19.

ACI's

1984 Annual Convention

March 4-9, 1984
Hyatt Regency Hotel
Phoenix, Arizona

Convention Office Copy

Phoenix

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ACI Annual Convention

March 4-9, 1984

Phoenix, Arizona

REGISTRATION

The ACI staff is eager to answer any questions you may have pertaining to the convention.

The registration desk is open to serve you:

Sunday	March 4	1:00 pm- 5:00 pm
Monday	March 5	7:00 am- 5:00 pm
Tuesday	March 6	8:00 am- 5:00 pm
Wednesday	March 7	7:30 am- 5:00 pm
Thursday	March 8	8:00 am- 5:00 pm
Friday	March 9	8:00 am-10:30 am

Fees:

Member	$100 (full week)
Nonmember	115 (full week)
One-day Member	45 (per day)
One-day Nonmember	50 (per day)
Student	Free

Registration fees cover attendance at all ACI technical and educational committee meetings, general session, and forums. Also, the Concrete Mixer ticket is included in the full week registration fee.

For those who plan to attend the following seminar, there is no fee for attendance, but we do request payment for handout material:

Design of Industrial Floors — Handout Material Fee $18.00

Special Ticketed Events:

Wednesday, March 7, 1984	8:00 am-10:00 am
Awards Breakfast	Cost $ 8.75
Thursday, March 8, 1984	6:00 pm-10:00 pm
Wild West Evening at Rawhide	Cost $30.00
Friday, March 9, 1984	1:00 pm- 6:00 pm
Technical Field Trip	Cost $15.00

NOTE: Tickets are limited. Please purchase by Tuesday morning!

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.

Member	White	Student	Blue
Nonmember	Peach	Spouse	Beige
Fellow	White		

Transportation/Message Center

The Transportation/Message Center is staffed by Complete Travel Convention and Meeting Service. Should you need any assistance with your airline travel schedule, please contact them in the registration area. This desk is open to serve you:

	Mornings:	Afternoons:
Monday, March 5	8:00 am-11:00 am	12:30 pm-2:30 pm
Tuesday, March 6	8:00 am-11:00 am	12:30 pm-2:30 pm
Wednesday, March 7	(am not available)	12:00 pm-3:00 pm
Thursday, March 8	8:00 am-11:00 am	12:30 pm-2:30 pm
Friday, March 9	8:00 am-11:00 am	(pm not available)

SUSTAINING MEMBERS OF THE AMERICAN CONCRETE INSTITUTE

Master Builders
Division of Martin Marietta Corporation
Cleveland, Ohio

Portland Cement Association
Skokie, Illinois

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

Post-Tensioning Institute
Phoenix, Arizona

The Phoenix Corporation
Honolulu, Hawaii

OFFICE OF THE GOVERNOR

STATE HOUSE

PHOENIX, ARIZONA 85007

March 1984

Welcome:

On behalf of the people of Arizona, I would like to extend a warm welcome to the participants of the American Concrete Institute.

This is truly a technological age which we are entering, and it seems clear that one challenge for the 80's is to effectively address the everchanging needs of our society. The Institute's objectives, to further engineering and technical education, scientific investigation and research, and development of standards for the design and construction of concrete structures, are important ones. It is my expectation that this convention will be a beneficial learning experience and an excellent forum for the discussion of changes within the industry.

I am hopeful that your program will provide you with the opportunity to get out and explore the beautiful Arizona countryside. You will find our State abounds with natural attractions of all kinds from the highlands of the mountains to vast stretches of desert. The people of Arizona are friendly, warm, and anxious to assist.

May your convention be a great success, and your visit a source of fond memories.

Sincerely,

BRUCE BABBITT
Governor

CITY OF PHOENIX
OFFICE OF THE MAYOR

March 2, 1984

Welcome to Phoenix.

It is my pleasure to extend an official welcome to the American Concrete Institute. Phoenix is proud to be the host city for this year's National Convention. I am very pleased to say that the City of Phoenix appreciates the American Concrete Institute as a non-profit, scientific and educational society with a high level of service.

While in Phoenix, I hope you have the opportunity to visit our beautiful parks and open spaces, museums and shopping centers. Our wonderful weather, relaxing atmosphere and western hospitality are sure to make your convention a memorable one.

My best wishes for a successful and productive convention.

Sincerely,

Terry Goddard
Mayor

SCHEDULE

Annual Convention

SUNDAY, March 4, 1984

1:00 pm- 5:00 pm	Registration Hours
6:30 pm- 8:00 pm	Wine & Cheese Party — Sponsored by ACI Arizona Chapter

MONDAY, March 5, 1984

7:00 am- 5:00 pm	Registration Hours
8:30 am- 9:30 pm	Administrative, Technical and Educational Committee Meetings

TUESDAY, March 6, 1984

8:00 am- 5:00 pm	Registration Hours
8:30 am- 9:30 pm	Administrative, Technical and Educational Committee Meetings
9:00 am-12:00 pm	Technical Sessions: • Solutions for Placing Quality Concrete: A Question and Answer Session • Seminar Progress in Concrete (Part I)
10:00 am- 6:00 pm	All Day Film Session
2:00 pm- 5:00 pm	Technical Sessions: • Structural Distress — A Study in Crack Diagnosis (Part I) • Abdun-Nur/Cordon Symposium on Quality Concrete in Construction (Part I) • Seminar Progress in Concrete (Part II)
4:30 pm- 6:30 pm	4:30 Rehabilitation (Cash Bar)
5:00 pm- 9:30 pm	Student Program

WEDNESDAY, March 7, 1984

7:30 am- 5:00 pm	Registration Hours
8:00 am-10:00 am	Awards Breakfast
10:00 am-12:00 pm	General Session
2:00 pm- 5:00 pm	Technical Sessions: • Research and Development • Alternate Methods of Slab Design • Structural Distress — A Study in Crack Diagnosis (Part II) • Abdun-Nur/Cordon Symposium on Quality Concrete in Construction (Part II)
2:00 pm- 9:30 pm	Technical Committee Meetings
4:30 pm- 5:30 pm	Slide Demonstration
6:30 pm- 8:00 pm	Concrete Mixer (Reception)

THURSDAY, March 8, 1984

8:00 am- 5:00 pm	**Registration Hours**
8:30 am- 9:30 pm	**Technical Committee Meetings**
9:00 am-12:00 pm	**Technical Sessions:**
	• Evaluation of Existing Concrete Buildings: Strength (Part I)
	• Developments in Design for Shear and Torsion (Part I)
	• Anchorage to Concrete (Part I)
	• Seminar: Design of Industrial Floors
2:00 pm- 5:00 pm	**Technical Sessions:**
	• Evaluation of Existing Concrete Buildings: Strength (Part II)
	• Clinic on Curing of Concrete
	• Developments in Design for Shear and Torsion (Part II)
	• Open Paper Session
6:00 pm-10:00 pm	**Wild West Evening at Rawhide** (cost $30.00)
7:30 pm-10:00 pm	**FORUM:** Why Use Silica Fume or Ground Slag in Concrete?

FRIDAY, March 9, 1984

8:00 am-10:30 am	**Registration Hours**
8:30 am-12:30 pm	**Technical Committee Meetings**
9:00 am-12:00 pm	**Technical Sessions:**
	• Evaluation of Existing Concrete Buildings: Safety (Part III)
	• Anchorage to Concrete (Part II)
	• Symposium: Deflections of Structures
	• Nondestructive Test Methods for Concrete Strength
1:00 pm- 6:00 pm	**Technical Field Trip to:** (cost $15.00) Arizona Major Reclamation Projects

ACI ARIZONA CHAPTER OFFICERS

President
Russell Schnormeier
City of Phoenix

Vice President
Bill Mackey
Western Technologies

Past President
Harry Roof
Western Ash Company

Secretary-Treasurer
Robert J. Maurer
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Directors
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Tanner Companies

Jerry Cannon
Jerry Cannon & Associates

Paul Scott
Caruso, Turley & Scott

Dave Cripe
San Xavier Rock & Materials

ARIZONA CONVENTION COMMITTEE

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Union Rock and Materials Corp.

Assistant Chairman
Russell Schnormeier
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Assistant Chairman
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Social Activities
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Portland Cement Association

Membership Promotion
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GSAS Architects — Planners

Finance
Robert Maurer
Phoenix Cement Company

Ladies Registration
Richard N. Clark
Master Builders

Technical Field Trip
Patrick L. Neilio
Phoenix Cement Company

Local Technical Program
Edward Magnotich
Western Technologies

Educational Activities
Roy Stegall
Arizona Sand & Rock

Local Technical Program
W. Richard Studeny
Master Builders

Tucson Coordinator
Stanley Turney

The officers, staff, and members of ACI would like to thank the Local Committee, the Hostesses, and the Phoenix Chapter for their part in the 1984 Annual Convention

SPECIAL EVENTS

PUBLICATION DISPLAY

Sunday through Friday — **Atrium**

See the latest ACI publications now available. Orders taken at the ACI registration desk.

COFFEE BAR

Monday through Friday — **Atrium**
8:00 am-10:00 am

Join your colleagues every morning for coffee and tea (complimentary) in the registration area.

4:30 REHABILITATION (Cash Bar)

Tuesday, March 6, 1984 — **Atrium**
4:30 pm-6:30 pm

Rest, relax and restore — the day's meetings are now behind you and the evening is young. Join your colleagues in the Atrium where a cash bar has been set-up for your pleasure.

AWARDS BREAKFAST

Wednesday, March 7, 1984 — **Regency C & D**
8:00 am-10:00 am

Cost: $8.75

Come meet the awardees. Have fun, enjoy a good breakfast and watch the multi-media awards presentation.

"STRUCTURAL STRENGTH AND SAFETY — THE PROFESSION AT A CROSSROAD"

Wednesday, March 7, 1984 — **Regency A & B**
10:00 am-12:00 pm

During the General Session, our Keynote Speaker is Walter P. Moore, Jr., Ph.D., P.E., President, Walter P. Moore and Associates, Inc., Consulting Engineers and Planners, Houston, Texas will address the topic: "Structural Strength and Safety — The Profession at a Crossroad".

SLIDE DEMONSTRATION

Wednesday, March 7, 1984 — **Borein A & B**
4:30 pm-5:30 pm

A "how to" discussion on the conceptualization planning and final compilation to create a commanding and interesting talk.

CONCRETE MIXER

Wednesday, March 7, 1984 — **Regency Ballroom**
6:30 pm-8:00 pm

All delegates and guests are cordially invited to attend our traditional convention social. (All full-week registrants have received a complimentary concrete mixer ticket upon registration. Others may purchase tickets at the registration desk.)

WILD WEST EVENING AT RAWHIDE

Thursday, March 8, 1984 **Outside Hotel**
6:00 pm-10:00 pm

Cost: $30.00 (per person)

Take a bus ride with us on Thursday to Rawhide — a recreation of an old wild west town of the 1880s. There will be down home entertainment, good western grub and more! Wear your western outfits and come join us in the fun.

PLEASE PURCHASE TICKETS NO LATER THAN TUESDAY.

TECHNICAL FIELD TRIP — ACI ARIZONA CHAPTER

Friday, March 9, 1984 **Outside Hotel**
1:00 pm-6:00 pm

Cost: $15.00

You will tour a portion of the 333 mile $2.7 billion Central Arizona Project. The canals, tunnels, syphons, and pump stations will deliver Colorado River water to Phoenix, scheduled 1985 — and Tucson, scheduled 1991. The project is a key to the future growth of Arizona.

Then, visit Stewart Mountain Dam to learn of its purposes as a water supply source for Phoenix, its construction and operation. Dr. Richard Mielenz has agreed to join us on the tour of Stewart Mountain Dam and to be available to discuss alkali-aggregate reaction as related to his studies of Stewart Mountain Dam in the late 1940's with subsequent work.

PLEASE PURCHASE TICKETS NO LATER THAN TUESDAY.

BREAKFAST MEETINGS (by invitation only)

Tuesday, March 6, 1984 7:00 am — Remington A & B
Technical Chairmen Training

Thursday, March 8, 1984 7:00 am — Regency A
New York Chairmen

Thursday, March 8, 1984 7:00 am — Russell A & B
Shrinkage Compensating Concrete

PROGRAM COMMITTEE MEETINGS

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

SATURDAY / SUNDAY / MONDAY

DAY / TIME	FUNCTION	ROOM
SATURDAY, MARCH 3, 1984		
8:00 am-6:00 pm		
	Technical Activities Committee (15 hrs)	Remington A
SUNDAY, MARCH 4, 1984		
8:00 am-6:00 pm		
	Technical Activities Committee (Subgroup 1)	Remington A
	Technical Activities Committee (Subgroup 2)	Remington B
	Technical Activities Committee (Subgroup 3)	Remington C
9:00 am-6:00 pm		
	Educational Activities Committee (13 hrs) (cont. Tues.)	Russell A
2:00 pm-6:00 pm		
E902-1	Field Technician - I (4 hrs)	Russell B
6:30 pm-8:00 pm		
	Chapter Wine & Cheese	Regency A & B
MONDAY, MARCH 5, 1984		
8:00 am-1:00 pm		
	*Technical Activities Committee	Remington A
8:30 am-10:30 am		
E902-2	Laboratory Technician - I & II (4 hrs)	Room 322
E902-3	Field Technician - II (4 hrs)	Room 323
E902-4	Concrete Craftsman (4 hrs)	Room 334
E902-7	Shotcrete Nozzleman (4 hrs)	Room 503
120	History (2 hrs)	Room 318
207	Mass Concrete (4 hrs)	Phoenix B
211-1	Lightweight (2 hrs)	Room 319
211-2	No Slump (2 hrs)	Room 603
211-3	High Strength (2 hrs)	Remington C
214	Strength Tests (4 hrs)	Russell C
228	Nondestructive Testing (4 hrs)	Russell A
344	Circular Prestressed Tanks (8 hrs)	Room 327
J530	Masonry Structures (16 hrs)	Phoenix A
544	Fiber Reinforced (6 hrs)	Curtis A
551	Tilt-Up (8 hrs)	Curtis B
10:30 am-12:30 pm		
	Construction Review (2 hrs)	Room 319
E702	Designing Structures (2 hrs)	Room 316
*E902-2	Laboratory Technician - I & II	Room 322
*E902-3	Field Technician - II	Room 323
*E902-4	Concrete Craftsman	Room 334

* Reconvening Meeting
( ) Total Duration of Meeting

DAY / TIME	FUNCTION	ROOM
10:30 am-12:30 pm (continued)		
*E902-7	Shotcrete Nozzleman	Room 503
* 207	Mass Concrete	Phoenix B
211-5	Evaluation (2 hrs)	Remington C
211-6	Heavyweight	Room 603
* 214	Strength Tests	Russell C
226-2	Slag (2 hrs)	Russell B
* 228	Nondestructive Testing	Russell A
332	Residential (2 hrs)	Room 318
* 344	Circular Prestressed Tanks	Room 327
*J530	Masonry Structures	Phoenix A
* 544	Fiber Reinforced	Curtis A
* 551	Tilt-Up	Curtis B
2:00 pm-4:00 pm		
	Publications Committee (2 hrs)	Room 316
E701	Construction Materials (4 hrs)	Room 322
E703	Construction Practices (4 hrs)	Room 323
E901	Scholarships (2 hrs)	Room 319
E903	Chairmen Training (2 hrs)	Room 334
211-8	Proportioning with Admixtures (2 hrs)	Remington A
304	Measuring, Mixing, Trans/Placing (4 hrs)	Phoenix B
318-B	Reinforcement & Development (4 hrs)	Remington C
318-C	Serviceability & Safety (4 hrs)	Russell A
318-D	Flexure & Axial Loads (4 hrs)	Russell B
318-F	Two-Way Slabs (4 hrs)	Russell C
* 344	Circular Prestressed Tanks	Room 327
351-2	Rotating & Reciprocating Machinery (4 hrs)	Room 335
435	Deflection (4 hrs)	Room 503
439	Steel Reinforcement (4 hrs)	Room 326
*J530	Masonry Structures	Phoenix A
* 544	Fiber Reinforced	Curtis A
* 551	Tilt-Up	Curtis B
4:00 pm-6:00 pm		
	International Activities Comm. (2 hrs)	Room 316
	Membership Committee (2 hrs)	Room 319
	TAC Task Group on Computers (2 hrs)	Remington A
*E701	Construction Materials	Room 322
*E703	Construction Practices	Room 323
201	Durability (2 hrs)	Curtis A
223	Expansive Cement (2 hrs)	Room 334
226-1	Fly Ash (2 hrs)	Room 603
* 304	Measuring, Mixing, Trans/Placing	Phoenix B
* 318-B	Reinforcement & Development	Remington C
* 318-C	Serviceability & Safety	Russell A
* 318-D	Flexure & Axial Loads	Russell B
* 318-F	Two-Way Slabs	Russell C
* 344	Circular Prestressed Tanks	Room 327
* 351-2	Rotating & Reciprocating Machinery	Room 335
* 435	Deflection	Room 503
* 439	Steel Reinforcement	Room 326
523	Insulating & Cellular (2 hrs)	Room 318

DAY / TIME	FUNCTION	ROOM
4:00 pm-6:00 pm (continued)		
*J530	Masonry Structures (cont. Tues.)	Phoenix A
* 551	Tilt-Up	Curtis B
7:30 pm-9:30 pm		
	Metrication (2 hrs)	Remington A
E801	Student Concrete Practices (2 hrs)	Remington B
* 544	Fiber Reinforced	Curtis A
554-C	Task Group (2 hrs)	Russell B

TUESDAY, MARCH 6, 1984

8:30 am-10:30 am		
	Specifications (2 hrs)	Room 316
E902	Certification (4 hrs)	Remington C
117	Tolerances (4 hrs)	Room 335
212	Chemical Admixtures (2 hrs)	Curtis A
222	Corrosion (2 hrs)	Room 318
303	Architectural (4 hrs)	Room 503
315	Detailing of Reinforcement (4 hrs)	Room 603
318-A	General Concrete & Construction (4 hrs)	Russell A
318-E	Shear & Torsion (4 hrs)	Russell B
318-G	Prestressed Precast (4 hrs)	Room 334
318-H	Seismic Provisions (4 hrs)	Room 326
340	Strength Design Handbook (6 hrs)	Room 322
351-3	Static Equipment (4 hrs)	Room 319
363	High Strength (4 hrs)	Room 327
*J530	Masonry Structures	Russell C
547	Refractory (8 hrs)	Room 323
9:00 am-12:00 pm		
	— Solutions for Placing Quality Concrete: A Question & Answer Session	Regency C
	— Seminar: Progress in Concrete (Part I)	Phoenix A & B
9:00 am-6:00 pm		
	Board of Direction (old)	Curtis B
10:00 am-6:00 pm		
	— All Day Film Session	Regency B
10:30 am-12:30 pm		
*E902	Certification	Remington C
* 117	Tolerances	Room 335
213	Lightweight Aggregates (2 hrs)	Remington A
221	Aggregates (2 hrs)	Room 318
226-3	Silica Fume (2 hrs)	Room 316
* 303	Architectural	Room 503
* 315	Detailing of Reinforcement	Room 603
* 318-A	General Concrete & Construction	Russell A
* 318-E	Shear & Torsion	Russell B
* 318-G	Prestressed Precast	Room 334
* 318-H	Seismic Provisions	Room 326
* 340	Strength Design Handbook	Room 322
J343	Bridge Design (2 hrs)	Remington B
* 351-3	Static Equipment	Room 319

COMMITTEES

* Reconvening Meeting
( ) Total Duration of Meeting

DAY / TIME	FUNCTION	ROOM
10:30 am-12:30 pm (continued)		
* 363	High Strength	Room 327
*J530	Masonry Structures	Russell C
* 547	Refractory	Room 323
2:00 pm-4:00 pm		
	Construction Liaison (2 hrs)	Room 316
	*Educational Activities Committee	Russell A
209	Creep & Shrinkage (2 hrs)	Room 319
210	Erosion in Hydraulic Structures (2 hrs)	Room 335
302	Construction of Floors (6 hrs)	Russell B
318	Standard Building Code (4 hrs)	Remington A & B
* 340	Strength Design Handbook	Room 322
345-Sub	Subcommittee (4 hrs)	Room 334
351	Foundations (Equipment) (4 hrs)	Remington C
437	Strength of Structures (4 hrs)	Room 318
503	Adhesives (4 hrs)	Room 327
517	Accelerated Curing (4 hrs)	Room 603
*J530	Masonry Structures	Russell C
533	Wall Panels (2 hrs)	Room 503
* 547	Refractory	Room 323
554	Bearing Systems (4 hrs)	Room 326
2:00 pm-5:00 pm		
	— Structural Distress - A Study in Crack Diagnosis (Part I)	Regency D
	— Abdun-Nur/Cordon Symposium on Quality Concrete in Construction (Part I)	Regency C
	— Seminar: Progress in Concrete (Part II)	Phoenix A & B
4:00 pm-6:00 pm		
	*Educational Activities Committee	Russell A
122	Energy Conservation (2 hrs)	Room 322
123	Research (2 hrs)	Room 319
211-4	Editorial (2 hrs)	Room 316
* 302	Construction of Floors	Russell B
* 318	Standard Building Code	Remington A & B
330	Parking Lots (2 hrs)	Room 503
* 345-Sub	Subcommittee	Room 334
* 351	Foundations (Equipment)	Remington C
355	Anchorage (4 hrs)	Curtis A
* 437	Strength of Structures	Room 318
* 503	Adhesives	Room 327
* 517	Accelerated Curing	Room 603
*J530	Masonry Structures	Russell C
* 547	Refractory	Room 323
549	Ferrocement (2 hrs)	Room 335
* 554	Bearing Systems	Room 326
4:30 pm-6:30 pm		
	— 4:30 Rehabilitation (Cash Bar)	Atrium
5:00 pm-9:30 pm		
	— Student Program	Regency A

DAY / TIME	FUNCTION	ROOM
7:30 pm-9:30 pm		
215	Fatigue (2 hrs)	Russell A
227	Radioactive Waste Management (2 hrs)	Russell C
* 302	Construction of Floors	Russell B
* 355	Anchorage	Curtis A
J421	Slabs (2 hrs)	Remington C

WEDNESDAY, MARCH 7, 1984

8:00 am-10:00 am		
	— Awards Breakfast	Regency C & D
8:30 am-10:30 am		
306	Cold Weather (4 hrs)	Remington C
347	Formwork (8 hrs)	Russell B
360	Design of Slabs on Grade (4 hrs)	Room 327
J445	Shear & Torsion (4 hrs)	Room 316
506	Shotcreting (6 hrs)	Room 318
531	Concrete Masonry Structures (8 hrs)	Room 326
10:00 am-12:00 pm		
	— General Session	Regency A & B
10:30 am-12:30 pm		
301-TG	SRC-81 (2 hrs)	Russell A
* 306	Cold Weather	Remington C
* 347	Formwork	Russell B
* 360	Design of Slabs on Grade	Room 327
*J445	Shear & Torsion	Room 316
* 506	Shotcreting	Room 318
* 531	Concrete Masonry Structures	Room 326
1:00 pm-5:00 pm		
	Convention Committee (4 hrs)	Remington A
2:00 pm-4:00 pm		
	Planning Committee (4 hrs)	Remington B
116	Notation & Nomenclature (4 hrs)	Room 503
211	Proportioning (2 hrs)	Curtis A
301	Structural Specifications (4 hrs)	Russell A
345	Bridge Construction (4 hrs)	Room 327
* 347	Formwork	Russell B
348	Safety (4 hrs)	Russell C
349-1	General, Materials Construction (4 hrs)	Room 316
349-2	Design (4 hrs)	Room 319
349-3	Reinforcement & Steel (4 hrs)	Room 322
349-4	Special Provisions (4 hrs)	Room 323
357	Offshore Structures (4 hrs)	Room 335
J423	Prestressed (4 hrs)	Room 603
J442	Lateral Forces (4 hrs)	Curtis B
* 506	Shotcreting	Room 318
* 531	Concrete Masonry Structures	Room 326

* Reconvening Meeting
( ) Total Duration of Meeting

DAY / TIME	FUNCTION	ROOM
2:00 pm-5:00 pm		
	— Research & Development	Phoenix A & B
	— Alternate Methods of Slab Design	Regency B
	— Abdun-Nur/Cordon Symposium on Quality Concrete in Construction (Part II)	Regency C
	— Structural Distress - A Study in Crack Diagnosis (Part II)	Regency D
4:00 pm-6:00 pm		
	*Planning Committee	Remington B
	Standards Board (2 hrs)	Remington C
* 116	Notation & Nomenclatures	Room 503
* 301	Structural Specifications	Russell A
* 345	Bridge Construction	Room 327
* 347	Formwork	Russell B
* 348	Safety	Russell C
* 349-1	General, Materials Construction	Room 316
* 349-2	Design	Room 319
* 349-3	Reinforcement & Steel	Room 322
* 349-4	Special Provisions	Room 323
* 357	Offshore Structures	Room 335
*J423	Prestressed	Room 603
*J442	Lateral Forces	Curtis B
* 531	Concrete Masonry Structures	Room 326
4:30 pm-5:30 pm		
	— Slide Demonstration	Borein A & B
6:30 pm-8:00 pm		
	— Concrete Mixer	Regency Ballroom
7:30 pm-9:30 pm		
444	Models of Structures (2 hrs)	Remington A

THURSDAY, MARCH 8, 1984

8:30 am-10:30 am		
	Chapter Activities Committee (4 hrs)	Remington A
	Institute & Industry Advancement (2 hrs)	Room 316
225-1	Math. Modeling/Cement (2 hrs)	Room 322
307	Chimneys (8 hrs)	Remington C
308	Curing (4 hrs)	Remington B
311	Inspection (4 hrs)	Russell C
313	Bins & Silos (8 hrs)	Room 326
325	Pavements (4 hrs)	Curtis A
358	Guideways (8 hrs)	Room 319
362	Parking Structures (4 hrs)	Room 323
408	Bond & Development of Reinforcement (4 hrs)	Room 327
548	Polymers (4 hrs)	Curtis B
J550	Precast Structural (4 hrs)	Room 334
553	Swimming Pools (4 hrs)	Room 318

THURSDAY

DAY / TIME	FUNCTION	ROOM
9:00 am-12:00 pm		
	— Evaluation of Existing Concrete Buildings: Strength (Part I)	Regency C
	— Developments in Design for Shear & Torsion (Part I)	Regency D
	— Anchorage to Concrete (Part I)	Regency B
	— Seminar: Design of Industrial Floors	Regency A
10:30 am-12:30 pm		
	* Chapter Activities Committee	Remington A
216	Fire Resistance (2 hrs)	Russell B
226	Fly Ash, Slag, etc. (2 hrs)	Phoenix A
* 307	Chimneys (cont. Fri.)	Remington C
* 308	Curing	Remington B
* 311	Inspection	Russell C
* 313	Bins & Silos	Room 326
* 325	Pavements	Curtis A
* 358	Guideways	Room 319
* 362	Parking Structures	Room 323
* 408	Bond & Development Reinforcement	Room 327
442-Sub	Inelastic Response	Russell A
* 548	Polymers	Curtis B
*J550	Precast Structural	Room 334
* 553	Swimming Pools	Room 318
2:00 pm-4:00 pm		
121	Quality Assurance (4 hrs)	Russell A
224	Cracking (4 hrs)	Room 318
225	Hydraulic Cements (4 hrs)	Room 327
* 313	Bins & Silos	Room 326
346	Cast-in-Place Pipe (4 hrs)	Russell C
349	Nuclear Structures (4 hrs)	Remington A
350	Sanitary Engineering Structures (4 hrs)	Russell B
352	Joints (4 hrs)	Room 322
* 358	Guideways	Room 319
504	Joint Sealants (4 hrs)	Phoenix A
546	Repair (4 hrs)	Remington C
2:00 pm-5:00 pm		
	— Evaluation of Existing Concrete Buildings: Strength (Part II)	Regency C
	— Clinic on Curing of Concrete	Regency B
	— Developments in Design for Shear & Torsion (Part II)	Regency D
	— Open Paper Session	Regency A
2:00 pm-6:00 pm		
	Board of Direction (new)	Curtis B
4:00 pm-6:00 pm		
* 121	Quality Assurance	Russell A
* 224	Cracking	Room 318
* 225	Hydraulic Cements	Room 327
* 313	Bins & Silos	Room 326
* 346	Cast-in-Place Pipe	Russell C

* Reconvening Meeting
( ) Total Duration of Meeting

DAY / TIME	FUNCTION	ROOM
4:00 pm-6:00 pm (continued)		
* 349	Nuclear Structures	Remington A
* 350	Sanitary Engineering Structures	Russell B
* 352	Joints	Room 322
* 358	Guideways	Room 319
* 504	Joint Sealants	Phoenix A
* 546	Repair	Remington C
7:30 pm-10:00 pm		
	— Forum: Why Use Silica Fume or Ground Slag in Concrete?	Regency C
364	Rehabilitation (2.5 hrs)	Remington C

FRIDAY, MARCH 9, 1984

8:30 am-10:30 am		
E902-5	Concrete Inspector - Nuclear (4 hrs)	Russell C
118	Computers (4 hrs)	Russell A
* 307	Chimneys	Remington C
309	Consolidation (4 hrs)	Russell B
336	Footings (2 hrs)	Remington B
532	Concrete Masonry (2 hrs)	Remington A
9:00 am-12:00 pm		
	— Evaluation of Existing Concrete Buildings: Safety (Part III)	Regency C
	— Anchorage to Concrete (Part II)	Regency B
	— Symposium: Deflections of Structures	Regency A
	— Nondestructive Test Methods for Concrete Strength	Regency D
10:30 am-12:30 pm		
* E902-5	Certification Inspector - Nuclear	Russell C
* 118	Computers	Russell A
* 307	Chimneys	Remington C
* 309	Consolidation	Russell B

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FILM SESSION

TUESDAY, March 6, 1984
10:00 am-6:00 pm

Room: **Regency B**

TIME First Showing	TIME Second Showing	FILM
10:00 am	1:30 pm	**"The Total Floor System/ Restoration Techniques"** Source: Master Builders
10:20 am	1:50 pm	**"The 1976 Tangshan, China Earthquake"** Source: State Seismological Bureau of the People's Republic of China
10:50 am	2:20 pm	**"A Fitting Occupation"** (Mechanical Engineering) Source: The American Society of Mechanical Engineers
11:20 am	2:50 pm	**"Water Reducing Admixtures For Concrete"** Source: Master Builders
11:40 am	3:10 pm	**"Seikan Under-Sea Tunnel"** Source: Japanese Concrete Institute
12:40 pm	4:10 pm	**"Air Entrainment For Concrete"** Source: Master Builders
1:00 pm	4:30 pm	**"Construction of the CN Tower in Toronto"** Source: CN Tower, Toronto, Ont., Canada
	5:00-6:00 pm	**Open for Film Requests**

STUDENT ACTIVITIES PROGRAM

TUESDAY, March 6, 1984
5:00 pm-9:30 pm Room: **Regency A**

STUDENT PROGRAM

Sponsored by ACI Committee E-801

Session Chairman: R. John Craig
Associate Professor
Department of Civil and
Environmental Engineering
New Jersey Institute of Technology
Newark, New Jersey

Session Moderator: Luke M. Snell
Associate Professor of Construction
Southern Illinois University
Edwardsville, Illinois

This program has three main goals:

1. Create student interest and familiarity with ACI
2. Stimulate some interest in working concrete projects at both the undergraduate and graduate levels
3. Show students some of the existing careers in concrete construction and design

The program is geared for the following:

1. Students—undergraduate and graduate
2. General members of ACI
3. Those interested in Committee E-801 activities

PROGRAM

5:00 pm **Forney/ACI Cube Strength Contest**

7:30 pm **Student Concrete Projects**
R. John Craig, Chairman, E-801 Committee

Careers Related to Concrete Construction and Design
Dennis Smith, Rocky Mountain Ash Company,
Englewood, Colorado

Modeling of Precast Concrete Structures
Harry Harris, Professor, Civil Engineering Department
Drexel University, Philadelphia, Pennsylvania

Presentation of Papers by Students

Social Hour

TECHNICAL SESSIONS

TUESDAY, March 6, 1984
9:00 am-12:00 pm Room: **Regency C**

SOLUTIONS FOR PLACING QUALITY CONCRETE: A QUESTION AND ANSWER SESSION

Sponsored by ACI TAC AdHoc Committee

Session Chairman: Paul H. Sommers
Chief Engineer
Algernon Blair, Inc.
Montgomery, Alabama

Panelists:

Dean E. Stephan, Jr.
Charles Pankow, Inc.
Altadena, California

Richard Meininger
National Ready-Mix Concrete Association
Silver Springs, Maryland

Edward J. Hyland
Consultant
Skokie, Illinois

Oswin Keifer, Jr.
North Pacific Division
Corps of Engineers
Portland, Oregon

James L. Cope
President
Morgen Manufacturing Company
Yankton, South Dakota

Donald L. Schlegel
Manager
Price Brothers Company
Dayton, Ohio

Leo P. Flibotte
Vice President — Operations
Barker Steel Company, Inc.
Medford, Massachusetts

Richard D. Gaynor
National Ready-Mix Concrete Association
Silver Spring, Maryland

Clarkson W. Pinkham
S. B. Barnes and Associates
Los Angeles, California

William C. Black
Consulting Structural Engineer
Bethlehem, Pennsylvania

A panel made up of Engineers, Contractors and Manufacturers eminent in the field of quality concrete who will share their expertise in answering the many perplexing questions that arise in producing and placing economical quality concrete. Each panelist will give a short commentary on problems, in their field, that presently confront the concrete industry, and how best they can be solved. Questions and comments from the audience are welcomed to obtain the full benefit of this session.

TUESDAY, March 6, 1984
9:00 am-12:00 pm Room: **Phoenix A & B**

SEMINAR: PROGRESS IN CONCRETE (PART I)

Sponsored by ACI Arizona Chapter

Seminar Chairman: Edward Mangotich
Principal
Western Technologies, Inc.
Phoenix, Arizona

CONCRETE MATERIALS — TECHNOLOGY

Use of 14 Day Compressive Strength Tests in Lieu of 28 Day Tests for Acceptance
Chetan Date, Faculty Associate, Arizona State University, Tempe, Arizona; Russell Schnormeier, Engineering Supervisor, City of Phoenix, Phoenix, Arizona

Nature and Effects of Carbon in Fly Ash on Properties of Fly Ash Concrete
Sidney Diamond, Professor of Civil Engineering, Purdue University, West Lafayette, Indiana

Use of Petrographic Techniques in the Determination of Fly Ash Content in Hardened Concrete
Robert C. O'Neill, Petrographer, Micro-Chem Laboratories, San Jose, California; Robert M. Kumagai, Chemist, Micro-Chem Laboratories, San Jose, California

Production and Use of Flowable Concrete in Arizona
Richard N. Clark, Metro Manager-Arizona, Master Builders, Phoenix, Arizona

Status of Arizona Technician Certification Program
Patrick Neilio, Technical Service Manager, Phoenix Cement Company, Phoenix, Arizona; Michael Kohout, Director of Technical Services, Central Arizona Region, The Tanner Companies, Phoenix, Arizona

Please Note: Part II will be presented on Tuesday, March 6, 2:00 pm - 5:00 pm in Phoenix A & B room.

TUESDAY, March 6, 1984
2:00 pm-5:00 pm Room: **Regency D**

STRUCTURAL DISTRESS — A STUDY IN CRACK DIAGNOSIS (PART I)

Sponsored by ACI Committees 222, 224, 408 and 445

Session Chairman: David Darwin
Professor of Civil Engineering
University of Kansas
Lawrence, Kansas

Session Co-Chairman: LeRoy A. Lutz
Vice President
Computerized Structural Design, Inc.
Milwaukee, Wisconsin

Key Note — Investigation of Distress in Concrete Structures
Boris Bresler, Principal, Wiss, Janney, Elstner Associates, Inc., Emeryville, California

Tools for Crack Evaluation
Nicholas J. Carino, Research Civil Engineer, National Bureau of Standards, Washington, D.C.

Causes and Remedies of Distress — Three Case Histories
Paul Zia, Professor of Civil Engineering and Department Head, North Carolina State University, Raleigh, North Carolina

The Analysis of Cracked Concrete and Corrosion
John P. Lloyd, Professor, Oklahoma State University, Stillwater, Oklahoma; Robert H. Heidersbach, Professor, Oklahoma State University, Stillwater, Oklahoma

An Investigation of Cracked and Deteriorated Concrete Floor Slabs
Stephen J. Sopko, Associate, Ryan-Biggs Associates, Troy, New York

Please Note: Part II will be presented on Wednesday, March 7, 2:00 pm - 5:00 pm in Regency D room.

NOTE: Technical Sessions continue on page 33

Pull Out
This Four-Page Section
And Schedule Your Meetings

Personal Log
1984 Annual Convention

Delegate's Name _____

Sunday, March 4, 1984

8:00 a.m. — 1:00 p.m. _____

1:00 p.m. — 5:00 p.m. Registration Hours Atrium

6:30 p.m. — 8:00 p.m. Wine & Cheese Party Regency A & B

Monday, March 5, 1984

7:00 a.m. — 8:30 a.m. _____

8:30 a.m. — 10:30 a.m. _____

10:30 a.m. — 12:30 p.m. _____

12:30 p.m. — 2:00 p.m. Lunch Break

2:00 p.m. — 4:00 p.m. _____

4:00 p.m. — 6:00 p.m. _____

6:00 p.m. — 7:30 p.m. _____

7:30 p.m. — 9:30 p.m. _____

Tuesday, March 6, 1984

7:00 a.m. — 8:30 a.m.		
8:30 a.m. — 10:30 a.m.		
9:00 a.m. — 12:00 noon	**Sessions:**	
	Placing Quality Concrete	Regency C
	Seminar: Progress in Concrete (I)	Phoenix A & B
10:30 a.m. — 6:00 p.m.	All Day Film Session	Regency B
10:30 a.m. — 12:30 p.m.		
12:30 p.m. — 2:00 p.m.	Lunch Break	
2:00 p.m. — 4:00 p.m.		
2:00 p.m. — 5:00 p.m.	**Sessions:**	
	Structural Distress	Regency D
	Abdun-Nur/Cordon Symposium (I)	Regency C
	Progress in Concrete (II)	Phoenix A & B
4:00 p.m. — 6:00 p.m.		
4:30 p.m. — 6:30 p.m.	4:30 Rehabilitation (Cash Bar)	Atrium
5:00 p.m. — 9:30 p.m.	Student Program	Regency A
6:00 p.m. — 7:30 p.m.		
7:30 p.m. — 9:30 p.m.		

Wednesday, March 7, 1984

7:00 a.m. — 8:00 a.m.		
8:00 a.m. — 10:00 a.m.	Awards Breakfast*	Regency C & D
	* (Please purchase tickets in advance)	
8:30 a.m. — 10:30 p.m.		

Wednesday, March 7, 1984 (continued)

10:00 a.m. — 12:00 p.m.	General Session	Regency A & B
10:30 a.m. — 12:30 p.m.		
12:30 p.m. — 2:00 p.m.	Lunch Break	
2:00 p.m. — 4:00 p.m.		
2:00 p.m. — 5:00 p.m.	**Sessions:**	
	Research & Development	Phoenix A & B
	Alternate Methods of Slab Design	Regency B
	Structural Distress (II)	Regency D
	Abdun-Nur/Cordon Symposium (II)	Regency C
4:00 p.m. — 6:00 p.m.		
4:30 p.m. — 5:30 p.m.	Slide Demonstration	Borein A & B
6:30 p.m. — 8:00 p.m.	Concrete Mixer	Regency Ballroom
7:30 p.m. — 9:30 p.m.		

Thursday, March 8, 1984

7:00 a.m. — 8:30 a.m.		
8:30 a.m. — 10:30 a.m.		
9:00 a.m. — 12:00 p.m.	**Sessions:**	
	Concrete Buildings: Strength (I)	Regency C
	Design for Shear & Torsion (I)	Regency D
	Anchorage to Concrete (I)	Regency B
	Seminar: Industrial Floors	Regency A
10:30 a.m. — 12:30 p.m.		
12:30 p.m. — 2:00 p.m.	Lunch Break	
2:00 p.m. — 4:00 p.m.		

2:00 p.m. — 5:00 p.m.	**Sessions:**	
	Concrete Buildings: Strength (II)	Regency C
	Clinic: Curing of Concrete	Regency B
	Design for Shear & Torsion (II)	Regency D
	Open Paper Session	Regency A
4:00 p.m. — 6:00 p.m.		
6:00 p.m. — 10:00 p.m.	Evening at Rawhide $30	Outside Hotel
7:30 p.m. — 9:30 p.m.		
7:30 p.m. — 10:00 p.m.	**Forum:**	
	Silica Fume/Ground Slag in Concrete?	Regency C

Friday, March 9, 1984

7:00 a.m. — 8:30 a.m.		
8:30 a.m. — 10:30 a.m.		
9:00 a.m. — 12:00 p.m.	**Sessions:**	
	Concrete Buildings: Safety (III)	Regency C
	Anchorage to Concrete (II)	Regency B
	Deflections of Structures	Regency A
	Nondestructive Test Methods/Strength	Regency D
1:00 p.m. — 6:00 p.m.	Technical Field Trip $15	Outside Hotel

Please Note Special Ticketed Events

Wednesday, March 7, 1984		
8:00 a.m. — 10:00 a.m.	Awards Breakfast	$ 8.75
Thursday, March 8, 1984		
6:00 p.m. — 10:00 p.m.	Evening at Rawhide	$30.00
Friday, March 9, 1984		
1:00 p.m. — 6:00 p.m.	Technical Field Trip	$15.00

All convention delegates are invited to participate in these events. Tickets are limited. Please purchase tickets by Tuesday, March 6.

TUESDAY, March 6, 1984
2:00 pm-5:00 pm Room: **Regency C**

ABDUN-NUR/CORDON SYMPOSIUM ON QUALITY CONCRETE IN CONSTRUCTION (PART I)

Sponsored by ACI Committee 214

Symposium Chairman: V.M. Malhotra
Head of Construction
Materials Section
CANMET/EMR
Ottawa, Ontario
CANADA

Introduction
R.C. Mielenz, Geologist and Petrographer, Gates Mills, Ohio

Men Who Made It Happen
J. Derle Thorpe, Director - Structural Materials, Utah State University, Logan, Utah

How to Get Quality in Concrete Construction: What Matters — What Does Not!
Lewis H. Tuthill, Concrete Engineer, Consultant, Sacramento, California

Selecting Relevant Levels of Quality
Bryant Mather, Chief of Structures Laboratory, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi

Achieving Common Quality in Concrete Construction Throughout the World
Ken Newman, Director General, British Ready-Mixed Concrete Association, Shepperton, Middlesex, United Kingdom

Quality Control for Roller Compacted Concrete
Ernest Schrader, Civil Engineer, U.S. Army Corps of Engineers, Walla, Walla, Washington

Please Note: Part II will be presented on Wednesday, March 7, 2:00 pm - 5:00 pm in Regency C room.

TUESDAY, March 6, 1984
2:00 pm-5:00 pm Room: **Phoenix A & B**

SEMINAR: PROGRESS IN CONCRETE (PART II)

Sponsored by ACI Arizona Chapter

Seminar Chairman: W. Richard Studeny
Regional Manager
Master Builders
Phoenix, Arizona

CONCRETE CONSTRUCTION — TECHNOLOGY

Roller Compacted Concrete in the USA — 1984
Kenneth D. Hansen, Engineer, Western Energy and Water Resources, Portland Cement Association, Denver, Colorado

Concrete Construction on the Central Arizona Project
Jack W. Norberg, Supervisory Civil Engineer, Bureau of Reclamation, Phoenix, Arizona

Arizona Experience — Performance of Alternate Types of Concrete Highway Pavement
Gene R. Morris, Principal, Western Technologies, Inc., Phoenix, Arizona; Frank R. McCullagh, Director, Arizona Transportation Research Center, Tempe, Arizona; James P. Delton, Senior Materials Engineer, Arizona Department of Transportation, Phoenix, Arizona; A. Brady Smithson, Research Engineer, Arizona Transportation Research Center, Tempe, Arizona

Concrete Quality Requirements of the ACI Building Code
Jesse R. Wyatt, Consulting Engineer, Phoenix, Arizona

AWARDS BREAKFAST

WEDNESDAY, March 7, 1984
8:00 am-10:00 am Room: **Regency C & D**

Come meet the awardees. Have fun, enjoy a good breakfast, and watch the multi-media awards presentation.

AWARDS

Honorary Membership
Alexander Major
John F. McLaughlin

Henry C. Turner Medal
Robert E. Philleo

Arthur R. Anderson Award
Robert E. Tobin

Joe W. Kelly Award
Noel J. Everard

Charles S. Whitney Medal
U.S. Naval Civil Engineering Laboratory

Henry L. Kennedy Award
Gerald B. Neville

Roger H. Corbetta Concrete Constructor Award
Cecil V. Wellborn

Alfred E. Lindau Award
Robert E. Englekirk

Cedric Willson Award
Thomas A. Holm

Construction Practice Award
Richard C. Meininger

Raymond C. Reese Structural Research Award
Robert Park
M. J. N. Priestley
Brian D. Scott

Wason Medal for the Most Meritorious Paper
Ernest K. Schrader

Wason Medal for Materials Research
Yasuhiko Yamamoto
Masaki Kobayashi

Chapter Activities Award
C. Taylor Test

Delmar L. Bloem Award for Distinguished Service
Theodore R. Crom
Charles G. Salmon
Harry Stavrides
Stewart C. Watson

GENERAL SESSION

WEDNESDAY, March 7, 1984
10:00 pm-12:00 pm Room: **Regency A & B**

GENERAL SESSION

Session Chairman: *Howard B. Pugh, Sr.*
General Chairman
1984 Annual Convention
Union Rock & Materials
Corporation
Phoenix, Arizona

Welcome to Arizona
Howard B. Pugh, Sr., General Chairman, 1984 Annual Convention, ACI Arizona Chapter

Presidential Address
Norman L. Scott, ACI President, President, Consulting Engineers Group, Glenview, Illinois

Certificates of Appreciation for the 1984 Annual Convention

Recognition of Retiring Officers

Recognition of Past Presidents

Tellers Report

Introduction of New Officers

Presentation of Memento to Retiring President

Keynote Speech:
"Structural Strength and Safety — The Profession at a Crossroad". Walter P. Moore, Jr., Ph.D., P.E., President, Walter P. Moore and Associates, Inc., Consulting Engineers and Planners, Houston, Texas

WEDNESDAY, March 7, 1984
2:00 pm-5:00 pm Room: **Phoenix A & B**

RESEARCH AND DEVELOPMENT

Sponsored by ACI Commitee 123

Session Chairman: James Dikeou
Director of Business
Quazite Corporation
Houston, Texas

The Effects of Aqueous Carbonation on the Strength Development of Concrete
W.H. Skelton, Associate Professor, University of South Florida, Tampa, Florida

Shaking Table Study of Flat-Plate Frame
Jack P. Moehle, Assistant Professor, University of California, Berkeley, California; John Diebold, Research Assistant, University of California, Berkeley, California; Howard Zee, Research Assistant, University of California, Berkeley, California

Combined Punching Shear and Torsional Shear in Reinforced Concrete Slabs
Richard N. White, Director, C & E School, Ithaca, New York

Tie Requirements for Prestressed Concrete Columns
Grant T. Halvorsen, Assistant Professor of Civil Engineering, University of West Virginia, Morgantown, West Virginia; Craig Carinci, Research Fellow, University of West Virginia, Morgantown, West Virginia

Shear Requirements for Prestressed Concrete T-Beams Reinforced with Welded Wire Fabric
Ian Robertson, Rice University, Houston, Texas

Freezing and Thawing Resistance of Non Air-Entrained and Air-Entrained Concrete Incorporating Silica Fume
V.M. Malhotra, Head of Construction Materials Section, Energy, Mines and Resources Canada, Ottawa, Ontario, Canada

Application of Expansive Concrete in Drilled Shafts
Shamim A. Sheikh, Assistant Professor, University of Houston, Houston, Texas; Michael W. O'Neill, Associate Professor, University of Houston, Houston, Texas; M.A. Mehrazarin, Former Graduate Student, University of Houston, Houston, Texas

(continues — next page)

RESEARCH AND DEVELOPMENT (continued)

Field Studies of Concrete Form Pressures

Mehdi Saiidi, Associate Professor, University of Nevada, Reno, Nevada; Bruce M. Douglas, Professor of Civil Engineering, University of Nevada, Reno, Nevada; Robert Hayes, Graduate Research Assistant, University of Nevada, Reno, Nevada; Grove Holcomb, President, Holcomb Construction Company, Reno, Nevada

Biaxial Tension Tests of Thick Concrete Sections Reinforced with Large Diameter Bars

J.T. Julien, Structural Engineer, Portland Cement Association, Skokie, Illinois; Donald M. Schultz, Portland Cement Association, Skokie, Illinois

Study of Superplasticizers in Concrete

Sukhvarsh Jerath, Assistant Professor, Washington State University, Pullman, Washington

A. J. Boase Award of the Reinforced Concrete Research Council

The 1984 Boase Award will be presented to Paul F. Rice, during the Research and Development Session on Wednesday afternoon, March 7. (Traditionally the Award is presented immediately prior to the mid point break.)

WEDNESDAY, March 7, 1984
2:00 pm-5:00 pm
Room: **Regency B**

ALTERNATE METHODS OF SLAB DESIGN

Sponsored by ACI-ASCE Committee 421

Session Chairman: M. Daniel Vanderbilt
Professor of Civil Engineering
Colorado State University
Fort Collins, Colorado

Limit Analysis and Reinforced Concrete Slab Design
Peter Marti, Associate Professor, Department of Civil Engineering, University of Toronto, Toronto, Ontario, Canada

Design Procedure for Reinforced Concrete Slabs and Use of Finite Element Method
Brij B. Goyal, Project Manager, Harza Engineering Company, Chicago, Illinois; Ved K. Vig, Section Head, Harza Engineering Company, Chicago, Illinois

Segmental Design Procedures
S.H. Simmonds, Professor, Department of Civil Engineering, University of Alberta, Edmonton, Alberta, Canada

Lateral Load Serviceability Analysis for Flat Plate Structures
Peter LePoer Darvall, Senior Lecturer, Monash University, Clayton, Victoria, Australia; Fred Allen, Senior Lecturer, Swinburne Institute of Technology, Hawthorn, Victoria, Australia

Beam-Analogy Model for Flat Plate Lateral Loading
Neil M. Hawkins, Chairman, Civil Engineering, University of Washington, Seattle, Washington; Haruki Akiyama, Project Manager, Honshu-Shikoku Bridge Authority, Tokyo, Japan

Inelastic Analysis of the Flexural Strength of Flat Plate Floor Systems Subjected to Simultaneous Distributed and Concentrated Loads
Jerzy T. Jacak, University of Kentucky, Lexington, Kentucky; Hans Gesund, Professor of Structural Engineering, University of Kentucky, Lexington, Kentucky

WEDNESDAY, March 7, 1984
2:00 pm-5:00 pm Room: **Regency D**

STRUCTURAL DISTRESS — A STUDY IN CRACK DIAGNOSIS (PART II)

Sponsored by ACI Commitees 222, 224, 408 and 445

Session Chairman: Tony C. Liu
Office of the Chief of Engineers
U.S. Army Corps of Engineers
Washington, D.C.

Session Co-Chairman: David G. Manning
Head of Materials Research
Ontario Ministry of Transportation & Communication
Downsview, Ontario, Canada

Understanding the Cause of Cracking in Concrete: A Diagnostic Aid
Manal El Rahman, Graduate Student, University of Calgary, Calgary, Alberta, Canada; Nigel G. Shrive, Professor, University of Calgary, Calgary, Alberta, Canada

Evaluation of Structural Cracking at Lockport Lock, Illinois Waterway
Richard L. Stowe, Chief of Materials and Concrete Analysis Group, U.S. Army Engineers Waterways Experiment Station, Vicksburg, Mississippi; Roy L. Campbell, Civil Engineer Evaluation and Monitoring Group, Structures Laboratory, U.S. Army Engineers, Waterways Experiment Station, Vicksburg, Mississippi; Henry T. Thornton, Chief of Evaluation and Monitoring Group, Structures Laboratory, U.S. Army Engineers, Waterways Experiment Station, Vicksburg, Mississippi

Incidence Assessment of Transverse Cracking in Bridge Decks
David W. Johnston, Associate Professor of Civil Engineering, North Carolina State University, Raleigh, North Carolina; William L. Bingham, Associate Professor of Civil Engineering, North Carolina State University, Raleigh, North Carolina

Causes and Effects of Cracking on Precast Deck Bridge Systems
Fernando E. Fagundo, Assistant Professor of Civil Engineering, University of Florida, Gainesville, Florida; Clifford O. Hays, Jr. Professor of Civil Engineering, University of Florida, Gainesville, Florida, Joseph M. Richardson, Graduate Research Assistant, University of Florida, Gainesville, Florida

Investigation of Corrosion of Prestressing Tendons
Carolyn S. Ewart, Civil Engineer, Wiss, Janney, Elstner Associates, Inc., Emeryville, California; Sven E. Thomasen, Consultant, Wiss, Janney, Elstner Associates, Inc., Emeryville, California

WEDNESDAY, March 7, 1984
2:00 pm-5:00 pm Room: **Regency C**

ABDUN-NUR/CORDON SYMPOSIUM ON QUALITY CONCRETE IN CONSTRUCTION (PART II)

Sponsored by ACI Commitee 214

Symposium Chairman: Kenneth R. Lauer
University of Notre Dame
Department of Civil Engineering
Notre Dame, Indiana

Quality Assurance in Concrete at Guri Dam
William O'Donnell, Concrete Consultant, Harza Engineering, Chicago, Illinois; Luis E. Diaz, Chief of Structures Laboratories and Plants, EDELCA/Harza Engineering, Caracas, Venezuela

Concrete Evaluation — Callaway Nuclear Power Plant
Michael K. Armstrong, Senior Civil Engineer, Daniel International, Greenville, South Carolina

Sampling for Attributes — A Case History
Donald E. Dixon, Consultant, Soil & Material Engineers, Atlanta, Georgia

Selection of Required Average Strength f_{cr} for Compliance with Specified Strength f'_c
P. Balaguru, Associate Professor, Rutgers University, Piscataway, New Jersey; V. Ramakrishnan, Professor of Civil Engineering, South Dakota School of Mines and Technology, Rapid City, South Dakota

Closing Remarks:
V. Ramakrishnan, Professor of Civil Engineering, South Dakota School of Mines and Technology, Rapid City, South Dakota

TECHNICAL SESSION

THURSDAY, March 8, 1984
9:00 am-12:00 pm Room: **Regency C**

EVALUATION OF EXISTING CONCRETE BUILDINGS: STRENGTH (PART I)

Sponsored by ACI Committees 348 and 437

Session Chairman: Thomas L. Rewerts
Ciorba Group, Inc.
Schaumburg, Illinois

Importance of Field Condition Survey in Strength Evaluation of Existing Concrete Buildings
Suresh G. Pinjarkar, Senior Structural Consultant, Construction Technology Laboratories, Skokie, Illinois

Recognizing and Evaluating Concrete Defects: Two Case Histories
Brian J. Pashina, Manager, Construction Materials Department, Twin City Testing and Engineering Laboratory, Inc., St. Paul, Minnesota; Keith A. Pashina, Civil Engineer, Twin City Testing and Engineering Laboratory, Inc., St. Paul, Minnesota

Nondestructive Testing — Use it Wisely
Merle E. Brander, President, Brander Construction Technology, Inc., Green Bay, Wisconsin

Evaluation by Analytical Methods
Predrag L. Popovic, Consultant, Wiss, Janney, Elstner Associates, Inc., Northbrook, Illinois; John M. Hanson, President, Wiss, Janney, Elstner Associates, Inc., Northbrook, Illinois

Evaluation of Corrosion Deterioration of Reinforcement in Concrete Structures in the Middle East
Rasheeduzzafar, Professor, University of Petroleum and Minerals, Dhahran, Saudi Arabia; Fahd H. Dakhil, Vice Rector for Research and Graduate Studies, University of Petroleum and Minerals, Dhahran, Saudi Arabia; Ahmad Saad Al-Gahtani, Lecturer, University of Petroleum and Minerals, Dhahran, Saudi Arabia

Evaluation of Strength of Existing Flat Slabs Using Stress Relief Method
Dov Kaminetzky, President, Feld, Kaminetzky & Cohen, New York, New York

Inspection and Evaluation of Concrete Floors Subjected to Chemical Deterioration
Avanti C. Shroff, Senior Vice President, Iffland Kavanagh Waterbury, New York, New York

Please Note: Part II will be presented Thursday, March 8, 2:00 pm - 5:00 pm in Regency C room.

Part III will be presented Friday, March 9, 9:00 am - 12:00 pm in Regency C room.

THURSDAY, March 8, 1984
9:00 am-12:00 pm Room: **Regency D**

DEVELOPMENTS IN DESIGN FOR SHEAR AND TORSION (PART I)

Sponsored by ACI-ASCE Committee 445

Session Chairman: Paul Zia
Professor and Head
Department of Civil Engineering
North Carolina State University
Raleigh, North Carolina

Reinforced and Prestressed Concrete Haunched Beams Under Shear
E. I. El-Niema, Associate Professor, King Saud University, Riyadh, Saudi Arabia

Design for Sustained Torsional Loading
C. Douglas Goode, Senior Lecturer, University of Manchester, Manchester, England.

Torsion Design of Edge Beams in Building Floors
B. V. Rangan, Associate Professor, University of New South Wales, Kensington, Australia; A. S. Hall, Emeritus Professor, University of New South Wales, Kensington, Australia

Assessing the Shear and Moment Strength of Reinforced Concrete Flat Slab Structures at the Edge Column Location
S. G. Gilbert, Structures Lecturer, Civil Engineering Department, The Queen's University of Belfast, Belfast, Great Britain; A. E. Long, Professor and Head of Civil Engineering Department, The Queen's University of Belfast, Belfast, Great Britain

Design for Shear of Seismic Resistant Reinforced Concrete Walls
Vitelmo V. Bertero, Professor, Department of Civil Engineering, University of California, Berkeley, California; Ahmet E. Aktan, Associate Research Engineer, University of California, Berkeley, California

Mechanical Behavior of Reinforced Concrete Members Subjected to Combined Bending, Shear and Torsion
Takahisa Okamoto, Department of Civil Engineering, Tokyo Institute of Technology, Tokyo, Japan; Shigeyoshi Nagataki, Department of Civil Engineering, Tokyo Institute of Technology, Tokyo, Japan

Please Note: Part II will be presented Thursday, March 8, 2:00 pm - 5:00 pm in Regency D room.

TECHNICAL SESSION

THURSDAY, March 8, 1984
9:00 am-12:00 pm Room: **Regency B**

ANCHORAGE TO CONCRETE (PART I)

Sponsored by ACI Committees 349 and 355

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

Qualification Tests on Concrete Anchors for CANDU Nuclear Power Plants
George A. Senkiw, Engineer, Ontario Hydro, Toronto, Ontario, Canada

Metallic Expansion Anchors in Nuclear Power Plants
Rolf Eligehausen, Senior Research Engineer, University of Stuttgart, West Germany

The Effect of Preload Upon the Strength of Typical Concrete Expansion Anchors Under Dynamic Loading
M. R. Lindquist, Principal Engineer, Engineering Department, Westinghouse Hanford Company, Richland, Washington

Performance Characteristics of Undercut Anchors
Harry Wiewel, President, Techmar, Inc., Long Beach, California

An Evaluation of Expansion Anchors in Hardened Grout and Mortar
Moorman L. Scott, Manager - Product Engineering and Development, Master Builders, Beachwood, Ohio; Paul Hollenbach, Senior Technical Associate, Ramset, Chester, New Jersey

Methods of Anchor Bolt Sleeving
Arthur W. Newbould, Consultant, Sinco, Inc., Stamford, Connecticut

Please Note: Part II will be presented on Friday, March 9, 9:00 am - 12:00 pm in Regency B room.

THURSDAY, March 8, 1984
9:00 am-12:00 pm Room: **Regency A**

SEMINAR: DESIGN OF INDUSTRIAL FLOORS

Sponsored by ACI Committee E702

Session Chairman: Kenneth Murray
Gilbert/Commonwealth
Reading, Pennsylvania

Session Moderator: Robert Johnson
Eastman Kodak Company
Rochester, New York

Planning, Design and Construction of Slabs on Grade: An Overview
Boyd C. Ringo, Professor of Civil Engineering, University of Cincinnati, Cincinnati, Ohio

Design Alternatives for Slabs on Grade
A. Fattah Shaikh, Professor, University of Wisconsin, Milwaukee, Wisconsin

Specifications, Materials and Procedures in Accordance with ACI 302, Guide for Concrete Floor and Slab Construction: A Case Study
William S. Phelan, Vice President, Euclid Chemical Company, East Brunswick, New Jersey

"Design of Industrial Floors" $18.00

This material may be purchased at the registration desk.

THURSDAY, March 8, 1984
2:00 pm-5:00 pm Room: **Regency C**

EVALUATION OF EXISTING CONCRETE BUILDINGS: STRENGTH (PART II)

Sponsored by ACI Committees 348 and 437

Session Chairman: Grant T. Halvorsen
Professor
West Virginia University
Civil Engineering Department
Morgantown, West Virginia

Performance Testing of Concrete Structures in Service
R. D. Browne, Manager, Research and Development Department, Taywood Engineering, Ltd., Southall, Middlesex, England; J. R. Warren, Research Engineer, Research and Development Department, Taywood Engineering, Ltd., Southall, Middlesex, England; A. R. Abbott, Research Engineer, Research and Development Department, Taywood Engineering, Ltd., Southall, Middlesex, England

Uncertainties of In-Situ Assessment of Concrete Strength
Presented by: Grant T. Halvorsen, Professor, West Virginia University, Civil Engineering Department, Morgantown, West Virginia; Author: Theodossius P. Tassios, Professor, National Technical University of Athens, Athens, Greece

Strength Evaluation Process
E. A. B. Salse, Director, Structural Evaluation and Fire Research Department, Construction Technology Laboratories, Skokie, Illinois; Suresh G. Pinjarkar, Senior Structural Consultant, Construction Technology Laboratories, Skokie, Illinois

Parking Structure Rehabilitation — The Role of Load Tests
John A. Bickley, Vice President, Trow Ltd., Consulting Engineers, Rexdale, Ontario, Canada

Structural Evaluation of a Post-Tensioned Parking Garage
William J. Stea, Associate Consulting Civil Engineer, EBASCO Services, Incorporated, New York, New York; John J. Healey, Consulting Civil Engineer, EBASCO Services Incorporated, New York, New York; Ignacio Romero, Consulting Civil Engineer, EBASCO Services Incorporated, New York, New York

Evaluation and Testing of a Fire Damaged Parking Structure
Predrag L. Popovic, Consultant, Wiss, Janney, Elstner Associates, Inc., Northbrook, Illinois

Please Note: Part III will be presented Friday, March 9, 1984, 9:00 am - 5:00 pm in Regency C room.

THURSDAY, March 8, 1984
2:00 pm-5:00 pm Room: **Regency B**

CLINIC ON CURING OF CONCRETE

Sponsored by Committee 308

Session Chairman and Moderator: Luke M. Snell
Professor/Consultant
Southern Illinois University
Edwardsville, Illinois

Determining the Efficiency of Curing
Ephraim Senbettam, Special Projects Engineer, Master Builders, Cleveland, Ohio

Specify the Curing Required
Robert J. Van Epps, Consultant, Stone and Webster, Boston, Massachusetts

Need for Curing by an Owner
Joseph Lamond, Chief, Concrete Section, U. S. Army Corps of Engineers, Washington, D.C.

Effect of Moisture Availability and Curing of Concrete Containing Fly Ash
Steve Gebler, Senior Engineer, Portland Cement Association, Skokie, Illinois; Paul Miejer, Consultant, Portland Cement Association, Skokie, Illinois

Construction Curing Techniques
Robert Ytterberg, Contractor, Kalman Floor Company, Evergreen, Colorado

Owners, designers, contractors, manufacturers and consultants will present curing of concrete from their individual perspectives. The presentations will illustrate successful and unsuccessful techniques of curing. The panelists will troubleshoot and analyze curing problems with the audience.

THURSDAY, March 8, 1984
2:00 pm-5:00 pm
Room: **Regency D**

DEVELOPMENTS IN DESIGN FOR SHEAR AND TORSION (PART II)

Sponsored by ACI-ASCE Commitee 445

Session Chairman: Peter Gergely
Professor and Department Chairman
Structural Engineering
Cornell University
Ithaca, New York

Progress in Shear and Torsion
Peter Mueller, Associate Professor, Department of Civil Engineering, Lehigh University, Bethlehem, Pennsylvania

Combined Shear and Torsion — The Blind Spot
Douglas H. Clyde, Professor, University of Western Australia, Nedlands, Western Australia

Design of Reinforced Concrete Deep Beams
David M. Rogowsky, Structural Engineer, Underwood McLellan, Ltd., Winnipeg, Manitoba, Canada; James G. MacGregor, Professor of Civil Engineering, University of Alberta, Edmonton, Alberta, Canada

Shear and Torsion Design by the New Canadian Code
Michael P. Collins, Professor, University of Toronto, Toronto, Ontario, Canada; Denis Mitchell, Associate Professor, McGill University, Montreal, Quebec, Canada

Unified Design Procedure for Shear and/or Torsion in Reinforced Partially Prestressed and Fully Prestressed Concrete Members
Julio A. Ramirez, Assistant Professor, Purdue University, Lafayette, Indiana

The Use of Truss Models in Detailing
Peter Marti, Associate Professor of Civil Engineering, University of Toronto, Toronto, Ontario, Canada

General Discussion of Design Approaches

THURSDAY, March 8, 1984
2:00 pm-5:00 pm Room: **Regency A**

OPEN PAPER SESSION

Sponsored by TAC AdHoc Committee

Session Chairman: David W. Fowler
Professor
University of Texas
Austin, Texas

State of the Art of Forming High Rise Buildings
Roger S. Johnston, Manager, Denver Field Engineering Office, Patent Scaffolding Company, Denver, Colorado

Pumice and Scoria Evaluated as Structural Concrete Aggregates
David J. Akers, Director of Quality Assurance, Southern California Soil and Testing, Inc., San Diego, California; Robert W. Floyd, Manager — Testing Laboratory, Conrock Company, San Diego, California

Earthquake Analysis of Segmentally Constructed Hyperbolic Cooling Towers
Dennis J. Fallon, Assistant Professor of Civil Engineering, Old Dominion University, Norfolk, Virginia

Volumetric Proportioning and Continuous Mixing — An Overview
Thomas R. Clapp, Chapin & Chapin, Inc., Norwalk, Ohio

The Design and Construction of Roller Compacted Concrete Dams
Charles V. Logie, Consulting Partner, Dames & Moore, Phoenix, Arizona; Ryan R. Berg, Staff Engineer, Dames & Moore, Phoenix, Arizona

Experimental Modal Analysis
B. J. Morgan, Senior Structural Engineer, Construction Technology Laboratories, Skokie, Illinois

THURSDAY, March 8, 1984
7:30 pm-10:00 pm
Room: **Regency C**

FORUM: WHY USE SILICA FUME OR GROUND SLAG IN CONCRETE?

Sponsored by ACI Committees 123 and 226

Forum Chairman: Robert L. Henry
Wiss, Janney, Elstner Associates, Inc.
Arlington, Texas

Forum Moderator: Fred A. Anderson
Department of the Army
Office of the Chief of Engineers
Washington, D.C.

Panelists: Bryant Mather
Chief, Structures Laboratory
U.S. Army Engineers Waterways Experiment Station
Vicksburg, Mississippi

Donald W. Lewis
Chief Engineer
National Slag Association
Alexandria, Virginia

Mohan Malhotra
CANMET/EMR
Ottawa, Ontario
Canada

The use of silica fume and ground iron blast furnace slag as cementing agents in concrete is new to this county relative to the old country. What do you think of its use? Will it ever be useful? Will there ever be enough of the material to be practical for general construction? You will receive a user's perception of the place of silica fume and slag in the concrete industry. You will learn something about the materials and their usefulness. You will hear and see of some recent uses of the products on Corps projects and be posed with some questions on application.

FRIDAY, March 9, 1984
9:00 am-12:00 pm Room: **Regency C**

EVALUATION OF EXISTING CONCRETE BUILDINGS: SAFETY (PART III)

Sponsored by ACI Committees 348 and 437

Session Chairman: Bryan Erler
Structural Design Director
Sargent & Lundy Engineers
Chicago, Illinois

Condition Evaluation and Interpretation for Existing Concrete Buildings
James T. P. Yao, Professor of Civil Engineering, Purdue University, West Lafayette, Indiana; Boris Bresler, Principal, Wiss, Janney, Elstner, Associates, Inc., Emeryville, California; John M. Hanson, President, Wiss, Janney, Elstner Associates, Inc., Northbrook, Illinois

Reliability of Existing Concrete Structures
Andrew Scanlon, Professor of Civil Engineering, Department of Civil Engineering, University of Alberta, Edmonton, Alberta, Canada

Determination of Lateral Load Carrying Characteristics of Concrete Buildings
Peter R. Sparks, Associate Professor, Department of Civil Engineering, Clemson University, Clemson, South Carolina

Assessment of Expected Vulnerability of Reinforced Concrete Buildings Due to Seismic Excitation
Miodrag Velkov, Professor, Institute of Earthquake Engineering and Engineering Seismology, Skopje, Yugoslavia; Zivota Perisic, Professor of Civil Engineering, University of Belgrade, Beograd, Yugoslavia; Predrag Gavrilovic, Professor of Civil Engineering, Institute of Earthquake Engineering and Engineering Seismology, Skopje, Yugoslavia; Milorad Ivkovic, Professor of Civil Engineering, University of Belgrade, Beograd, Yugoslavia

Seismic Capacity of Existing Reinforced Concrete Buildings
Tsuneo Okada, Professor, Institute of Industrial Science, University of Tokyo, Tokyo, Japan; Matsutaro Seki, Research Associate, Institute of Industrial Science, University of Tokyo, Tokyo, Japan

Methodologies of Making Accurate Statements about Location Reinforcement in Concrete
Luke M. Snell, Associate Professor of Construction, Southern Illinois University, Edwardsville, Illinois; Norval Wallace, Professor of Engineering, Southern Illinois University, Edwardsville, Illinois; Robert Rutledge, Professor of Engineering, Southern Illinois University, Edwardsville, Illinois

FRIDAY, March 9, 1984
9:00 am-12:00 pm
Room: **Regency B**

ANCHORAGE TO CONCRETE (PART II)

Sponsored by ACI Committees 349 and 355

Session Chairman: F. L. Moreadith
Manager of Power Engineering
Power & Industrial Systems Division
Gilbert Associates, Inc.
Reading, Pennsylvania

Research Needs in Design of Anchorage to Concrete
Richard E. Klingner, Associate Professor of Civil Engineering, University of Texas, Austin, Texas; Edwin G. Burdette, Professor of Civil Engineering, University of Tennessee, Knoxville, Tennessee

Shear Friction Transfer Mechanisms for Supports Attached to Concrete
Raymond R. Funk, Senior Civil Engineer, Tennessee Valley Authority, Knoxville, Tennessee

Interactive Anchorage Design Using ACI 349
John G. Shipp, Supervising Structural Engineer, Fluor Engineers Inc., Irvine, California; Robert King, Principal Structural Engineer, Fluor Engineers Inc., Irvine, California; Edward Haninger, Senior Structural Engineer, Fluor Engineers Inc., Irvine, California; Matthew Stennes, Associate Structural Engineer, Fluor Engineers Inc., Irvine, California

The Evolution, Philosophy, Criteria and Use of Appendix B, Steel Embedments, ACI 349
Dwaine A. Godfrey, President, Nuclear Structures, Inc., Atlanta, Georgia

Question and Answer Session on Appendix B — Steel Embedments, ACI 349

FRIDAY, March 9, 1984
9:00 am-12:00 pm Room: **Regency A**

SYMPOSIUM: DEFLECTIONS OF STRUCTURES

Sponsored by ACI Committee 435

Symposium Chairman: Gajanan M. Sabnis
Professor of Civil Engineering
Howard University
Washington, D.C.

Symposium Co-Chairman: Donald R. Buettner
President
Computerized Structural Design, Inc.
Milwaukee, Wisconsin

Introduction and Background
Donald R. Buettner, President, Computerized Structural Design, Inc. Milwaukee, Wisconsin

Temperature — Induced Deflections of Reinforced Concrete Members
Andrew Scanlon, Professor of Civil Engineering, University of Alberta, Edmonton, Alberta, Canada

Field Measurements of Deflections
S. K. Ghosh, Associate Professor of Civil Engineering, University of Illinois, Chicago, Illinois; Donald R. Buettner, Computerized Structural Design, Inc., Milwaukee, Wisconsin; Robert G. Drysdale, Assistant Professor, McMaster University, Hamilton, Ontario, Canada; M. Saeed Mirza, McGill University, Montreal, Quebec, Canada; Edward G. Nawy, Rutgers University, Piscataway, New Jersey; Andrew Scanlon, University of Alberta, Edmonton, Alberta, Canada; Gajanan Sabnis, Howard University, Washington, D.C.

Explanation of the Draft Australian Code Provisions for Deflections and Cracking
Paul F. Walsh, Safety and Risk Program, CSIRO, Highett, Victoria, Australia

Deflection of Waffle Slabs Under Gravity and In-Plane Loads
Ti Huang, Professor of Civil Engineering, Lehigh University, Bethlehem, Pennsylvania; Xue-Ren Ji, Instructor, Harbin Institute of Civil Engineering, Harbin, People's Republic of China; S. J. Chen, Research Assistant, Lehigh University, Bethlehem, Pennsylvania; L. W. Lu, Professor of Civil Engineering, Lehigh University, Bethlehem, Pennsylvania

Measured and Predicted Long-Term Deformations in a Tall Concrete Building
Stephen L. Bakoss, Senior Lecturer, New South Wales Institute of Technology, Broadway, New South Wales, Australia; A.J. Burfitt, Senior Lecturer, New South Wales Institute of Technology, Broadway, New South Wales, Australia; L. Cridland, Senior Lecturer, New South

(continues — next page)

SYMPOSIUM: DEFLECTIONS OF STRUCTURES (Continued)

Wales Institute of Technology, Broadway, New South Wales, Australia; J. L. Heiman, Principal Research Engineer, Department of Housing and Construction, Chatswood, New South Wales, Australia

Deformations and Stresses in Flanged Concrete Structures Due to Temperature Differential
Fahim A. Batla, Associate Professor, Department of Civil Engineering, North Dakota State University, Fargo, North Dakota; Patrick R. Reisnour, Graduate Student, Department of Civil Engineering, North Dakota State University, Fargo, North Dakota; Divakar V. Pathak, Senior Structural Engineer, Bechtel Associates Power Corporation, Ann Arbor, Michigan

Deflection of Partially Prestressed Beams Under a Combination of Long-Time and Short-Time Loading.
E. W. Bennett, University of Leeds, Leeds, England; K. H. Lee, University of Leeds, Leeds, England

Structural Serviceability Under Dynamic Loading
Anis Farah, Associate Professor, Laurentian University, Sudbury, Ontario, Canada

FRIDAY, March 9, 1984
9:00 am-12:00 pm Room: **Regency D**

NONDESTRUCTIVE TEST METHODS FOR CONCRETE STRENGTH

Sponsored by ACI Committees 214 and 228

Session Chairman: H. S. Lew
National Bureau of Standards
Washington, D.C.

Nondestructive Test Methods for Concrete Strength — A Review
Nicholas J. Carino, Research Civil Engineer, National Bureau of Standards, Washington, D.C.

In-Situ Tests: Variability and Strength Prediction of Concrete at Early Ages
G.G. Carett, Materials Engineer, CANMET, Ottawa, Ontario, Canada; V.M. Malhotra, Head of Construction Materials Section, CANMET, Ottawa, Ontario, Canada

Nondestructive Testing — An Evaluation Tool
Robert S. Jenkins, Senior Materials Engineer, Law Engineering Testing Company, Atlanta, Georgia

Early Age Concrete Strength Determination by Maturity
Tarun Naik, Associate Professor, Department of Civil Engineering, University of Wisconsin, Milwaukee, Wisconsin; Thomas J. Parsons, Civil Engineer, National Institute of Occupational Safety and Health, Division of Safety Research, Morgantown, West Virginia

Concrete Pullout Test Methods: Historical Background and Scientific Level Today
Herbert Krenchel, Assistant Professor, Department of Structural Engineering, Technical University of Denmark, Denmark; John A. Bickley, Vice President, Trow, Ltd., Rexdale, Ontario, Canada

Geometric and Aggregate Effects on Reliability of Pullout Tests
Presented by: H. S. Lew, National Bureau of Standards, Washington, D.C.; Authors: William C. Stone, Research Structural Engineer, National Bureau of Standards, Washington, D.C.; Bruce J. Giza, Civil Engineer, National Bureau of Standards, Washington, D.C.

Statistical Evaluation of In-Place Compressive Strength of Concrete
Kal R. Hindo, Principal, Neyer, Tiseo and Hindo, Ltd., Farmington Hills, Michigan; Wayne R. Bergstrom, Project Engineer, Neyer, Tiseo and Hindo, Ltd., Farmington Hills, Michigan

ACI 1984 FALL CONVENTION

1984 Fall Convention
October 28-November 2
Grand Hyatt Hotel
New York, New York

Note: The convention preview will be distributed to ACI Members in August 1984. Others may receive a copy by contacting Institute Headquarters.

ACI ACCESSORIES

At the ACI convention registration desk you may place an order or purchase the following accessories:

ACI Fellow Pin/Tie Tac Our ACI emblem and Fellow designation in 10k gold	$9.00
ACI Member Pin Rhodium, enameled in ACI blue	$8.75
Necktie Dark blue, embroidered with ACI logo	$6.00
Golf Hat Dark blue with ACI logo	$5.95
Money Clip Antique silver tone, in gift box	$4.50
ACI Key Tags Two styles — available in all-chain or ring mesh, both have pewter finish	$3.95

SPOUSE PROGRAM

SUNDAY, March 4, 1984

6:30 pm- 8:00 pm **Wine & Cheese Party** — Hyatt Regency Hotel
Sponsored by ACI Arizona Chapter

MONDAY, March 5, 1984

8:30 am- 3:00 pm **Hospitality: Borein Room** — Hostess available to answer questions. (Coffee & rolls 8:30-10:00 am)

10:00 am-11:30 am **Orientation Program**
Your hostess will be presenting a slide show that will give you an overview of the Valley of the Sun. She will share shopping hints, entertainment ideas and cultural places to visit.

3:00 pm- 5:00 pm **Spouse Wine & Cheese Open House:** Hosted by ACI President & Mrs. Norman L. Scott

TUESDAY, March 6, 1984

8:30 am- 3:00 pm **Hospitality: Borein Room** — Hostess available to answer questions. (Coffee & rolls 8:30-10:00 am)

10:00 am- 2:00 pm **Valley View & Luncheon** (cost $18.00)
Enjoy a guided tour of Phoenix and the Valley of the Sun, with all of its famous attractions, and special places! You'll dine at a restaurant hi-atop a mountain in the southern edge of the valley with a spectacular view.

3:00 pm- 4:30 pm **Mexican Taste Treats** (cost $9.00) — Regency A
You'll taste mouth watering Mexican recipes, prepared for you by a universal chef. Share your culinary conquests with your friends — a packet of proven recipes will be yours to take home.

WEDNESDAY, March 7, 1984

8:30 am- 3:00 pm **Hospitality: Borein Room** — Hostess available to answer questions. (Coffee & rolls 8:30-10:00 am)

10:00 am-12:00 pm **General Session** (all are invited)

8:00 am- 5:00 pm **Sedona/Montezuma Castle & Luncheon** (cost $35.00)
Visit Montezuma's Castle National Monument, a prehistoric cliff dwelling. Then, venture on to Sedona and Oak Creek Canyon, one of the most scenic areas in Arizona. There you will visit Tlaquepaque a renowned arts and crafts center with its resident artists. During your day, enjoy a leisurely luncheon.

6:30 pm- 8:00 pm **Concrete Mixer** (all are invited)

(continues — next page)

THURSDAY, March 8, 1984

8:30 am- 3:00 pm **Hospitality: Borein Room** — Hostess available to answer questions. (Coffee & rolls 8:30-10:00 am)

10:00 am- 3:00 pm **Heard Museum/Shopping Spree** (cost $15.00)

Arts and Crafts of America's natives are preserved in the Heard Museum. The museum has an extensive display of Southwestern silverwork, baskets, pottery, textiles and artifacts.

Visit two fascinating shopping areas, the Borgata and Fifth Avenue. Experience the enchantment of the Borgata, with its fifty boutiques. Then . . . off to the Fifth Avenue area with over 350 shops to intrigue you! (Lunch on your own)

6:00 pm-10:00 pm **Wild West Evening at Rawhide** (cost $30.00 per person)

All are invited to spend an evening at Rawhide, an old west area of Phoenix that offers down home entertainment, good western grub, and more!

FRIDAY, March 9, 1984

8:30 am-10:00 am **Hospitality: Borein Room** — Coffee & rolls and time to say "Good-Bye" to our friends.

WILD WEST EVENING AT RAWHIDE

Come with us on Thursday (6:00 pm - 10:00 pm) across the bridge that's almost a hundred years long! Spanning a natural arroyo, it leads from a 20th century parking area directly into a small western town of the 1880's. There will be down home entertainment, good western grub and more!

Cost is $30.00 per person. Please purchase tickets by Tuesday.

DIAMOND CONTRIBUTORS

ARIZONA PORTLAND CEMENT COMPANY
BLUE CIRCLE ARIZONA, INC.
MASTER BUILDERS
PHOENIX CEMENT COMPANY
WESTERN TECHNOLOGIES, INC.

GOLD CONTRIBUTORS

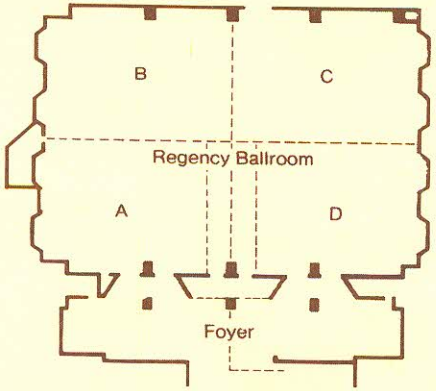
Kachina Ready-Mix Company
National Ash Association
The Tanner Companies
W. R. Grace & Company
Western Ash Company

SILVER CONTRIBUTORS

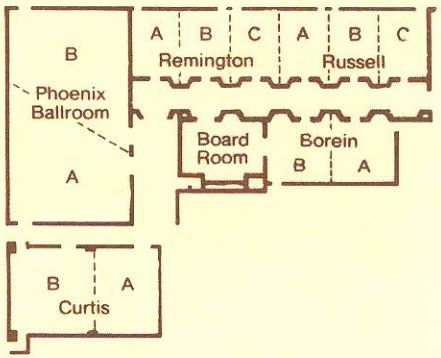
Allied Concrete & Materials Company
Ameron Pipe Division S. W.
Cement Transporters, Inc.
Conrock Company of Arizona
Franzoy, Corey & Associates
Gallup/Sand & Gravel Company
Johnson Stewart-Johnson Mining Company
Kaiser Cement Corporation
Kasler Corporation
Kitchell Contractors
M. M. Sundt Company
Phoenix Ready-Mix Company
Phoenix Sand & Gravel, Inc.
R.G.A. Consulting Engineers
Salt River Project
San Xavier Rock & Materials
Sergent, Hauskins and Beckwith Engineers
Southwest Portland Cement Company
Stanley Structures
Superlite Builders Supply, Inc.
Union Rock & Materials

HOTEL FLOOR PLAN

First Floor



Second Floor



Additional Meeting Rooms:

Note: Guest rooms on the third, fifth and sixth floors are used as meeting rooms.

Room numbers: 316, 318, 319, 322, 323, 326, 327, 334, 335, 503, 603.