRUCTURAL BEHAVIOR AND TESTING**

Sponsored by TAC

**Session Chairman:** Roberto T. Leon  
Associate Professor  
Department of Civil and Mineral Engineering  
Minneapolis, Minnesota

**Session Co-Chairperson:** Sharon Wood  
Assistant Professor  
Department of Civil Engineering  
University of Illinois  
Urbana, Illinois

**Tests on Reinforced Concrete Ice Resisting Wall Elements 2:00**

Reed M. Ellis, Structural Engineer, The Engineers Collaborative, Edmonton, Alberta, Canada; James G. MacGregor, Professor, Department of Civil Engineering, University of Alberta, Edmonton, Alberta, Canada

**Dynamic Response of Frames with Slender Walls  
During Earthquakes 2:25**

Marc Eberhard, Assistant Professor, Department of Civil Engineering, University of Washington, Seattle, Washington

**Stiffness of Reinforced Concrete Columns 2:50**

S. A. Mirza, Professor, Department of Civil Engineering, Lakehead University, Thunder Bay, Ontario, Canada

**Strut and Tie Models for the Design of Pile Caps:  
An Experimental Study 3:15**

Michael P. Collins, Professor, Department of Civil Engineering, University of Toronto, Toronto, Ontario, Canada; Perry Adebare, Graduate Student, Department of Civil Engineering, University of Toronto, Toronto, Ontario, Canada

**Nonlinear Static and Dynamic Analysis of  
Reinforced Concrete Frames 3:40**

Filip C. Filippou, Associate Professor, Department of Civil Engineering, University of California at Berkeley, Berkeley, California; Ahmad Issa, Research Assistant, Department of Civil Engineering, University of California at Berkeley, Berkeley, California

**Cyclic Load Response of Structural Walls with  
Staggered Door Openings 4:05**

James K. Wight, Professor, Department of Civil Engineering, University of Michigan, Ann Arbor, Michigan; Aejaz Ali, Research Assistant, Department of Civil Engineering, University of Michigan, Ann Arbor, Michigan

**Strength of Unbonded Partially Prestressed Concrete Members 4:30**

T. I. Campbell, Professor, Department of Civil Engineering, Queen's University, Kingston, Ontario, Canada; K. L. Chouinard, Structural Design Engineer, Adjeleian Allen Rubelli Ltd., Ottawa, Ontario, Canada

# EDUCATIONAL SEMINAR

TUESDAY, October 31, 1989

2:00 PM – 5:00 PM

Room: Marriott Hall 6

## SPREADSHEETS ON CONCRETE TECHNOLOGY AND DESIGN – PART II

Sponsored by Committee E705

**Session Chairman:** Bob Barnett  
Bob Barnett, P.E.  
Cropwell, Alabama

**Introduction** 2:00  
Bob Barnett, Bob Barnett, P.E., Cropwell, Alabama

**Design of Reinforced and Non-Reinforced Concrete Masonry  
Structures Using Spreadsheets** 2:15  
Bijan H. Ahmadi, Department of Civil and Architectural Engineering,  
University of Miami, Coral Gables, Florida; K.T. Lin, Beiswenger,  
Hock and Associates, N. Miami Beach, Florida; Nader Ghafoori,  
Assistant Professor, St. Martins College, Olympia, Washington

**Calculation of Concrete Member Deflections by Spreadsheet** 2:45  
Tony Staeger, Structural Engineer, Hammel Green and Abrahamson,  
Inc., Minneapolis, Minnesota

**Spreadsheet Approach for the Design of Prestressed Concrete  
Bridge Girders** 3:15  
Fernando Fagundo, Associate Professor, Department of Civil  
Engineering, University of Florida, Gainesville, Florida; David W.  
Garmizo, Graduate Student, Hollywood, Florida

**Shear Design of Prestressed Concrete Beams** 3:45  
Ernesto Montiel, Department of Civil Engineering, Georgia Tech,  
Atlanta, Georgia; Lawrence Kahn, Professor, School of Engineering,  
Georgia Tech, Atlanta, Georgia

**Panel Discussion** 4:15

## TECHNICAL SESSION

TUESDAY, October 31, 1989  
2:00 PM - 5:00 PM

Room: Marriott Hall 5

### CONCRETE POLYMER MATERIALS IN MARINE ENVIRONMENTS

Sponsored by Committee 548

**Session Chairman:** Larry C. Muszynski  
Principal Engineer  
Applied Research Associates  
Tyndall Air Force Base  
Florida

**The Effect of Latex on the Chloride Ingress in Concrete** 2:00

Harold Justnes, Research Engineer, Cement and Concrete Research Institute, Trondheim, Norway; B. A. Oye, Cement and Concrete Research Institute, Trondheim, Norway

**Polymer Pile Encapsulation, Factors Influencing Performance** 2:30

Richard K. Snow, Consultant, Gallatin, Texas

**Durability Characteristics of Latex Modified Carbon Fiber Reinforced Cement** 3:00

Parviz Soroushian, Assistant Professor, Department of Civil and Environmental Engineering, Michigan State University, East Lansing, Michigan; Fadhel Aouadi, Research Assistant, Department of Civil and Environmental Engineering, Michigan State University, East Lansing, Michigan; Mohamad Nagi, Research Assistant, Department of Civil and Environmental Engineering, Michigan State University, East Lansing, Michigan

**Development of High Quality Composite Pipes Using Polymer Mortar and Expansive Concrete** 3:30

Makoto Kawakami, Associate Professor, Department of Civil Engineering, Akita University, Akita-Shi, Japan; Hiroshi Tokuda, Department of Civil Engineering, Akita University, Akita-Shi, Japan; Makoto Kagaya, Department of Civil Engineering, Akita University, Akita-Shi, Japan; Reijiro Nasu, Teikoku Hume Pipe Company, Ltd., Tokyo, Japan

**Sealing a Concrete Bulkhead Under Pressure** 4:00

Floyd E. Dimmick, Chief Executive Officer, Thermal-Chem, Inc., Rolling Meadows, Illinois

## THEME SESSION ★

## TECHNICAL SESSION

TUESDAY, October 31, 1989  
2:00 PM – 5:00 PM

Room: Marriott Hall 1

### STATE-OF-THE-INDUSTRY, CAST-IN-PLACE CONCRETE PIPE

Sponsored by Committee 346

**Session Chairman:** Curtiss W. Gilley  
President  
Tremont Equipment Company  
Dixon, California

**Session Co-Chairman:** Gilbert G. Lynch  
President  
KIP, Inc.  
Dixon, California

**Introduction** 2:00  
Curtiss W. Gilley, President, Tremont Equipment Company, Dixon, California

**Cast-in-Place Concrete Pipe: What Is It?** 2:10  
Curtiss W. Gilley, President, Tremont Equipment Company, Dixon, California

**Structural Performance of Cast-in-Place Concrete Pipe** 3:00  
Lester H. Gabriel, Professor, Department of Civil Engineering, California State University, Sacramento, California

**A Consultant Looks at Cast-in-Place Concrete Pipe** 3:35  
James E. Fry, Consulting Civil Engineer, Paul A. Moote and Associates, Inc., Santa Ana, California

**Cast-in-Place Concrete Pipe: A Contractor's Perspective** 4:15  
Gilbert G. Lynch, Consulting Civil Engineer, Paul A. Moote and Associates, Inc., Santa Ana, California

★ **THEME SESSION**



## **TECHNICAL SESSION**

TUESDAY, October 31, 1989

7:30 PM - 10:00 PM

Room: Marriott Hall 6

### **FORUM: SEALING COMPOUNDS FOR CONCRETE SURFACES**

Sponsored by Committees 123 and 515

**Session Moderator:** Robert L. Henry  
Vice President  
Maxim Engineers, Inc.  
Fort Worth, Texas

<b>Introduction</b>	<b>7:30</b>
Robert L. Henry, Vice President, Maxim Engineers, Inc., Fort Worth, Texas	
<b>Panelists:</b>	
<b>Manufacturers/Suppliers Point of View</b>	<b>7:45</b>
Jim Lucas, ProSoCo, Inc., Kansas City, Kansas	
<b>Owner/Researcher Point of View</b>	<b>7:55</b>
Glenn Smoak, Bureau of Reclamation, Denver, Colorado	
<b>Sealing Concrete for Protection - Engineering Consultant Point of View</b>	<b>8:05</b>
Ray Schutz, Material Consultant, Wapun, Wisconsin	
<b>Laboratory Evaluation/Specs. Point of View</b>	<b>8:15</b>
Tony Husbands, Waterways Experiment Station, Vicksburg, Mississippi	
<b>Manufacturer/Supplier/Trouble Shooter Point of View</b>	<b>8:25</b>
Randall Lyons, Technical Services Director, Lincoln, Nebraska	
<b>Open Discussion</b>	<b>8:35</b>

# EDUCATIONAL SEMINAR

TUESDAY, October 31, 1989

7:30 PM - 10:00 PM

Room: Marriott Hall 5

## FORUM: COMPUTER-AIDED DESIGN AND DRAFTING (CAD/D) SYSTEMS

Sponsored by Committee E705

**Session Chairman:** Jose M. Izquierdo  
Partner  
Izquierdo, Rueda and Associates  
Rio Piedras, Puerto Rico

**Computer-Aided Design and Drafting Software and Hardware** 7:30  
Robert P. Barnett, Structural Engineer, Cropwell, Alabama

**Concrete Detailing Using Computer-Aided Design and Drafting** 8:00  
Jose M. Izquierdo, Partner, Izquierdo, Rueda and Associates, Rio Piedras, Puerto Rico

**Use of Auto Computer-Aided Design for Structural Analysis and Design** 8:30  
Don Milks, Professor, Department of Civil Engineering, Ohio Northern University, Ada, Ohio

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# COMPUTER SOFTWARE DEMONSTRATION

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WEDNESDAY, THURSDAY - November 1 and 2, 1989

Wednesday: 1:00 PM - 6:00 PM

Thursday: 8:00 AM - 6:00 PM

Room: Orlando/New York

## COMPUTER SOFTWARE DEMONSTRATION OF PROGRAMS MARKETED BY ACI

The marketing of computer programs by ACI is a service to those involved in concrete design and construction established by the ACI Board of Direction. Programs involving mix management, statistical analysis, shoring, and the structural design of reinforced, precast and prestressed concrete are currently marketed by ACI and will be demonstrated by the program developers.

You are cordially invited to take advantage of this unique opportunity to familiarize yourselves with programs specially conceived for use in concrete technology.

### MATERIALS

Developers	Mix Management Programs	Catalog#
Shilstone & Associates Dallas, Texas James (Jim) Shilstone, Sr. James (Jay) Shilstone, Jr.	seeMIX	2.SHL.1

### Statistical Analysis of Strength Test Results

Developers	Programs	Catalog#
Shilstone & Associates Dallas, Texas Jim and Jay Shilstone	seeSTAT	3.SHL.2

### CONSTRUCTION

Developers	Programs	Catalog #
Noel J. Gardner Department of Civil Engineering University of Ottawa Ottawa, Ontario, Canada	RESHORE	6.GAR.1
Guzinta Software, Inc. Cary, North Carolina William Steele	Anchor Bolts and Other Steel Embedments Design	36.GUZ.1

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# COMPUTER SOFTWARE DEMONSTRATION

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WEDNESDAY, THURSDAY - November 1 and 2, 1989

Wednesday: 1:00 PM - 6:00 PM

Thursday: 8:00 AM - 6:00 PM

Room: Orlando/New York

## COMPUTER SOFTWARE DEMONSTRATION OF PROGRAMS MARKETED BY ACI (continued)

### STRUCTURAL DESIGN

Developers	Programs	Catalog#
Paul G. Cass Pittsburgh, Pennsylvania	BIAXCOL3	1.CA.1U
Portland Cement Association Skokie, Illinois Vytenis P. Markevicius	ADOSS - Analysis and Design of Slab Systems	32.PVC.1
	MATS - Combined Footings and	40.PCV.2
	STMFR - Building Frame and Shear Wall Analysis	41.PCV.3
Zeiler-Pennock, Inc. Denver, Colorado	Concrete Footings	10.ZP.6
Jack C. Zeiler President	Reinforced Concrete Column	11.ZP.7
	Reinforced Concrete Beam	12.ZP.8
	Lateral Shear Wall Analysis and Precast Concrete	13.ZP.9 15.ZP.13- 28.ZP.26

### Prestressed Concrete Programs

Developers	Programs	Catalog#
Zeiler-Pennock, Inc. Denver, Colorado Jack C. Zeiler President	Post-Tensioned Flat Plate	14.ZP.12

Literature describing the programs demonstrated will be available in the demonstration room, Orlando/New York. Orders may also be taken for programs.



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## **RAP SESSION/ CONTINENTAL BREAKFAST**

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**WEDNESDAY, November 1, 1989**

8:30 AM – 9:45 AM

Room: **Marriott Hall 1, 2**

### **RAP SESSION AND CONTINENTAL BREAKFAST**

A complimentary continental breakfast will be served from 8:30 – 9:00 AM with the Rap Session starting at 9:00 AM. Complete the question card in your convention packet or present your question personally at the session.

**WHAT DO YOU WANT TO KNOW  
ABOUT ACI?**

**Paul Zia  
President  
and**

**George F. Leyh  
Executive Vice President**

**Invite YOU to ask them.**

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# GENERAL SESSION

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WEDNESDAY, November 1, 1989

10:00 AM – 12:00 NOON

Room: **Marriott Hall 3, 4**

## GENERAL SESSION

**Session Chairman:** David J. Akers  
Pre-Mixed Concrete Company  
San Diego, California

### Welcome to San Diego

David J. Akers, Pre-Mixed Concrete Company, San Diego, California

### Phil M. Ferguson Lecture



“Concrete – Challenge and Opportunity”  
Professor Alan H. Mattock, Department of  
Civil Engineering, University of Washington,  
Seattle, Washington

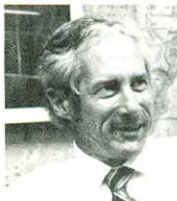
### Certificates of Appreciation for the 1989 Fall Convention

### Introduction of International Visitors

### Recognition of Chapter Officers Attending

### Recognition of Past Presidents Attending

### Keynote Address



“Tomorrow’s Engineers are Here Today”  
Dr. Harold L. Hodgkinson is Senior Fellow  
and Director, Center for Demographic Policy  
Institute for Educational Leadership,  
Washington, D.C. He is a nationally-known  
speaker and analyst of educational issues.  
Holding eight honorary degrees, Dr.

Hodgkinson has been editor of several journals, is the author of 12 books and numerous articles, and has directed eight major research projects on education and management.

### Closing Remarks

WEDNESDAY, November 1, 1989

2:00 PM – 5:00 PM

Room: **Torrey 2,3**

## ANCHORAGE TO CONCRETE

Sponsored by Committee 355

**Session Chairman:** Harry B. Lancelot, III  
Director of Engineering  
Richmond Screw Anchor Company  
Fort Worth, Texas

- Introduction** 2:05  
Harry B. Lancelot, III, Director of Engineering, Richmond Screw Anchor Company, Fort Worth, Texas
- Guidelines for Design of Anchorage to Concrete** 2:20  
Harry Wiewel, President, Techmar, Inc., Long Beach, California
- Evaluation of Expansion Anchor Ultimate Tensile Capacity Prediction Equations** 2:43  
Richard A. Walther, Engineer I, Wiss, Janney, Elstner Associates, Inc., Northbrook, Illinois; C. Douglas Sutton, Associate Professor, Purdue University, West Lafayette, Indiana; Donald F. Meinheit, Consultant, Wiss, Janney, Elstner Associates, Inc., Northbrook, Illinois
- Comprehensive Testing of the Hilti Kwik-Bolt II Torque Controlled Expansion Anchor** 3:06  
Richard E. Wollmershauser, Manager, Testing Department, Hilti, Inc., Tulsa, Oklahoma
- Load-Relaxation Tests on Sleeve and Lead Caulking Expansion** 3:29  
George A. Senkiw, Associate Research Engineer, Ontario Hydro, Toronto, Ontario, Canada
- Behavior of Ductile Multiple-Anchor Connections to Concrete** 3:52  
Richard E. Klingner, Professor, Department of Civil Engineering, University of Texas at Austin, Austin, Texas; Ronald A. Cook, Assistant Professor, Department of Civil Engineering, University of Florida, Gainesville, Florida
- Behavior of Fastenings in Cracked Concrete** 4:15  
Rolf Eligehausen, Prof.Dr.-Ing., Universität Stuttgart, Institut für Werkstoffe im Bauwesen, Stuttgart, West Germany; Werner Fuchs, Dipl.-Ing., Universität Stuttgart, Institut für Werkstoffe im Bauwesen, Stuttgart, West Germany
- Embedment Design Examples Based on ACI 349 Appendix B** 4:38  
Richard Orr, Advisory Engineer, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania

WEDNESDAY, November 1, 1989

2:00 PM–5:00 PM

Room: **Columbia 2, 3****HISTORY OF CONCRETE**

Sponsored by Committee 120

**Session Chairman:** Raymond C. Heun  
Executive Director  
New York Concrete Construction Institute  
New York, New York

**History of Concrete in the Delaware Valley** 2:00  
Michael J. Paul, Consulting Structural Engineer, Wilmington,  
Delaware

**Hearst Castle** 2:25  
Charles M. Dabney, Consultant, Charles Dabney Associates,  
Newport Beach, California

**Historic American Concrete Bridges: Are We Ignoring  
Their Esthetics?** 2:55  
Abba Lichtenstein, Director of Engineering, Fairlawn, New Jersey

**Concrete System: Frank Bunker Gilbreth and Concrete  
Construction, 1895-1910** 3:25  
Jane Morley, Department of History and Sociology of Science,  
University of Pennsylvania, Philadelphia, Pennsylvania

**Conservators of Art and Architecture** 4:00  
Myrna Saxe, Principal, Conservators of Art and Architecture, Inc.,  
Sherman Oaks, California

**Irrigation Aqueduct at Brooks, Alberta** 4:20  
Robert Loov, Professor, Department of Civil Engineering, The  
University of Calgary, Calgary, Alberta, Canada; David Manz,  
Associate Professor, Department of Civil Engineering, The University  
of Calgary, Calgary, Alberta, Canada



WEDNESDAY, November 1, 1989

2:00 PM - 5:00 PM

Room: Manchester 1,2

**SCALED MODELS OF SPECIAL STRUCTURES**

Sponsored by Committee 444

**Session Chairman:** Kirk A. Marchand  
Senior Research Engineer  
Department of Civil Engineering  
and Energetic Systems  
Southwest Research Institute  
San Antonio, Texas

**Session Co-Chairman:** Gajanan M. Sabnis  
Professor  
Department of Civil Engineering  
Howard University  
Washington, D.C.

**Why Scale Models and What are Special Structures? 2:00**

Theodore Krauthammer, Associate Professor, Department of Civil Engineering, University of Minnesota, Minneapolis, Minnesota

**Scale Model Studies of Hinge Formation in Bridge Columns Due to Seismic Loading 2:10**

K. Y. Lim, Graduate Student, Department of Civil Engineering, Washington State University, Pullman, Washington; D. I. McLean, Assistant Professor, Department of Civil Engineering, Washington State University, Pullman, Washington

**Modeling the Structural Effects of Alkali-Aggregate Reaction 2:35**

L. A. Clark, Senior Lecturer in Civil Engineering, University of Birmingham, Birmingham, England

**Punching Shear of Thick Concrete Plates 3:00**

Long T. Phan, National Institute of Science and Technology, Washington, D.C.; H. S. Lew, National Institute of Science and Technology, Washington, D.C.; D. I. McLean, Assistant Professor, Department of Civil Engineering, Washington State University, Pullman, Washington

**Model Testing of Dynamic Soil-Structure Interaction 3:40**

H. L. Chen, Department of Civil Engineering, Northwestern University, Evanston, Illinois; S. P. Shah, Department of Civil Engineering, Northwestern University, Evanston, Illinois; L. M. Keer, Department of Civil Engineering, Northwestern University, Evanston, Illinois

**Modeling Earthquake Response of Concrete Masonry Building Structures 4:05**

D. P. Abrams, Associate Professor, Department of Civil Engineering, University of Illinois, Urbana, Illinois; T. J. Paulson, Research Engineer, Department of Civil Engineering, University of Illinois, Urbana, Illinois

**Seismic Response of a 1:6 R/C Scaled Model Structure with Flexible Floor Diaphragms 4:30**

Andrei M. Reinhorn, Associate Professor, Department of Civil Engineering, State University of New York, Buffalo, New York; Nader Panahshahi, Research Associate, Department of Civil Engineering, State University of New York, Buffalo, New York; Le-Wu Lu, Professor, Department of Civil Engineering, Lehigh University, Bethlehem, Pennsylvania; Ti Huang, Professor, Department of Civil Engineering, Lehigh University, Bethlehem, Pennsylvania; Kai Yu, Research Assistant, Department of Civil Engineering, Lehigh University, Bethlehem, Pennsylvania

**WEDNESDAY, November 1, 1989**

2:00 PM – 5:00 PM

Room: **Marriott Hall 2****OFFSHORE AND MARINE CONCRETE**

Sponsored by Committee 357

**Session Chairman:** William J. Cichanski  
Manager, West Coast Operations  
Seattle Branch Office  
Construction Technology Laboratories, Inc.  
Federal Way, Washington

**Continuing Growth in Marine Concrete Technology 2:00**

William J. Cichanski, Manager, West Coast Operations, Seattle Branch Office, Construction Technology Laboratories, Inc., Federal Way, Washington

**The Selection of Load and Strength Reduction Factors for Concrete Offshore Structures 2:15**

Karl H. Runge, Research Associate, Exxon Production Research Company, Houston, Texas

**Offshore Structure Serviceability Criteria in ACI 357R 2:45**

George F. Davenport, Research Associate, Exxon Production Research Company, Houston, Texas; Anthony E. Fiorato, Vice President, Portland Cement Association, Skokie, Illinois

**Investigation and Evaluation of Concrete Liberty Ships 3:15**

Trevor J. Peach, Principal, Taylor Peach and Associates Ltd., Vancouver, British Columbia, Canada

**Future ACI Manual for Design of Concrete Marine Structures 4:00**

Valery M. Buslov, Associate, Han-Padron Associates, New York, New York

**Recent Piers and Wharves Built in Southern California 4:30**

Jal N. Birdy, Project Manager, Moffatt and Nichol Engineers, Long Beach, California

WEDNESDAY, November 1, 1989

2:00 PM–5:30 PM

Room: San Diego Ballroom A

## PAUL KLIEGER INTERNATIONAL SYMPOSIUM ON PERFORMANCE OF CONCRETE—PART I

Sponsored by Committees 201 and 222

**Session Chairman:** Steven Gebler  
Principal Evaluation Engineer  
Construction Technology Laboratories, Inc.  
Skokie, Illinois

### Introduction

**Brief Review of Career and Accomplishments of Paul Klieger 2:00**  
David Stark, Project Manager, Construction Technology  
Laboratories, Inc., Skokie, Illinois

**How to Make Concrete that Will Be Immune to the Effects of  
Freezing and Thawing 2:10**  
Bryant Mather, Chief, Structures Laboratory, Waterways Experiment  
Station, Vicksburg, Mississippi

**Durability of High-Strength Concrete 2:40**  
P. Kumar Mehta, Professor, Department of Civil Engineering,  
University of California at Berkeley, Berkeley, California

**Deicer Salt Scaling Resistance of High Performance Concrete 3:10**  
Michel Pigeon, Professor, Department of Civil Engineering, Laval  
University, Ste-Foy, Quebec, Canada; Richard Gagne, Graduate  
Student, Laval University, Ste-Foy, Quebec, Canada; Pierre-Claude  
Aitcin, Professor, Department of Civil Engineering, Sherbrooke  
University, Sherbrooke, Quebec, Canada

**Suitability of the Measurement Techniques of Oxygen Permeability  
in Order to Predict Corrosion Rates of Concrete Rebars 3:40**  
C. Alonso, Researcher, Institute E. Torroja of Construction and  
Cement, Madrid, Spain; C. Andrade, Research Professor, Institute  
E. Torroja of Construction and Cement, Madrid, Spain; I. Rz-  
Maribona, Research Student, Institute E. Torroja of Construction  
and Cement, Madrid, Spain; M. Garcia, Research Student, Institute  
E. Torroja of Construction and Cement, Madrid, Spain; J.A.  
Gonzalez, National Center of Metallurgical Research, Madrid, Spain

**Freeze-Thaw Durability of Concrete Coated with Linseed Oil 4:10**  
Tel Rezansoff, Professor, Department of Civil Engineering,  
University of Saskatchewan, Saskatoon, Saskatchewan, Canada;  
Daniel Stott, Materials Technician, University of Saskatchewan,  
Saskatoon, Saskatchewan, Canada

**Effects of "Second Generation" High Range Water-Reducers on  
Durability and Other Properties of Hardened Concretes 4:40**  
Wilma Dziedzic, Supervisor, Physical Testing Services, Construction  
Technology Laboratories, Inc., Skokie, Illinois; David Whiting,  
Principal Research Engineer, Construction Technology Laboratories,  
Inc., Skokie, Illinois



THURSDAY, November 2, 1989  
8:30 AM – 12:00 NOON

Room: Marriott Hall 4

## **PAUL KLIEGER INTERNATIONAL SYMPOSIUM ON PERFORMANCE OF CONCRETE — PART II**

Sponsored by Committees 201 and 222

**Session Chairman:** Bernard Erlin  
President  
Testwell Craig Erlin Associates  
Ossining, New York

**Long Service Life of Concrete** **8:30**

Lewis H. Tuthill, Concrete Engineering Consultant, Sacramento, California

**Strategy and Evaluation of Materials and Methods for  
Rehabilitation of Concrete Shells for Two Natural Draft  
Cooling Towers** **9:00**

Steven Gebler, Principal Evaluation Engineer, Construction Technology Laboratories, Inc., Skokie, Illinois; Peter Nussbaum, Manager, Paving, Construction Technology Laboratories, Inc., Skokie, Illinois; Wilma Dziedzic, Supervisor, Physical Testing Services, Construction Technology Laboratories, Inc., Skokie, Illinois; Albert Litvin, Consultant, Skokie, Illinois; Walter Bilenki, Jr., Project Engineer-Civil, Pennsylvania Power and Light Company, Allentown, Pennsylvania; John Stefanik, Senior Project Engineer, Pennsylvania Power and Light Company, Allentown, Pennsylvania

**Durability of a Precast Prestressed Concrete Conveyor Bridge  
Structure at a Salt Mine After 17 Years of Service** **9:30**

Randall W. Poston, Schupack-Suarez Engineers, South Norwalk, Connecticut; Morris Schupack, President, Schupack-Suarez Engineers, South Norwalk, Connecticut

**Rehabilitation of Great Lakes Steel's Number 1 Ore Dock** **10:00**

Charles J. Hookham, Senior Engineer, Multiple Dynamics Corporation, Southfield, Michigan

**Deterioration and Rehabilitation of Elevated Roadway Bridge at  
Baltimore-Washington International Airport** **10:30**

Alexander M. Vaysburd, Structural/Material Research Engineer, Greiner Engineering, Inc., Timonium, Maryland

**Monitoring, Management, and Maintenance of  
Concrete Structures with Limited Accessibility** **11:00**

Jens Holm, Vice President, G. M. Idorn Consult A/S, Birkerød, Denmark

**NOTE:** Part II of the Paul Klieger International Symposium on Performance of Concrete will be presented on Thursday, November 2, 1989 from 8:30 AM to 12:00 Noon in Marriott Hall 4. Part III of the Paul Klieger International Symposium on Performance of Concrete will be presented on Thursday, November 2, 1989 from 2:00 PM to 5:30 PM in Marriott Hall 4. Part IV of the Paul Klieger Symposium on Performance of Concrete will be presented on Friday, November 3, 1989 from 9:00 AM to 12:00 Noon in Marriott Hall 2.



THURSDAY, November 2, 1989

9:00 AM - 12:00 NOON

Room: Marriott Hall 1

## EFFECT OF CONCRETE CONSTITUENTS AND ENVIRONMENT ON CREEP AND SHRINKAGE - PART I

Sponsored by Committee 209

**Session Chairman:** K. Nam Shiu  
Senior Engineer  
Structural Development  
Construction Technology Laboratories, Inc.  
Skokie, Illinois

**Session Co-Chairman:** Menashi D. Cohen  
Associate Professor  
School of Civil Engineering  
Purdue University  
West Lafayette, Indiana

**Introduction** 9:00

K. Nam Shiu, Senior Engineer, Structural Development,  
Construction Technology Laboratories, Inc., Skokie, Illinois

**Environmental Effects on the Shrinkage of Continuously  
Reinforced Concrete Pavement Mixtures** 9:05

Mikael P. J. Olsen, Consultant, Jexen Engineering Services, Bryan,  
Texas

**The Effect of Thermal Stress on Concrete Creep:  
Red River Lock and Dam 3** 9:40

Stacey K. Hirata, Major/Assistant Professor, U.S. Military  
Academy, West Point, New York; Donald M. Smith, Civil Engineer,  
U.S. Army Waterways Experiment Station, Vicksburg, Mississippi;  
Michael I. Hammons, Research Civil Engineer, U.S. Army  
Waterways Experiment Station, Vicksburg, Mississippi

**Creep of High-Strength Concrete Containing Fly Ash  
and Silica Fume** 10:15

H. Marzouk, Associate Professor, Department of Civil Engineering,  
Memorial University of Newfoundland, St. John's, Newfoundland,  
Canada

**Inelastic Deformation of Mass Concrete Due to Heat of  
Hydration of the Cement** 10:50

Will Hansen, Associate Professor, University of Michigan, Ann  
Arbor, Michigan; Pri Tjintobroto, Graduate Research Assistant,  
University of Michigan, Ann Arbor, Michigan

**NOTE:** Part II of Effect of Concrete Constituents and  
Environment on Creep and Shrinkage will be presented on  
Thursday, November 2, 1989 from 2:00 PM to 5:00 PM in  
Marriott Hall 1.

THURSDAY, November 2, 1989

9:00 AM - 12:00 NOON

Room: Torrey 2,3

**DESIGN OF BEAM TO COLUMN JOINTS-  
PART I: DESIGN OF JOINTS IN SEISMIC  
ZONES - COOPERATIVE U.S./JAPAN/NEW  
ZEALAND/CHINA PROJECT**

Sponsored by Committee 352

**Session Chairman:** James O. Jirsa  
Ferguson Structural Engineering Laboratory  
University of Texas at Austin  
Austin, Texas

**Session Co-Chairman:** James K. Wight  
Professor  
Department of Civil Engineering  
University of Michigan  
Ann Arbor, Michigan

**Background and Overview of the Quadrilateral Project 9:05**

James O. Jirsa, Ferguson Structural Engineering Laboratory,  
University of Texas at Austin, Austin, Texas

**Research Leading to Development of Design Criteria for  
R/C Beam-Column Joints 9:30**

Hiroyuki Aoyama, Professor, Department of Architecture, Faculty of  
Engineering, University of Tokyo, Tokyo, Japan; Kazuhiro  
Kitayama, Research Associate, Department of Architecture, Faculty  
of Engineering, Utsunomiya University, Utsunomiya-shi, Japan;  
Shunsuke Otani, Associate Professor, Department of Architecture,  
Faculty of Engineering, University of Tokyo, Tokyo, Japan

**New Design Guidelines for Earthquake Resistant R/C Buildings  
Based on Ultimate Strength Concepts — Emphasis on  
Beam-Column Joints 10:00**

Shunsuke Otani, Associate Professor, Department of Architecture,  
Faculty of Engineering, University of Tokyo, Tokyo, Japan

**Recent Developments in New Zealand Regarding Joint Design 10:30**

Robert Park, Professor and Head, Department of Civil Engineering,  
University of Canterbury, Christchurch, New Zealand

**Joint Design for Structures in Japan Using Precast Concrete 11:00**

Y. Kurose, Engineer, Design Division, Shimizu Corporation, Tokyo,  
Japan

**Role of Slab in Response and Design of Joints 11:30**

Catherine Wolfram French, Assistant Professor, Department of  
Civil and Mining Engineering, University of Minnesota, Min-  
neapolis, Minnesota; Jack P. Moehle, Associate Professor, Depart-  
ment of Civil Engineering, University of California at Berkeley,  
Berkeley, California

**NOTE:** Part II of this session will be presented on Thurs-  
day, November 2 from 2:00 PM to 5:00 PM in Torrey 2, 3.

THURSDAY, November 2, 1989

9:00 AM – 12:00 NOON

Room: Marriott Hall 3

**THIN-SECTION FIBER REINFORCED  
CONCRETE AND FERROCEMENT  
PRODUCTS – MATERIAL PROPERTIES AND  
APPLICATIONS – PART I**

Sponsored by Committees 544 and 549

**Session Chairman:** James I. Daniel  
Group Leader  
Construction Systems Laboratory  
USG Corporation  
Libertyville, Illinois

**Session Co-Chairman:** Gordon B. Batson  
Professor  
Department of Civil Engineering  
Clarkson College of Technology  
Potsdam, New York

**Opening Remarks 9:00**

James I. Daniel, Group Leader, Construction Systems Laboratory,  
USG Corporation, Libertyville, Illinois

**Plastic Shrinkage and Permeability in Polypropylene Fiber  
Reinforced Concrete 9:05**

M. A. Sanjuan, Chemical Engineer, Institute of Construction and  
Cement "Eduardo Torroja" of CSIC, Madrid, Spain; B. Bacle,  
Industrial Engineer, Institute of Construction and Cement "Eduardo  
Torroja" of CSIC, Madrid, Spain; A. Moragues, Chemical Engineer,  
Institute of Construction and Cement "Eduardo Torroja" of CSIC,  
Madrid, Spain; C. Andrade, Industrial Engineer, Institute of  
Construction and Cement "Eduardo Torroja" of CSIC, Madrid,  
Spain

**Impact of Thin Sheet FRC 9:30**

Sidney Mindess, Professor of Civil Engineering, The University of  
British Columbia, Vancouver, British Columbia, Canada; Arnon  
Bentur, Associate Professor of Civil Engineering, Technion – Israel  
Institute of Technology, Haifa, Israel; Cheng Yan, Student, The  
University of British Columbia, Vancouver, British Columbia, Canada

**Restrained Shrinkage Cracking of Concrete and Fiber  
Reinforced Concrete 10:00**

Miroslaw Grzybowski, Professor of Structural Engineering, Royal  
Institute of Technology, Stockholm, Sweden; S. P. Shah, Professor  
of Civil Engineering, Northwestern University, Evanston, Illinois

**Glass Fiber Reinforced Concrete in Mining Applications 10:30**

I.R.K. Greig, Manager CemFIL Support Technology, Pilkington  
Group Research, Lancashire, England

**The Development of Lightweight "60 to 100 pcf" Hydraulic Cement  
Thin Section Reinforced Concrete Sheet Metal 11:00**

M. Schupack, President, Schupack-Suarez Engineers, Inc., South  
Norwalk, Connecticut

THURSDAY, November 2, 1989

9:00 AM – 12:00 NOON

Room: **Marriott Hall 3**

**THIN-SECTION FIBER REINFORCED  
CONCRETE AND FERROCEMENT  
PRODUCTS – MATERIAL PROPERTIES AND  
APPLICATIONS – PART I (continued)**

Sponsored by Committees 544 and 549

**Effect of Mesh Geometry on Flexural and Tensile Behavior of  
Ferrocement Thin Plates**

**11:30**

R.N. Swamy, Professor of Mechanical Engineering, The University  
of Sheffield, Sheffield, England; Y.B.I. Shaheen, The University of  
Sheffield, Sheffield, England

**NOTE:** Part II of Thin-Section Fiber Reinforced Concrete and  
Ferrocement Products – Material Properties and Applications  
will be presented on Thursday, November 2, 1989 from 2:00  
PM to 5:00 PM in Marriott Hall 3.



THURSDAY, November 2, 1989

9:00 AM - 12:00 NOON

Room: Marriott Hall 6

## NEW DEVELOPMENTS IN MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE - PART I

Sponsored by Committee 304

**Session Chairman:** Robert A. Kelsey  
Sales Engineer  
Northwest Division  
Ideal Basic Industries  
Seattle, Washington

**Session Co-Chairman:** Paul R. Stodola  
Manager, Civil Engineering Laboratory  
American Electric Power Service  
Corporation  
Columbus, Ohio

**Introduction** 9:00

**Laboratory and Field Experience in Use of Premixed Paste in  
Concrete and Mortar** 9:10

Gary R. Mass, Director of Concrete Engineering, Concrete  
Technology Corporation, Santa Barbara, California

**Conveying Concrete for Melvin Price Locks and Dam (Phase II)** 9:45

Jim Cope, President, Morgan Manufacturing Company, Yankton,  
South Dakota

**Transporting of Ready-Mix Concrete Over 100 Miles from  
Ready-Mix Concrete Plant** 10:20

Frank A. Kozeliski, Materials Engineer, Gallup Sand and Gravel  
Company, Gallup, New Mexico

**Development of Pre-Cooling Method Using Frozen Sand** 10:55

Morio Kurita, Research Engineer, Institute of Technology, Tokyo,  
Japan; Sadao Goto, Manager, Plant Construction Department, Tokyo  
Gas Company, Ltd., Tokyo, Japan; Kouji Minegishi, Senior  
Engineer, Plant Construction Department, Tokyo Gas Company,  
Ltd., Tokyo, Japan; Takashi Kuwahara, Senior Research Engineer,  
Institute of Technology, Shimizu Corporation, Tokyo, Japan

**NOTE:** Part II of New Developments In Measuring, Mixing,  
Transporting and Placing Concrete will be presented on  
Thursday, November 2, 1989 from 2:00 PM to 5:00 PM in  
Marriott Hall 6.

THURSDAY, November 2, 1989

2:00 PM – 5:00 PM

Room: Marriott Hall 1

**EFFECT OF CONCRETE CONSTITUENTS  
AND ENVIRONMENT ON CREEP AND  
SHRINKAGE – PART II**

Sponsored by Committee 209

**Session Chairman:** Marwan A. Daye  
Senior Civil Staff Specialist  
Bechtel Power Corporation  
Gaithersburg, Maryland

**Session Co-Chairman:** Will Hansen  
Associate Professor  
Department of Civil Engineering  
University of Michigan  
Ann Arbor, Michigan

**Introduction** 2:00  
Marwan A. Daye, Senior Civil Staff Specialist, Bechtel Power Corporation, Gaithersburg, Maryland

**Cracking Damage and Creep in a Drying Box Girder  
Bridge Segment** 2:05  
Zdeněk P. Bažant, Professor, Northwestern University, Evanston, Illinois; V. Kristek, Visiting Scholar at Northwestern University, Evanston, Illinois, Professor, Czechoslovakia Tech. University at Prague, Prague, Czechoslovakia

**Effect of Paste Microstructure on the Drying Shrinkage  
of Portland Cement Paste** 2:40  
J. Francis Young, Professor, University of Illinois, Urbana, Illinois;  
C. L. Hwang, Professor, National Taiwan Institute of Technology,  
Taipei, Taiwan, Republic of China

**Stress Induced Shrinkage** 3:15  
Folker H. Wittmann, Director, Swiss Federal Institute of Technology,  
Zurich, Switzerland

**New Prediction Models for Creep and Shrinkage of Concrete** 3:50  
H. S. Muller, Director, Federal Institute of Materials and Research  
(BAM), Berlin, West Germany; H. K. Hilsdorf, Professor and  
Director, University of Karlsruhe, Karlsruhe, West Germany

**Mathematical Modeling of Creep and Shrinkage in the Time  
Dependent Analysis of Concrete Structures** 4:15  
Mark Ketchum, T. Y. Lin International, San Francisco, California;  
Alex C. Scordelis, Professor, University of California at Berkeley,  
Berkeley, California

**NOTE:** Part III of Effect of Concrete Constituents and Environment on Creep and Shrinkage will be presented on Friday, November 3, 1989 from 9:00 AM to 12:00 NOON in Columbia 2, 3.

THURSDAY, November 2, 1989  
2:00 PM - 5:00 PM

Room: Torrey 2,3

## **DESIGN OF BEAM TO COLUMN JOINTS - PART II**

Sponsored by Committee 352

**Session Chairman:** Ahmad J. Durrani  
Associate Professor  
Department of Civil Engineering  
Rice University  
Houston, Texas

**The Role of Slab at Beam to Column Joints** 2:00

Thomas Paulay, Professor Emeritus, Department of Civil Engineering, University of Canterbury, Christchurch, New Zealand

**The Effect of Axial Column Load on the Behavior of Reinforced Concrete Beam to Column Joints Under Earthquake-Type Loading** 2:30

Shiro Morita, Professor, Department of Architecture, Kyoto University, Kyoto, Japan; Shigeru Fujii, Research Associate, Department of Architecture, Kyoto University, Kyoto, Japan

**The Impact of Constructibility of Concrete Ductile Frame Joints on Design Criterion Development and Research Need** 3:00

Barrett Bunce, Structural Engineer, Robert Englekirk Consulting Engineers, Inc., Los Angeles, California; Robert E. Englekirk, President, Robert Englekirk Consulting Engineers, Inc., Los Angeles, California

**Inelastic Behavior of Monolithic High-Strength Concrete Connections** 3:30

M. R. Ehsani, Associate Professor, Department of Civil Engineering, University of Arizona, Tucson, Arizona; F. Alameddine, Graduate Student, Department of Civil Engineering, University of Arizona, Tucson, Arizona

**Seismic Beam-Column Connections in Lightly Reinforced Concrete Frame Structures** 4:00

Stephen D. Pessiki, Graduate Research Assistant, Department of Civil Engineering, Cornell University, Ithaca, New York; Richard M. White, Professor, Department of Civil Engineering, Cornell University, Ithaca, New York; Peter Gergely, Professor, Department of Civil Engineering, Cornell University, Ithaca, New York

**Evaluation of Joint Shear Provisions for Design of Interior Connections Constructed with High-Strength Materials** 4:30

Michael E. Kreger, Assistant Professor, Department of Civil Engineering, University of Texas at Austin, Austin, Texas; Gilson Guimaraes, Assistant Professor, Department of Civil Engineering, Universidade Federal De Goias, Brazil; James O. Jirsa, Janet S. Cockrell Centennial Chair in Engineering, Department of Civil Engineering, University of Texas at Austin, Austin, Texas

THURSDAY, November 2, 1989  
2:00 PM – 5:00 PM

Room: Marriott Hall 6

## **NEW DEVELOPMENTS IN MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE - PART II**

Sponsored by Committee 304

**Session Chairman:** Robert A. Kelsey  
Sales Engineer  
Northwest Division  
Ideal Basic Industries  
Seattle, Washington

**Session Co-Chairman:** Paul R. Stodola  
Manager, Civil Engineering Laboratory  
American Electric Power Service  
Corporation  
Columbus, Ohio

**Concrete Mixture Production Controls for the Future** 2:10

James M. Shilstone, Jr., Vice President, Shilstone Software Company, Dallas, Texas; James M. Shilstone, Sr., President, Shilstone and Associates, Dallas, Texas

**Innovative Placement Methods of Specialized Concrete** 2:45

Kenneth Saucier, Chief, Concrete Technology Division, U.S. Corps of Engineers, Waterways Experiment Station, Vicksburg, Mississippi

**Performance of Latex Modified and High Density Overlays** 3:20

John B. Caldwell, Director, Federal Aid Assurance, New York City Department of Transportation, New York, New York; Paul J. St. John, Civil Engineer I, Materials, New York City Department of Transportation, Albany, New York

**Mix Designs for and Concreting of New York City Water**

**Pollution Control Plants** 3:55

Paul Zoltanetzky, Jr., Chief, Plant Construction, City of New York, New York, New York; Clifford Gordon, CQAC, New York, New York

**Placing a Concrete Canal Lining Underwater** 4:30

William F. Kepler, Civil Engineer, U.S. Bureau of Reclamation, Denver, Colorado



THURSDAY, November 2, 1989

2:00 PM–5:00 PM

Room: Marriott Hall 3

**THIN-SECTION FIBER REINFORCED  
CONCRETE AND FERROCEMENT  
PRODUCTS – MATERIAL PROPERTIES AND  
APPLICATIONS — PART II**

Sponsored by Committees 554 and 549

**Session Chairman:** Surendra P. Shah  
Professor of Civil Engineering  
Northwestern University  
Evanston, Illinois

**Session Co-Chairman:** Gordon B. Batson  
Professor of Civil Engineering  
Clarkson College of Technology  
Potsdam, New York

**Opening Remarks 2:00**

Surendra P. Shah, Professor of Civil Engineering, Northwestern University, Evanston, Illinois

**Investigations on Thin Precast Ferrocement Planks Connected  
Together by Steel Bolts 2:05**

T. S. Krishnamoorthy, Scientist, Structural Engineering Research Centre, CSIR Campus, Madras, India; V. S. Parameswaran, Head, Concrete Composites Laboratory, SERC, CSIR Campus, Madras, India; M. Neelamegam, Scientist, SERC, CSIR Campus, Madras, India; K. Balasubramanian, Scientist, SERC, CSIR Campus, Madras, India

**Oriented Polyethylene Fibrous Pulp Reinforced  
Cement Composites 2:30**

David M. Gale, E. I. Du Pont de Nemours and Company, Inc., Wilmington, Delaware; Ashok H. Shah, E. I. Du Pont de Nemours and Company, Inc., Richmond, Virginia; P. N. Balaguru, Professor of Civil Engineering, Rutgers University, Piscataway, New Jersey

**Strength Properties of Steel Fiber Reinforced Concrete  
in Marine Environment 3:00**

N. C. Kothari, Reader in Materials Science and Engineering, James Cook University of North Queensland, Townsville, Australia

**Secondary Stresses in Glass Fiber Reinforced Concrete (GFRC)  
Thin Sections 3:30**

C. O. D. Arrand, Construction Materials Engineer, Vulcan Materials Company, Birmingham, Alabama

**Structural Behavior of Thin SFRC and Ferro-Fibro Overlays 4:00**

R. M. Vasan, Reader in Civil Engineering, University of Roorkee, Roorkee, India; S. K. Kaushik, Professor of Civil Engineering, University of Roorkee, Roorkee, India; P. N. Godbole, Professor of Civil Engineering, University of Roorkee, Roorkee, India; D. C. Goel, Engineer, C.P.W.D., New Delhi, India

**Development of Cement-Based Materials with Cellulose Fibers 4:30**

Parviz Soroushian, Assistant Professor of Civil Engineering, Michigan State University, East Lansing, Michigan; Shashidhara Marikunte, Research Assistant, Michigan State University, East Lansing, Michigan

THURSDAY, November 2, 1989

2:00 PM - 5:30 PM

Room: Marriott Hall 4

**PAUL KLIEGER INTERNATIONAL  
SYMPOSIUM ON PERFORMANCE OF  
CONCRETE - PART III**

Sponsored by Committees 201 and 222

**Session Chairman:** David Stark  
Project Manager  
Construction Technology Laboratories, Inc.  
Skokie, Illinois

**The Freeze-Thaw Environment: What is Severe? 2:00**

Nico M. Vanderhorst, Graduate Research Assistant, University of Washington, Seattle, Washington; Donald J. Janssen, Assistant Professor, University of Washington, Seattle, Washington

**Field Exposure of Concrete to Severe Natural Weathering 2:30**

Joseph F. Lamond, Engineering Director, Pyrament/Lone Star Industries, Springfield, Virginia; M. K. Lee, Civil Engineer, U.S. Army Corps of Engineers, Washington, D.C.

**Freeze-Thaw Durability and Deicer Salt Scaling Resistance of Roller Compacted Concrete Pavement 3:00**

Michel Pigeon, Professor, Department of Civil Engineering, Laval University, Ste-Foy, Quebec, Canada; Jacques Marchand, Graduate Student, Laval University, Ste-Foy, Quebec, Canada; Jean Boisvert, Graduate Student, Laval University, Ste-Foy, Quebec, Canada; Henri Isabelle, Director, Cement Division, Canada-Cement LaFarge, Montreal, Quebec, Canada

**An Overview of a New Field and Laboratory Study of the Durability of Reinforced and Post-Tensioned Concrete in the Marine Environment 3:30**

Edward F. O'Neil, Civil Engineering Consultant, Vicksburg, Mississippi; D. V. Reddy, Professor of Ocean Engineering, Florida Atlantic University, Boca Raton, Florida; T. W. Bremner, Professor, Department of Civil Engineering, University of New Brunswick, Fredericton, New Brunswick, Canada; W. H. Hartt, Professor of Ocean Engineering, Florida Atlantic University, Boca Raton, Florida; M. Arockiasamy, Professor of Ocean Engineering, Florida Atlantic University, Boca Raton, Florida

**Performance of Concrete in Aggressive Environments 4:00**

Kathleen M. Sundberg, Marketing Specialist, W. R. Grace and Company, Cambridge, Massachusetts; Neal S. Belke, Research Associate, W. R. Grace and Company, Cambridge, Massachusetts; Thomas G. Weil, Senior Product Manager, W. R. Grace and Company, Cambridge Massachusetts

**Carbonation in Building Structures in Canada 4:30**

John A. Bickley, Consulting Engineer, John A. Bickley Associates, Ltd., Brampton, Ontario, Canada

**Involvement of Bacteria in Concrete Corrosion 5:00**

Charles F. Kulpa, Jr., Associate Professor, Department of Microbiology, University of Notre Dame, Notre Dame, Indiana

**NOTE:** Part IV of the Symposium will be presented on Friday, November 3, 1989 from 9:00 AM to 12:00 NOON in Marriott Hall 3.

FRIDAY, November 3, 1989

9:00 AM – 12:00 NOON

Room: Orlando/New York

**FRACTURE OF CONCRETE UNDER SPECIAL ENVIRONMENTS AND LOADINGS**

Sponsored by Committee 446

**Session Chairman:** Wimal Suaris  
Associate Professor  
Department of Civil and Architectural  
Engineering  
University of Miami  
Coral Gables, Florida

**Session Co-Chairman:** Jeremy Isenberg  
Principal  
Weidlinger Associates  
Los Altos, California

**Influence of Loading Rate and Temperature on Fracture of Concrete** 9:00  
Zdeněk P. Bažant, Professor, Center for Advanced Cement-Based Materials, Northwestern University, Evanston, Illinois; Ravindra Gettu, Center for Advanced Cement-Based Materials, Northwestern University, Evanston, Illinois

**Strain-Rate Sensitivity of Concrete Mechanical Properties** 9:30  
Neil Hawkins, Professor, Department of Civil Engineering, University of Washington, Seattle, Washington; Jung-Heun Yon, Pre-Doctoral Research Associate, Department of Civil Engineering, University of Washington, Seattle, Washington; Albert Kobayashi, Professor, Department of Civil Engineering, University of Washington, Seattle, Washington

**Mixed Mode Fracture of Concrete Subjected to Impact Loading** 10:00  
Surendra P. Shah, Professor and Director, Center for Advanced Cement-Based Materials, Northwestern University, Evanston, Illinois; Reji John, Associate Research Engineer, Structural Integrity Division, University of Dayton Research Institute, Dayton, Ohio

**Fatigue of Submerged Concrete** 10:30  
Avi A. Mor, Mor Associates, Los Angeles, California; Ben C. Gerwick, Professor, Department of Civil Engineering, University of California at Berkeley, Berkeley, California; Weston T. Hester, Associate Professor, Department of Civil Engineering, University of California at Berkeley, Berkeley, California

**Studies of Fiber-Matrix Bond as Affected by Stress-Rate and Temperature** 11:00  
Nemkumar Banthia, Assistant Research Professor, Department of Civil Engineering, Laval University, Ste-Foy, Quebec, Canada



FRIDAY, November 3, 1989

9:00 AM - 12:00 NOON

Room: Columbia 2,3

**EFFECT OF CONCRETE CONSTITUENTS  
AND ENVIRONMENT ON CREEP AND  
SHRINKAGE - PART III**

Sponsored by Committee 209

**Session Chairman:** Hesham Marzouk  
Associate Professor  
Department of Civil Engineering  
Memorial University of Newfoundland  
St. John's, Newfoundland, Canada

**Session Co-Chairman:** Mikael P. J. Olsen  
Principal  
Jexen Engineering Services  
Bryan, Texas

**Introduction**

Hesham Marzouk, Associate Professor, Department of Civil Engineering, Memorial University of Newfoundland, St. John's, Newfoundland, Canada

**Creep and Shrinkage of Concrete as Affected by Admixtures  
and Cement Replacement Materials 9:00**

J. J. Brooks, Lecturer, Leeds University, Leeds, England; A. M. Neville, Consultant, Civil Engineering, London, England

**Drying Shrinkage Characteristics of Carbon Fiber Reinforced  
Cement Composites 9:30**

Parviz Soroushian, Assistant Professor, Department of Civil Engineering, Michigan State University, East Lansing, Michigan; Mohamad Magi, Research Assistant, Department of Civil Engineering, Michigan State University, East Lansing, Michigan

**Effect of Curing on Creep and Shrinkage of Concrete Containing  
Fly Ash 10:00**

Ramon L. Carrasquillo, Associate Professor, Department of Civil Engineering, University of Texas at Austin, Austin, Texas; Mohand L. Sennour, Student, University of Texas at Austin, Austin, Texas; Peggy M. Carrasquillo, Research Engineer, Department of Civil Engineering, University of Texas at Austin, Austin, Texas

**State-of-the-Art Study on Drying Shrinkage and Creep of Concretes  
Containing Blast-Furnace Slag 10:30**

Chern Jenn-Chuan, Associate Professor, Department of Civil Engineering, National Taiwan University, Taipei, Taiwan

**Shrinkage of Statically Compacted Cement-Phosphogypsum  
Mixtures 11:00**

C. X. Ling, Department of Civil Engineering, University of Miami, Coral Gables, Florida; K. T. Lin, Structural Engineer, Department of Civil Engineering, University of Miami, Coral Gables, Florida; W. F. Chang, Professor and Director, Phosphate Research Institute, Coral Gables, Florida



FRIDAY, November 3, 1989

9:00 AM - 12:00 NOON

Room: Marriott Hall 3

**PAUL KLIEGER INTERNATIONAL  
SYMPOSIUM ON PERFORMANCE OF  
CONCRETE - PART IV**

Sponsored by Committees 201 and 222

**Session Chairman:** David Whiting  
Principal Research Engineer  
Construction Technology Laboratories, Inc.  
Skokie, Illinois

**Micro Air-Voids in Concrete: A Study of the Influence of Superplasticizers by Means of Scanning Electron Microscopy 9:00**  
Michel Pigeon, Professor, Department of Civil Engineering, Laval University, Ste-Foy, Quebec, Canada; René M. Faure, Ecole Nationale Des Travaux Publics De L'Etat, Vaulx-en-Velin, France; Richard Pleav, Laval University, Ste-Foy, Quebec, Canada; Thierry Sedran, Laval University, Ste-Foy, Quebec, Canada

**Materials and Techniques for Repairing Marine Structures Damaged by Impact, Cavitation, and other Aggressive Attack 9:30**  
Weston T. Hester, Associate Professor, Department of Civil Engineering, University of California at Berkeley, Berkeley, California

**Corrosion of Reinforcing Steel in Concrete Exposed to Marine and Freshwater Environments 10:00**  
Robert Heidersbach, Professor and Head, Department of Metallurgical and Materials Engineering, California Polytechnic State University, San Luis Obispo, California

**Evaluation of Concrete Masonry Wall in a Highly Corrosive Environment 10:30**  
David J. Akers, Pre-Mixed Concrete Company, San Diego, California

**Performance of Concrete in a High Chloride Sulfate Environment 11:00**  
Mohammed Maslehuddin, Senior Engineer, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia; Huseyin Saricimen, Research Engineer, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia; Abdulaziz Ibrahim Al-Mana, Manager, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia; Mohammed Shamim, Engineer, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia.

## **TECHNICAL ACTIVITIES COMMITTEE**

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Richard C. Meininger  
Frederick L. Moreadith  
Harold R. Sandberg  
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Mete A. Sozen  
Richard N. White

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## **EDUCATIONAL ACTIVITIES COMMITTEE**

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Carl A. Peterson  
Charles G. Salmon  
Luke M. Snell  
Julian Snyder  
Roger E. Wilson

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W. Calvin McCall  
Frederick L. Moreadith  
Peter G. Snow

## **ACI FUTURE CONVENTIONS**

### **1990 Spring Convention**

March 18-23  
Royal York Hotel  
Toronto, Ontario, Canada  
Convention Theme:  
*Concrete Durability*

### **1990 Fall Convention**

November 11-16  
Wyndham Franklin Plaza Hotel  
and  
Four Seasons Hotel  
Philadelphia, Pennsylvania  
Convention Theme:  
*Structural Design*



#### **American Concrete Institute**

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TWX: 810-221-1454  
FAX: 313-538-0655

*Thank you for attending  
the ACI 1989 Fall Convention.  
See you in Toronto!*