1977 Annual Convention

San Diego

American Concrete Institute

Town & Country Hotel

March 13-18

Convention Office Copy

PROGRAM
73rd ANNUAL CONVENTION
March 13 — 18, 1977
San Diego, California

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

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SCHEDULE

SUNDAY, MARCH 13

8:30 a.m. — 6:00 p.m.
Administrative committee meetings

MONDAY, MARCH 14

8:30 a.m. — 10:00 p.m.
Administrative and technical committee meetings

TUESDAY, MARCH 15

8:30 a.m. — 10:00 p.m.
Administrative, technical, and educational committee meetings

12:30 p.m. — 5:00 p.m. Exhibits Open

2:00 p.m. — 6:00 p.m.
Workshop on Seismic Design of Concrete (registration fee: $20.00)

WEDNESDAY, MARCH 16

7:30 a.m. — 9:00 a.m. Breakfast Rap Session
9:00 a.m. — 11:00 a.m. General Session
10:00 a.m. — 5:00 p.m. Exhibits Open
11:00 a.m. — 12:00 noon Standards Presentation
2:00 p.m. — 6:00 p.m.
Technical and educational committee meetings
6:30 p.m. — 8:00 p.m. Concrete Mixer

THURSDAY, MARCH 17

8:30 a.m. — 12:30 p.m.
Workshop on Site Precasting (registration fee: $20.00)
8:30 a.m. — 10:00 p.m.
Administrative, technical, and educational committee meetings
9:00 a.m. — 12:00 noon
Symposium on Refractory Concrete (Committee 547) (1st of 2 sessions)
9:00 a.m. — 12:00 noon (Committee 115)
Research on Plain and Reinforced Concrete
9:00 a.m. — 12:00 noon
Interaction Between Steel and Concrete (Committee 408) (1st of 2 sessions)
10:00 a.m. — 5:00 p.m. Exhibits Open
12:30 p.m. — 2:30 p.m. Awards Luncheon
2:30 p.m. — 5:30 p.m.
Symposium on Refractory Concrete (Committee 547) (2nd of 2 sessions)
2:30 p.m. — 5:30 p.m.
New Seismic Design Provisions — A Review (Applied Technology Council)
2:30 p.m. — 5:30 p.m.
Interaction Between Steel and Concrete (Committee 408) (2nd of 2 sessions)
2:30 p.m. — 6:30 p.m. Chapter Forum

FRIDAY, MARCH 18

8:30 a.m. — 6:00 p.m.
Technical committee meetings
9:00 a.m. — 12:00 noon
Design of Concrete Pavements and Industrial Slabs on Grade (Committees 325 and 360)
9:00 a.m. — 12:00 noon
Concrete Bridge Design (Committee 443)
9:00 a.m. — 12:00 noon Tolerances (Committee 117)

SPECIAL EVENTS

Publications Display . . . in the Town & Country room all week. See the latest ACI publications now available. Orders are taken at the Registration Desk which is also in the Town & Country room.

Educational-Technical Exhibits . . . Tuesday through Thursday in the Town & Country room. See the latest tools and services available to the concrete industry.

Breakfast (by invitation only) . . . 7:00 a.m., Tuesday, March 15, in the Committee room, for newly appointed technical committee chairmen.

Education at the Convention . . . Two half-day workshops are being presented. Each require a separate registration fee of $20.00. Since enrollment is limited, early registration is advised.

Workshop on Seismic Design of Concrete . . . 2:00 p.m. — 6:00 p.m., Tuesday, March 15, in the Sunrise room. Participants will learn how seismic design overcomes some past mistakes and how concrete structures react to earthquakes.

Site Precasting Workshop . . . 8:30 a.m. — 12:30 p.m., Thursday, March 17, in the Sunrise room. Designers, engineers, architects, contractors, and producers will benefit from this workshop which will deal with planning and casting of some outstanding and unusual structures.

Breakfast "Rap" Session . . . 7:30 a.m. — 9:00 a.m., Wednesday, March 16, in the California room. This is your chance to talk informally with the ACI Officers and Staff.

"Concrete Mixer" . . . 6:30 p.m. — 8:00 p.m., Wednesday, March 16. This traditional event will be held on the campus of the University of San Diego. Please use your green tickets for boarding buses and wear your ACI badge for identification. Buses will depart from the Convention Center entrance at 6:00 p.m., 6:30 p.m., and, if necessary to accommodate everyone, 6:50 p.m. The return trips will be at 8:00 p.m., 8:30 p.m., and, if necessary, 8:45 p.m.

Chapter Forum . . . 2:30 p.m. — 6:30 p.m., Thursday, March 17, in the Sunset room. An informal roundtable on chapter activities and programs.

Awards Luncheon and New Officer Installation . . . 12:30 p.m. — 2:30 p.m., Thursday, March 17, in the Regency room. Good food and drink and multi-media presentations are combined into a pleasing format. Get your ticket early . . . they're only $7.50 this year!

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

COMMITTEE MEETINGS

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

COMMITTEE		Meeting Room
SUNDAY		
MARCH 13		**8:30 a.m. — 12:30 p.m.**
----	**Technical Activities Committee Subgroup**	Council
----	**Technical Activities Committee Subgroup**	Chamber
----	**Technical Activities Committee Subgroup**	Cabinet
		2:00 p.m. — 4:00 p.m.
----	**Ad Hoc Committee on Publications Policy**	Aqua
		2:00 p.m. — 6:00 p.m.
----	**Technical Activities Committee Subgroup**	Council
----	**Technical Activities Committee Subgroup**	Chamber
----	**Technical Activities Committee Subgroup**	Cabinet
MONDAY		
MARCH 14		**8:30 a.m. — 10:30 a.m.**
----	**Technical Activities Committee**	Committee
----	**Educational Activities Committee**	Tiki Hut
----	**Institute and Industry Advancement Committee**	San Diego
121	Quality Assurance Systems for Concrete	California
302	Construction of Concrete Floors	California
304	Measuring, Mixing, Transporting, and Placing Concrete	Island
318	**Subcommittee B,** Concrete Quality, Mixing, and Placement	Council
318	**Subcommittee I,** Slab Systems	Cabinet
318	**Subcommittee J,** Footings	Chamber
336	Combined Footings and Pier Foundations	Forum
340	Strength Design Handbook	Sunrise South
351	Foundations for Equipment and Machinery	Sunset
352	Joints and Connections in Monolithic Concrete Structures	San Diego
426	Shear and Diagonal Tension	Aqua
515	Coatings for Concrete	Sunrise North
531	Masonry Structures	Esquire
544	Fiber Reinforced Concrete	Golden West
		10:30 a.m. — 12:30 p.m.
----	**Technical Activities Committee**	Committee
----	**Educational Activities Committee**	Tiki Hut
----	**Institute and Industry Advancement Committee**	San Diego
121	Quality Assurance Systems for Concrete	California
318	**Subcommittee B,** Concrete Quality, Mixing, and Placement	Council
318	**Subcommittee I,** Slab Systems	Cabinet
318	**Subcommittee J,** Footings	Chamber
336	Combined Footings and Pier Foundations	Forum
340	Strength Design Handbook	Sunrise South
351	Foundations for Equipment and Machinery	Sunset
352	Joints and Connections in Monolithic Concrete Structures	San Diego
426	Shear and Diagonal Tension	Aqua
515	Coatings for Concrete	Sunrise North
531	Masonry Structures	Esquire
544	Fiber Reinforced Concrete	Golden West

2:00 p.m. — 4:00 p.m.

----	**Technical Activities Committee**	Committee
----	**Educational Activities Committee**	Tiki Hut
----	**Chapter Activities Committee**	San Diego
303	Architectural Concrete	Sunrise South
318	**Subcommittee A,** General Building Code	Council
318	**Subcommittee C,** Formwork, Embedded Pipes, and Construction Joints	Chamber
318	**Subcommittee E,** Analysis and Strength Requirements	Cabinet
318	**Subcommittee M,** Shells and Folded Plates	Forum
318	**Subcommittee N,** Earthquake Resistant Design Requirements	Senate
351	Foundations for Equipment and Machinery	Sunset
355	Anchorage to Concrete	San Diego
421	Design of Reinforced Concrete Slabs	Sunrise North
442	Response of Buildings to Lateral Forces	California
443	Concrete Bridge Design	California
444	Models of Concrete Structures	Aqua
516	High Pressure Steam Curing	Island
531	Masonry Structures	Esquire
544	Fiber Reinforced Concrete	Golden West

4:00 p.m. — 6:00 p.m.

----	**Technical Activities Committee**	Committee
----	**Chapter Activities Committee**	San Diego
212	Admixtures	California
223	Expansive Cement Concrete	Sunrise South
318	**Subcommittee A,** General Building Code	Council
318	**Subcommittee C,** Formwork, Embedded Pipes, and Construction Joints	Chamber
318	**Subcommittee E,** Analysis and Strength Requirements	Cabinet
318	**Subcommittee M,** Shells and Folded Plates	Forum
318	**Subcommittee N,** Earthquake Resistant Design Requirements	Senate
344	Circular Prestressed Concrete Structures	Golden West
351	Foundations for Equipment and Machinery	Sunset
355	Anchorage to Concrete	San Diego
421	Design of Reinforced Concrete Slabs	Sunrise North
443	Concrete Bridge Design	California
444	Models of Concrete Structures	Aqua
516	High Pressure Steam Curing	Island
531	Masonry Structures	Esquire

7:30 p.m. — 9:30 p.m.

318	**Subcommittee D,** Details and Development of Reinforcement	Council
318	**Subcommittee G,** Flexure and Axial Loads	Chamber
318	**Subcommittee L,** Prestressed Concrete	Cabinet
318	**Task Group** on Performance Code	Forum
504	Joint Sealants	Senate
531	Masonry Structures	Tiki Hut

8:00 p.m. — 10:00 p.m.

344	Circular Prestressed Concrete Structures	Golden West

TUESDAY
MARCH 15

8:30 a.m. — 10:30 a.m.

----	**Board of Direction**	Tiki Hut
----	**Specifications Review Committee**	Cabinet
118	Use of Computers	Chamber

211	**Subcommittee 7,** Mass Concrete Mixture Proportioning	Sunset
213	Lightweight Aggregates and Lightweight Aggregate Concrete	Sunrise North
224	Cracking	Aqua
309	Consolidation of Concrete	Towne
311	Inspection of Concrete	Council
318	**Subcommittee F,** Serviceability	San Diego
318	**Subcommittee H,** Shear and Torsion	San Diego
318	**Subcommittee K,** Precast and Composite Concrete	Golden West
318	**Task Group** on AISC and AISI	California
318	**Task Group** on Plain Concrete	California
347	Formwork for Concrete	Esquire
408	Bond and Development of Reinforcement	Senate
442	Response of Buildings to Lateral Forces	Sunrise South
503	Adhesives for Concrete	Forum
547	Refractory Concrete	Island
E-701	Materials for Concrete Construction	Committee

10:30 a.m. — 12:30 p.m.

----	**Board of Direction**	Tiki Hut
----	**Specifications Review Committee**	Cabinet
118	Use of Computers	Chamber
211	Proportioning Concrete Mixes	Sunset
215	Fatigue of Concrete	Sunrise North
224	Cracking	Aqua
309	Consolidation of Concrete	Towne
311	Inspection of Concrete	Council
318	**Subcommittee F,** Serviceability	San Diego
318	**Subcommittee H,** Shear and Torsion	San Diego
318	**Subcommittee K,** Precast and Composite Concrete	Golden West
318	**Task Group** on AISC and AISI	California
318	**Task Group** on Plain Concrete	California
347	Formwork for Concrete	Esquire
408	Bond and Development of Reinforcement	Senate
503	Adhesives for Concrete	Forum
547	Refractory Concrete	Island
E-702	Designing Concrete Structures	Committee

12:30 p.m. — 5:00 p.m.

EXHIBITS OPEN See Page 28 Town & Country

2:00 p.m. — 4:00 p.m.

----	**Board of Direction**	Tiki Hut
104	Notation	Forum
118	Use of Computers	Chamber
207	Mass Concrete	San Diego
210	Erosion of Concrete in Hydraulic Structures	California
303	Architectural Concrete	Committee
311	Inspection of Concrete	Council
315	Details of Concrete Reinforcement	Cabinet
318	Standard Building Code	Sunset
325	Concrete Pavements	Senate
347	Formwork for Concrete	Esquire
423	Prestressed Concrete	California
428	Limit Design	San Diego
439	Steel Reinforcement	Golden West
512	Precast Structural Concrete	Golden West
546	Repair of Concrete	Towne
547	Refractory Concrete	Island

2:00 p.m. — 6:00 p.m.

WORKSHOP: SEISMIC DESIGN OF CONCRETE
(Sponsored by ACI Committee E-702)
See Page 12 Sunrise

4:00 p.m. — 6:00 p.m.

---- **Board of Direction** Tiki Hut
---- **Convention Committee** California
207 Mass Concrete San Diego
216 Fire Resistance and Fire Protection of Structures Golden West
301 Specifications for Structural Concrete Forum
311 Inspection of Concrete Council
315 Details of Concrete Reinforcement Cabinet
318 Standard Building Code Sunset
325 Concrete Pavements Senate
347 Formwork for Concrete Esquire
356 Industrialized Concrete Construction Towne
423 Prestressed Concrete California
428 Limit Design San Diego
435 Deflection of Concrete Building Structures Aqua
439 Steel Reinforcement Golden West
506 Shotcreting Committee
533 Precast Panels Chamber
547 Refractory Concrete Island

7:30 p.m. — 9:30 p.m.

---- **International Activities Committee** Tiki Hut
---- **Planning Committee** Aqua
---- **Convention Committee** California
301 Specifications for Structural Concrete Forum
318 Standard Building Code Sunset
356 Industrialized Concrete Construction Towne
437 Strength Evaluation of Existing Concrete Structures Esquire
441 Reinforced Concrete Columns Senate
506 Shotcreting Committee
533 Precast Panels Chamber

WEDNESDAY
MARCH 16

7:30 a.m. — 9:00 a.m.

BREAKFAST "RAP" SESSION See Page 13 California

8:30 a.m. — 12:30 p.m.

357 Offshore Concrete Structures Chamber

9:00 a.m. — 11:00 a.m.

GENERAL SESSION
See Page 14 San Diego/Golden West

10:00 a.m. — 5:00 p.m.

EXHIBITS OPEN See Page 28 Town & Country

11:00 a.m. — 12:00 noon

STANDARDS PRESENTATIONS
See Page 14 California

2:00 p.m. — 4:00 p.m.

209 **Subcommittee V** (Creep and Shrinkage in Concrete) California
307 Reinforced Concrete Chimneys San Diego
313 Concrete Bins and Silos Towne
318 Standard Building Code Sunset
345 Concrete Bridge Construction and Maintenance Committee

348 Structural Safety Forum
349 Concrete Nuclear Structures Sunrise North
349 Concrete Nuclear Structures Sunrise South
350 Sanitary Engineering Structures Esquire
357 Offshore Concrete Structures Chamber
358 Concrete Guideways Cabinet
359 **Working Group** on Component Supports California
359 **Task Group** on Administration and Editing San Diego
359 **Task Group** on Duties and Responsibilities Golden West
359 **Task Group** on Quality Assurance and Stamping Golden West
523 Insulating and Cellular Concretes Island
532 Concrete Masonry Council
547 Refractory Concrete Tiki Hut
549 Ferrocement Senate
E-601 Seminars and Workshops Aqua

4:00 p.m. — 6:00 p.m.

120 History of Concrete Council
209 Creep and Shrinkage in Concrete California
305 Hot Weather Concreting Chamber
307 Reinforced Concrete Chimneys San Diego
313 Concrete Bins and Silos Towne
318 Standard Building Code Sunset
345 Concrete Bridge Construction and Maintenance Committee
348 Structural Safety Forum
349 Concrete Nuclear Structures Sunrise North
349 Concrete Nuclear Structures Sunrise South
350 Sanitary Engineering Structures Esquire
358 Concrete Guideways Cabinet
359 **Working Group** on Component Supports California
359 **Task Group** on Administration and Editing San Diego
359 **Task Group** on Duties and Responsibilities Golden West
359 **Task Group** on Quality Assurance and Stamping Golden West
438 Torsion Senate
523 Insulating and Cellular Concretes Island
547 Refractory Concrete Tiki Hut
E-601 Seminars and Workshops Aqua

THURSDAY
MARCH 17

8:30 a.m. — 10:30 a.m.

---- **Standards Board** Council
114 Research and Development Forum
201 Durability of Concrete Cabinet
221 Aggregates Island
306 Cold Weather Concreting Senate
313 Concrete Bins and Silos Esquire
318 Standard Building Code Sunset
346 Cast-in-Place Pipe Towne
359 **Subgroup** on General Requirements and Quality Assurance Garden
359 **Subgroup** on Materials, Construction, and Examination Chamber
360 Design of Slabs on Grade Aqua
517 Accelerated Curing of Concrete at Atmospheric Pressure Committee

8:30 a.m. — 12:30 p.m.

WORKSHOP: SITE PRECASTING (Sponsored by ACI Committee E-703) See Page 15 — Sunrise

9:00 a.m. — 12:00 noon

SYMPOSIUM ON REFRACTORY CONCRETE (Sponsored by ACI Committee 547) (first session) See Page 16 — San Diego

RESEARCH ON PLAIN AND REINFORCED CONCRETE (Sponsored by ACI Committee 115) See Page 17 — Golden West

INTERACTION BETWEEN STEEL AND CONCRETE (Sponsored by ACI Committee 408) (first session) See Page 19 — California

10:00 a.m. — 5:00 p.m.

EXHIBITS OPEN See Page 28 — Town & Country

10:30 a.m. — 12:30 p.m.

117	Tolerances	Island
201	Durability of Concrete	Cabinet
222	Corrosion of Metals in Concrete	Committee
306	Cold Weather Concreting	Senate
313	Concrete Bins and Silos	Esquire
318	Standard Building Code	Sunset
346	Cast-in-Place Pipe	Towne
359	**Subgroup** on General Requirements and Quality Assurance	Garden
359	**Subgroup** on Materials, Construction, and Examination	Chamber
360	Design of Slabs on Grade	Aqua
548	Polymers in Concrete	Forum

12:30 p.m. — 2:30 p.m.

AWARDS LUNCHEON See Page 20 — Regency

2:30 p.m. — 4:30 p.m.

----	**New Board of Direction**	Garden
120	History of Concrete	Senate
201	Durability of Concrete	Cabinet
313	Concrete Bins and Silos	Esquire
332	Residential Concrete Work	Aqua
349	Concrete Nuclear Structures	Sunrise North
349	Concrete Nuclear Structures	Sunrise South
359	**Subgroup** on Design	Chamber
359	**Working Group** on Concrete	Island
359	**Working Group** on Reinforcing and Prestressing Systems	Senate
359	**Working Group** on Liners	Council
359	**Working Group** on Concrete Reactor Vessels	Committee
359	**Working Group** on Concrete Containments	Forum
E-703	Concrete Construction Practices	Towne

2:30 p.m. — 5:30 p.m.

SYMPOSIUM ON REFRACTORY CONCRETE (second session) See Page 21 — San Diego

NEW SEISMIC DESIGN PROVISIONS — A REVIEW (Sponsored by Applied Technology Council) See Page 22 — Golden West

INTERACTION BETWEEN STEEL AND CONCRETE (second session) See Page 23 — California

2:30 p.m. — 6:30 p.m.

CHAPTER FORUM See Page 24 — Sunset

4:30 p.m. — 6:30 p.m.

----	**Board of Direction**	Garden
214	Evaluation of Results of Tests Used to Determine the Strength of Concrete	Cabinet
313	Concrete Bins and Silos	Esquire
332	Residential Concrete Work	Aqua
349	Concrete Nuclear Structures	Sunrise North
349	Concrete Nuclear Structures	Sunrise South
359	**Subgroup** on Design	Chamber
359	**Working Group** on Concrete	Island
359	**Working Group** on Reinforcing and Prestressing Systems	Senate
359	**Working Group** on Liners	Council
359	**Working Group** on Concrete Reactor Vessels	Committee
359	**Working Group** on Concrete Containments	Forum
E-801	Student Concrete Projects	Towne

7:30 p.m. — 9:30 p.m.

115	Current Research	Garden
225	Hydraulic Cements	Towne
308	Curing Concrete	Aqua
349	Concrete Nuclear Structures	Sunrise North
349	Concrete Nuclear Structures	Sunrise South
359	**Subgroup** on Design	Chamber
359	**Working Group** on Concrete	Island
359	**Working Group** on Reinforcing and Prestressing Systems	Senate
359	**Working Group** on Liners	Council
359	**Working Group** on Concrete Reactor Vessels	Committee
359	**Working Group** on Concrete Containments	Forum
543	Concrete Piles	Cabinet

FRIDAY
MARCH 18

8:30 a.m. — 12:30 p.m.

359	Concrete Components for Nuclear Reactors	Council

9:00 a.m. — 12:00 noon

DESIGN OF CONCRETE PAVEMENTS AND INDUSTRIAL SLABS ON GRADE (Sponsored by ACI Committees 325 and 360) See Page 25 — San Diego

CONCRETE BRIDGE DESIGN (Sponsored by ACI Committee 443) See Page 26 — Golden West

TOLERANCES (Sponsored by ACI Committee 117) See Page 27 — California

2:00 p.m. — 6:00 p.m.

359	Concrete Components for Nuclear Reactors	Council

Tuesday, March 15
2:00 p.m. — 6:00 p.m.
WORKSHOP: SEISMIC DESIGN OF CONCRETE

sponsored by ACI Committee E-702 Sunrise

Earthquake effects systematically bring out the mistakes in design and construction. In this workshop experience, participants will learn how seismic design is overcoming some of the past mistakes and how concrete structures respond to motions during an earthquake. This is a workshop for designers and structural engineers.

Enrollment is limited so early registration is advised. **Registration fee is $20.00.**

PROGRAM

Instructors: Roland L. Sharpe, chairman, Engineering Decision Analysis Company, Palo Alto, California, and executive director of the Applied Technology Council
and
Eric Elesser, principal, Foreit/Elsesser Engineers, Inc., San Francisco, and lecturer, School of Architecture, University of California, Berkeley

1. **Reinforced Concrete Structures:** How have they responded to earthquake motion?
2. **Building Codes:** What have they done about the seismic problem?
3. **Design Requirements:** Why have we gone this way?
4. **Design Examples:** Illustrations of present design requirements and how they are applied.

WHAT DO YOU WANT TO KNOW ABOUT ACI?

RUSSELL S. FLING, PRESIDENT
&
GEORGE F. LEYH, EXECUTIVE DIRECTOR

Invite YOU to Ask Them
at a
COMPLIMENTARY Continental Breakfast

Wednesday, March 16
7:30 a.m. SHARP **California**

We invite you to attend this informal rap session — it will last just one and a half hours.

Get a head start on your day!

DO PLAN TO ATTEND!

Pick up your tickets at the
ACI Registration Desk.

Wednesday, March 16
9:00 a.m.
GENERAL SESSION

San Diego/Golden West

Session Chairman: James R. Libby, general chairman, 1977 Annual ACI Convention, and president, Libby-Perkins Engineers, San Diego, California.

Welcome
L. R. "Lee" Hubbard, Vice Mayor, City of San Diego, California

Presidential Address
Russell S. Fling, President, ACI, and president, R. S. Fling & Partners, Inc., Columbus, Ohio

Keynote Address: Metrication — A Concrete Opportunity
Hans J. Milton, assistant secretary, Australian Department of Environment, Housing and Community Development, on loan as technical consultant to Center for Building Technology, National Bureau of Standards, Washington, D. C.

Historic Structures in the San Diego Area
Albert J. Blaylock, president, Blaylock-Willis & Associates, Consulting Engineers, San Diego, California

Acknowledgement of Chapter Officers

ACI Business*

*The presentation and discussion of Standards will be held in the California room at the conclusion of the Business Session.

Wednesday, March 16
11:00 a.m.
PRESENTATION OF STANDARDS

California

Moderator: Russell S. Fling, President, ACI, and president, R. S. Fling & Partners, Inc., Columbus, Ohio

Presentation of Proposed ACI Standard: "Specifications for Materials, Proportioning and Application of Shotcrete"
Albert Litvin, chairman, ACI Committee 506, and manager, Construction Methods Section, Research and Development Division, Portland Cement Association, Skokie, Illinois

Presentation of Proposed Revisions to "Building Code Requirements for Reinforced Concrete (ACI 318-71)"
Eugene P. Holland, chairman, ACI Committee 318, and president, Wiesinger-Holland, Ltd., Structural Engineers, Chicago, Illinois

Presentation of Proposed Code Requirements for "Nuclear Safety Related Concrete Structures," Appendices A and C
Eric C. Smith, chairman, ACI Committee 349, and senior engineer, Construction Engineering, Atomic Energy of Canada Limited, Mississauga, Ontario

Presentation of Proposed Revision to Section 5.3.3 of "Recommended Practice for Selecting Proportions for Normal and Heavyweight Concrete (ACI 211.1-74)" Revised 1975
John R. Wilson, chairman, ACI Committee 211, and director, Technical Services, Martin Marietta Cement, Rockville, Maryland

Thursday, March 17
8:30 a.m. — 12:30 p.m.
WORKSHOP: SITE PRECASTING

sponsored by ACI Committee E-703

Sunrise

This workshop will deal with the planning and casting of some outstanding and unusual structures. It is aimed for designers, engineers, architects, contractors, and producers. Enrollment is limited so early registration is advised. **Registration fee is $20.00.**

PROGRAM

Instructors: Phillip R. Jackson, chairman, ACI Committee E-703, and president, Jackson Construction Company, Dedham, Massachusetts
Jack E. Horn, project engineer, Peter Kiewit Sons Company, Omaha, Nebraska
and
Joseph J. Waddell, construction materials consultant, Riverside, California

1. **Why choose site casting?** Logistics, economy, scheduling.
2. **Factors affecting the site cast decision.** Space requirements, casting beds, forms, crews.
3. **Ingredients for successful site precasting.** Tolerances, plant setup, advanced technology, engineering capabilities.
4. **Examples of successful site precast structures.**
5. **Discussion**

Thursday, March 17
9:00 a.m. - 12:00 noon
SYMPOSIUM ON REFRACTORY CONCRETE

sponsored by ACI Committee 547

San Diego

Session Chairman: David R. Lankard, senior researcher, Battelle, Columbus Laboratories, Columbus, Ohio

Session I

Refractory Concretes — Past, Present, and Future
T. D. Robson, director, Lafarge Fondu International S. A., Paris, France

Properties of Refractory Concretes
Wate T. Bakker, chief, Materials Branch, U. S. Energy Research and Development Administration, Washington, D. C. Presented by William Raisbeck, Kaiser Refractories, Pleasanton, California

Some Aspects on High Al_2O_3 Refractory Cement and Concrete Testing
George MacZura, scientific associate; and Frank J. Rohr, ceramics technician, Alcoa Technical Center, Alcoa Center, Pennsylvania

Evaluation of the Consistency of Refractory Concretes
Charles Semler, Refractories Research Center, Ohio State University, Columbus, Ohio

Microstructural Analysis of Hydrothermally Treated Refractory Concretes
J. M. Bukowski, Institute for Materials Research, National Bureau of Standards, Washington, D. C.

Thermal Properties of a Refractory Castable Fired in a Temperature Gradient
David Larsen, research engineer, IIT Research Institute, Chicago, Illinois

Studies of the Development of the Ceramic Bond in Refractory Concretes Using SEM and XRD Analyses
W. Kronert, chairman of glass and ceramics, Technical University of Aachen, Aachen, West Germany

Thursday, March 17
9:00 a.m. — 12:00 noon
RESEARCH ON PLAIN AND REINFORCED CONCRETE

(Brief and confidential unpublished reports)
sponsored by ACI Committee 115

Golden West

Session Chairman: Boris Bresler, chairman, ACI Committee 115, and professor, Department of Civil Engineering, University of California, Berkeley, California

Secretary: M. A. Ward, secretary, ACI Committee 115, and professor, Department of Civil Engineering, The University of Calgary, Calgary, Alberta

Effect of Saline Waters on Compressive Strength of Plain Concrete
Michael A. Taylor, professor, Department of Civil Engineering, University of California at Davis, Davis, California

Characterization of the Strength and Utilization Potential of Spent Calcium-Based Sorbent — Fly-Ash Mixes
M. Gunasekaran, and C. H. Peterson, Westinghouse Research and Development Center, Pittsburgh, Pennsylvania

Control of Cracking on the Side Faces of Deep Reinforced Concrete Beams
Gregory C. Frantz, research engineer assistant III; John E. Breen, and James O. Jirsa, professors of civil engineering, University of Texas at Austin, Austin, Texas

Studies on Low-Porosity Cement and Concrete
Sidney Diamond, and Carlos Gomez-Toledo, School of Civil Engineering, Purdue University, West Lafayette, Indiana

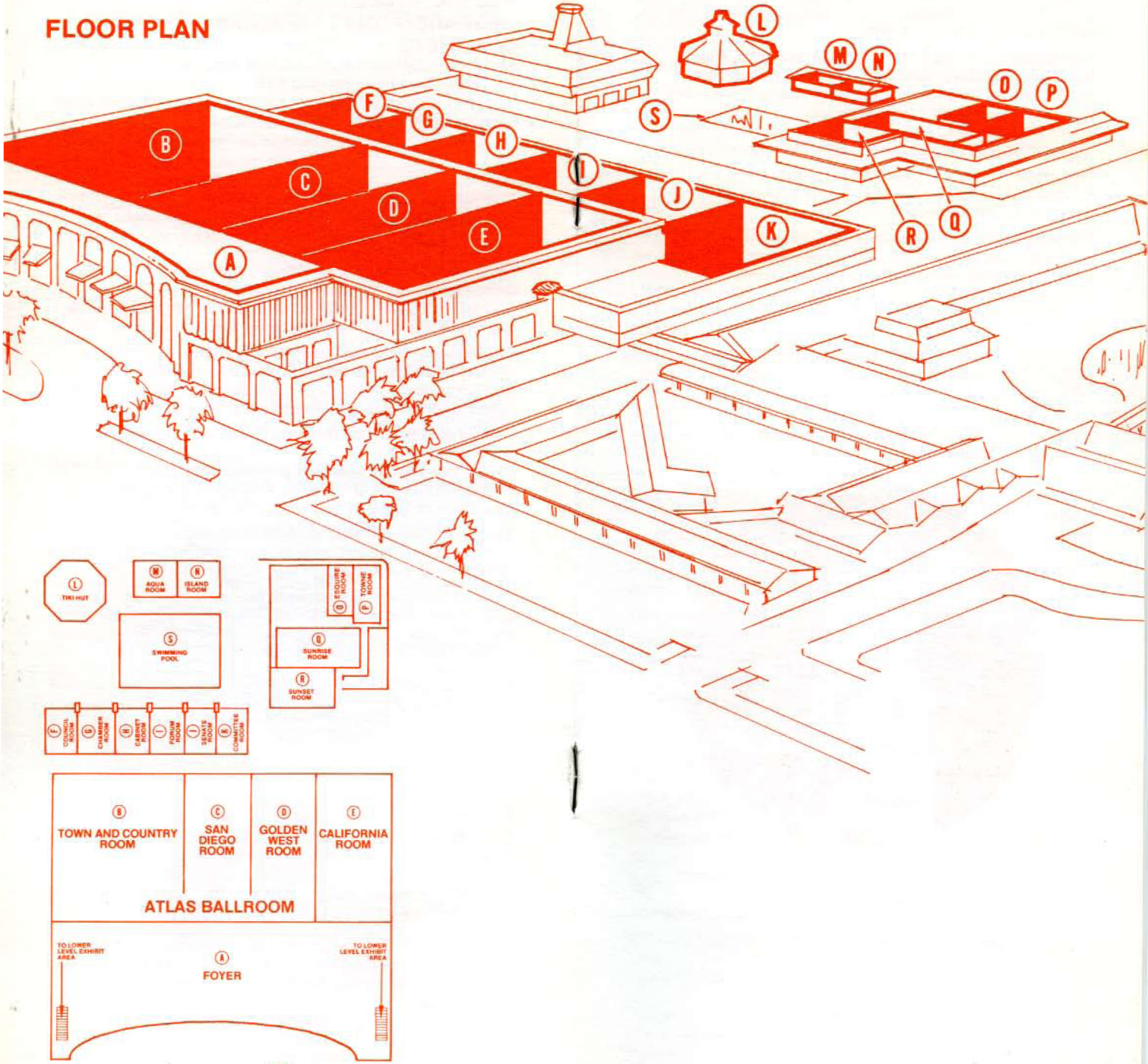
Tests of Horizontal Connections for Large Panel Structures
L. S. Johal, associate structural engineer; and N. W. Hanson, principal structural engineer, Structural Development Section, Portland Cement Association, Skokie, Illinois

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

Maurice P. Van Buren has been selected by the Reinforced Concrete Research Council to receive the 1977 Arthur J. Boase Award " . . . in recognition of his role in the development and perfection of the flatplate system for reinforced concrete floor slabs, and his numerous and notable contributions to improved design of slab systems both as a designer and as a member of the ACI Building Code Committee."

Aseismic Design Implications of the Damage to Reinforced Concrete Buildings During the 1976 Guatamalan Earthquakes
S. A. Mahin, assistant research engineer; and V. V. Bertero, professor of civil engineering, University of California at Berkeley, Berkeley, California

FLOOR PLAN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TOWN AND COUNTRY ROOM
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SAN DIEGO ROOM
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GOLDEN WEST ROOM
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CALIFORNIA ROOM
ATLAS BALLROOM
TO LOWER LEVEL EXHIBIT AREA
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TO LOWER LEVEL EXHIBIT AREA

Prestressed Concrete Beams in Shear
Michael P. Collins, associate professor; and Mario Kani, graduate student, Department of Civil Engineering, University of Toronto, Toronto, Ontario

Reinforced Concrete Structural Walls in Earthquake Resistant Multistory Buildings — A Design Approach
A. T. Derecho, manager, Structural Analysis Services; S. K. Ghosh, senior structural engineer; M. Iqbal, structural engineer; and M. Fintel, director, Engineering Services Department, Portland Cement Association, Skokie, Illinois

Dehydration of a Concrete Slab Due to Heating
A. Dayan, and E. L. Gluekler, General Electric Company, Sunnyvale, California

Concrete Block Low Rise Building System
A. Huizer, Department of Civil Engineering, University of Calgary, Calgary, Alberta

Thursday, March 17
9:00 a.m. — 12:00 noon
INTERACTION BETWEEN STEEL AND CONCRETE
Sponsored by ACI Committee 408

California

Session Chairman: Peter Gergely, chairman, ACI Committee 408, and professor, Structural Engineering Department, Cornell University, Ithaca, New York

Session I

The Effects of Bond Deterioration in Concrete Panels Under Load Cycles
Joseph M. Shipman, Hotchkiss, Colorado; and Kurt H. Gerstle, professor, Department of Civil, Environmental and Architectural Engineering, University of Colorado, Boulder, Colorado

Bond Deterioration Under Generalized Loading
Suthipoul Viwathanatepa, graduate student; E. P. Popov, and V. V. Bertero, professors, Department of Civil Engineering, University of California, Berkeley, California

Bond of Ribbed Bars Under Repeated Loads
Gallus Rehm, professor, and R. Eligehausen, engineer, Universitat Stuttgart, Stuttgart, Germany

The Performance of Lapped Splices Under Rapid Loading
T. Rezansoff, associate professor, Department of Civil Engineering, University of Saskatchewan, Saskatoon, Saskatchewan; James O. Jirsa, and John E. Breen, professors, Department of Civil Engineering, University of Texas at Austin, Austin, Texas

Question Period

Bond and Anchorage Deterioration in Joints Subjected to Load Reversals
Mustafa Seckin, graduate student; and S. M. Uzumeri, professor, Department of Civil Engineering, University of Toronto, Toronto, Ontario

An Investigation of the Parameters Influencing Bond Cracking
Emory L. Kemp, and William J. Wilhelm, professors, Department of Civil Engineering, West Virginia University, Morgantown, West Virginia

Interaction of Bond and Shear in Reinforced Concrete Beams
N. C. Sinha, professor, and S. K. Bhattacharyya, lecturer, Civil Engineering Department, Jalpaiguri Government Engineering College, Jalpaiguri, West Bengal, India

Splitting Bond Failures of Large Deformed Reinforcing Bars
Shiro Morita, associate professor, Faculty of Engineering, Kyoto University, Kyoto; and T. Kaku, associate professor, Department of Architecture, Akashi Technical College, Hyogo, Japan

Question Period

AWARDS LUNCHEON

THURSDAY, MARCH 17, 12:30 P.M.

Regency

Come meet the awardees and new ACI officers. Have fun, enjoy a good lunch, and watch the multi-media awards presentation show.

PROGRAM

Honorary Memberships: Julio Ferry Borges
Michael A. Lombard
Walter J. McCoy
George Winter
Hubert Woods

Charles S. Whitney Award: Wiss, Janney, Elstner and Associates, Inc.

Henry C. Turner Award: Raymond C. Reese

Alfred E. Lindau Award: Eivind Hognestad

Roger H. Corbetta Concrete Constructor Award: Michael A. Lombard

Arthur R. Anderson Award: Levi S. Brown

Joe W. Kelly Award: Phil M. Ferguson

Cedric Willson Award: J.A. Hanson

Wason Medal for Most Meritorious Paper: Jose L. G. Marques
James O. Jirsa

Wason Medal for Materials Research: George W. Washa
Kurt F. Wendt

Raymond C. Reese Structural Research Award: John Minor
James O. Jirsa

Construction Practice Award: Arvid Grant

Henry L. Kennedy Award: Bertold E. Weinberg

Delmar L. Bloem Distinguished Service Awards: Richard C. Mielenz
Howard Newlon, Jr.

Chapter Activities Committee Award: V. M. Malhotra

Recognition of Retiring Officers

Introduction of New Officers

New President's Address

Presentation of Memento to Retiring President

Thursday, March 17
2:30 p.m. — 5:30 p.m.
SYMPOSIUM ON REFRACTORY CONCRETE
sponsored by ACI Committee 547

San Diego

Session Chairman: David R. Lankard, senior researcher, Battelle, Columbus Laboratories, Columbus, Ohio

Session II

Refractory Concrete — Use of Engineering Property Data for Design
Robert Farris, manager, Clay and Alumina Refractories Research, Kaiser Refractories, Oakland, California

Refractory Applications in Refining and Petrochemical Operations
Michael S. Crowley, materials specialist, Standard Oil of Indiana, Amoco Research Center, Naperville, Illinois

Selection and Use of Refractory Castables in the Steel Plant
Richard L. Wessel, senior research engineer, U. S. Steel Corporation, Research Laboratory, Monroeville, Pennsylvania

Refractory Concrete Gunning Equipment and Accessories
William A. Drudy, product manager, Allentown Pneumatic Gun Company, Allentown, Pennsylvania

Steel Fiber Reinforced Refractory Concretes
David R. Lankard, senior researcher, Battelle, Columbus Laboratories, Columbus, Ohio

Fiber Reinforced Composite Refractory Insulation Systems
Yoshio Ichikawa, fellow engineer, and Lawrence A. Nelson, advanced engineer, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania

Lessons Learned from Refractory Concrete Failures
T. J. Fowler, senior fellow, Monsanto Company, St. Louis, Missouri

Thursday, March 17
2:30 p.m. — 5:30 p.m.
NEW SEISMIC DESIGN PROVISIONS — A REVIEW

sponsored by Applied Technology Council

Golden West

Session Chairman: Roland L. Sharpe, executive director, Applied Technology Council, Palo Alto, California

Seismic Risk and Site Effects, Ground Shaking and Intensity Maps for United States
Neville C. Donovan, partner, Dames & Moore, San Francisco, California; Bruce A. Bolt, director, Seismographic Station, University of California, Berkeley, California; and Robert V. Whitman, professor, Department of Civil Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts

Earthquake Design and Analysis
Roland L. Sharpe, executive director, Applied Technology Council, Palo Alto, California; and Henry J. Degenkolb, president, H. J. Degenkolb and Associates, Engineers, San Francisco, California

Seismic Design Provisions
H.S. Kellam, president, SAEONC, and partner, Graham & Kellam, Structural Engineers, San Francisco, California; and Mete A. Sozen, professor, Department of Civil Engineering, University of Illinois at Urbana-Champaign, Urbana, Illinois

Provisions for Repair and/or Strengthening of Concrete Buildings
Boris Bresler, professor, Department of Civil Engineering, University of California, Berkeley, California; and Robert D. Hanson, professor, Department of Civil Engineering, University of Michigan, Ann Arbor, Michigan

Seismic Design Provisions for Nonstructural Elements
Alfred Goldberg, consulting civil engineer, formerly superintendent, Bureau of Building Inspection, San Francisco, California

Thursday, March 17
2:30 p.m. — 5:30 p.m.
INTERACTION BETWEEN STEEL AND CONCRETE

sponsored by ACI Committee 408

California

Session Chairman: John F. McDermott, associate research consultant, U.S. Steel Research Laboratory, Monroeville, Pennsylvania

Session II

A Reevaluation of Test Data on Development Length and Splices
C. O. Orangun, professor, Department of Civil Engineering, University of Lagos, Lagos, Nigeria; James O. Jirsa, and John E. Breen, professors, Department of Civil Engineering, University of Texas at Austin, Austin, Texas

An Empirical Study of the Behavior of Bond Test Data
Theodore C. Zsutty, professor, Department of Civil Engineering, San Jose State University, San Jose, California

The Strength of Lapped Joints in Reinforced Concrete Columns
John Cairns, research fellow, Department of Civil and Structural Engineering, University of Sheffield, Sheffield, England; and Peter D. Arthur, senior lecturer, Department of Civil Engineering, University of Glasgow, Glasgow, Scotland

Dowel Action and Bond on Large Bars Embedded in Thick Concrete Sections
R. Jimenez, graduate student; Richard N. White, and Peter Gergely, professors, Structural Engineering Department, Cornell University, Ithaca, New York

Question Period

Deflection Imposed Eccentric Pull-Out Tests
Ugur Ersoy, professor; T. Tankut, and E. Atimtay, assistant professors, Department of Civil Engineering, Middle East Technical University, Ankara, Turkey

Compromise Between Bond and Bendability of Ribbed Rebars
Stefan Soretz, consulting engineer; and Helmut Holzenbein, engineer, Tor-Isteg Steel Corporation, Luxembourg, Vienna, Austria

Investigation of Temperature Effects on Early Bond Strength of Concrete
H. S. Lew, Building Safety Section, National Bureau of Standards; and Gaianan M. Sabnis, associate professor, Department of Civil Engineering, Howard University, Washington, D.C.

Bond Properties of High Strength, Low Carbon Bars with Rolled-in Helical Deformation for Use in Pretensioning and as Special Normal Reinforcement
Morris Schupack, president, Schupack Associates and Company, South Norwalk, Connecticut; and K. Mizuma, director, Neturen Company, Ltd., Tokyo, Japan

Question Period

CHAPTER FORUM

sponsored by the ACI Chapter Activites Committee

Thursday, March 17
2:30 p.m. — 6:30 p.m.

Sunset Room

This will be an informal roundtable on chapter activities and programs. The emphasis this year will be placed on these questions:

1. Are educational seminars, run by the Educational Activities Committee, of benefit to the Chapters?
2. Does ACI need Chapters?

If you belong to an ACI Chapter — or are thinking about starting a Chapter in your area — your input is needed. Please come!

Friday, March 18
9:00 a.m. — 12:00 noon
DESIGN OF CONCRETE PAVEMENTS AND INDUSTRIAL SLABS ON GRADE

sponsored by ACI Committees 325 and 360

San Diego

Session Chairman: Thomas J. Pasko, Jr., chairman, ACI Committee 325, and highway research engineer, Federal Highway Administration, Washington, D. C.

Thickness Design for Floor Slabs on Grade
Ralph E. Spears, manager, Concrete Technology Section, Portland Cement Association, Skokie, Illinois

Design, Construction, and Performance of Slabs-on-Grade for an Industry
Boyd C. Ringo, consultant and professor, Department of Civil and Environmental Engineering, University of Cincinnati, Cincinnati, Ohio.

Unique Design and Construction Features of 2,000,000 Square Feet Expansive Cement Concrete Floor Slab on Grade
Mark W. Hoffman, chief structural engineer, Dalton, Dalton, Little and Newport, Cleveland, Ohio

Arizona's Superstitution Freeway — A Continuing Test Road for Concrete Pavement Design
Gene R. Morris, engineer of research, and Rowan W. Peters, Arizona Department of Transportation, Phoenix; and Paul E. Mueller, managing engineer, Portland Cement Association, Phoenix, Arizona

Pavements and Slabs-on-Grade with Structurally Active Reinforcement
Anders Losberg, professor, Division of Concrete Structures, Chalmers University of Technology, Göteborg, Sweden

Friday, March 18
9:00 a.m. — 12:00 noon
CONCRETE BRIDGE DESIGN

sponsored by ACI Committee 443

Golden West

Session Chairman: James R. Libby, president, Libby-Perkins Engineers, San Diego, California

Highlights of the ACI 443 Report on Concrete Bridge Design
W. Gene Corley, director, Engineering Development Department, Portland Cement Association, Skokie, Illinois

Strength Design of Bridges
Gerald B. Neville, manager, Structural Codes, Portland Cement Association, Skokie, Illinois

Design for Fatigue
Neil M. Hawkins, professor of civil engineering, University of Washington, Seattle, Washington

Design for Serviceability
Ti Huang, professor of civil engineering, Lehigh University, Bethlehem, Pennsylvania

Design of Rail Transit Structures
Roger A. Dorton, manager, Structural Office, Ministry of Transportation and Communications, Ontario, Downsview, Ontario

A Seismic Design of Highway Bridges — Static Versus Dynamic Analysis
Roy A. Imbsen, Engineering Computer Corporation, Sacramento, California

Friday, March 18
9:00 a.m. — 12:00 noon
TOLERANCES

sponsored by ACI Committee 117

California

Session Chairman: David B. Neptune, secretary, ACI Committee 117, and manager, Product Development, Construction Products, Laclede Steel Company, St. Louis, Missouri

Tolerances for Precast Concrete Structures
Marvin L. Vander Wal, engineering coordinator; and H. Carl Walker, president, Carl Walker & Associates, Inc., Consulting Engineers, Kalamazoo, Michigan

Concrete Tolerances — Importance and Achievement in Bureau of Reclamation Construction
James R. Graham, chief, Concrete and Structural Branch, Division of General Research; and Ernest A. Lindholm, supervisory civil engineer, Dams Branch, Division of Design, U. S. Bureau of Reclamation, Denver, Colorado. Presented by Edward M. Harboe, head, Concrete Section, Division of General Research, Bureau of Reclamation, Denver, Colorado

Panel Discussion

Moderator: William C. Alsmeyer, vice-president, Leo A. Daly Company, San Francisco, California

Representing governmental viewpoint
Robert E. Philleo, chief, Concrete Branch, Engineering Division, Office of the Chief of Engineers, Washington, D. C.

Representing consulting engineer's viewpoint
Clarkson W. Pinkham, president, S. B. Barnes & Associates, Los Angeles, California

Representing contractor's viewpoint
Dean E. Stephan, Jr., chief estimator, Charles Pankow, Inc., Altadena, California

Representing architect's viewpoint
Robert C. Bates, associate, I. M. Pei and Partners, Architects, Washington, D. C.

EXHIBITION

Town & Country room

hours:

Tuesday	12:30 p.m. to 5:00 p.m.
Wednesday	10:00 a.m. to 5:00 p.m.
Thursday	10:00 a.m. to 5:00 p.m.

Exhibitors:

Acme Highway Products Corporation

Adhesive Engineering Company — Adhesives for construction and the "structural bonding process"

Allentown Pneumatic Gun Company — Shotcreting equipment

B & B Fabricating — Reliable proportionate mixing

Bekaert Steel Wire Corporation — Steel fibers for fibrous concrete

Bethlehem Steel Corporation — Large reinforcing bar as fabricated for nuclear containment structure

Concrete Construction Publications, Inc. — Books and other publications on concrete and construction

Fox Industries — Reinforcing steel coupling

Gifford-Hill and Company, Inc. — Concrete chemicals, grout, floor and surface treatments

Hunt Process Company, Inc. — Concrete construction specialty compounds: joint sealants, epoxies, protective coatings, waterproofing membranes, corrosion control products

Intrusion-Prepakt, Inc. — Specialized construction services: pressure grouting, prepakt concrete, cast-in-place piling, erosion control, preblended non-ferrous expansive grout

Labrado Forms Inc. — Polystyrene form liners

National Ash Association, Inc. — Concrete products using ash as an admixture

National Technical Information Service — Weekly newsletters, computer search service, government-sponsored research, development and engineering reports

Reed Manufacturing Company, Inc. — Guncrete machines, refractory predampener, refractory material hose, gunning nozzles

Watson Bowman Associates Inc. — Expansion joint sealing systems

FAMILY MEMBERS' PROGRAM

Hospitality: Convention Center Foyer

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

Schedule

MONDAY

9:00 a.m.

Coffee and Danish

Registration

TUESDAY

9:30 a.m. to 4:00 p.m.

San Diego Smorgasbord and Reubin H. Fleet Space Theatre
Tour of San Diego with lunch at Cafe del Rey Morro in Balboa Park and a visit to the Reubin H. Fleet Space Theatre. Cost: $18.00 per person.

WEDNESDAY

10:00 a.m. to 3:00 p.m.

The Big Three

Sea World . . . is the largest oceanarium in the world and the home of Shamu, the 3,800-pound killer whale. Sea World features six aquatic shows daily and numerous exhibits within the park.

San Diego Zoo . . . established in 1916, maintains the world's largest collection of wild animals. Many of these animals are the rarest in the world. Whenever possible, animals are exhibited in settings closely approximating their natural habitats.

Old Town . . . Step into yesteryear and visit the lively hamlet reflecting California's heritage!

The Big Three tour includes: Admission to one of the three attractions; deluxe coach roundtrip transportation; all taxes and gratuities. Cost: $12.00 per person.

THURSDAY

9:00 a.m. to 4:00 p.m.

San Juan Capistrano
Enjoy the scenic beauty of southern California as you journey to the famous San Juan Capistrano Mission. Snuggled in a country setting, it is one of the earliest California Missions. San Juan Capistrano is renowned for the March 19 annual return of the swallows.
As you lunch trackside at the Capistrano Depot Restaurant, the early western decor transports you to the era when trains commuted east to west.
Trip includes: Deluxe coach roundtrip transportation; scenic drive; San Juan Capistrano Mission; lunch at the Depot, uniformed personnel on each coach,; all taxes and gratuities. Cost: $19.00 per person.

San Diego Symphony Orchestra: There are a limited number of tickets available to the San Diego Symphony Orchestra's performance on Thursday, March 17. The cost is $7.50 per person. Check the Hospitality Committee for further information.

FRIDAY

9:00 a.m.

Coffee and Danish

Special Greyline tours will also be available all week.

ACI FUTURE CONVENTIONS 1977-1983

1977 Fall Convention
October 16-21
Braniff Place
New Orleans, Louisiana

1978 Annual Convention
April 9-14
Royal York Hotel
Toronto, Ontario, Canada

1978 Fall Convention
October 29 — November 3
Hyatt Regency Hotel
Houston, Texas

1979 Annual Convention
April 1-6
Marc Plaza Hotel
Milwaukee, Wisconsin

1979 Fall Convention
October 28 — November 2
Statler Hilton Hotel
Washington, D. C.

NOTE: For further information on these conventions, please contact Howard W. Smith, Convention Manager.

ACI EDUCATIONAL SEMINARS

SCHEDULE FOR 1977

April 26-27
Formwork for Quality, Safety and Economy
Arlington, Virginia

May 5-6 (tentative)
Design, Construction, and Maintenance of Concrete Floors
Boston, Massachusetts

May 11-12
Quality and Performance in Bridge Design and Construction
Pittsburgh, Pennsylvania

May 17-18 (tentative)
Accelerated Testing, Keeping Pace with Construction
Atlanta, Georgia

September 14-15
Concrete Inspection — One Route to Quality
Syracuse, New York

September 29-30
Evaluation of Concrete in Service — How to Repair and When to Replace
Houston, Texas

October 25-26
Formwork for Concrete — Design and Construction
Detroit, Michigan

November 1-2
Concrete Inspection — One Route to Quality
Washington, D. C.

November 15-16
Designing and Constructing with High Strength Concrete
Pittsburgh, Pennsylvania

November 29-30
Designing and Construction with High Strength Concrete
Detroit, Michigan

December 7-8
Placing Concrete with Pumps
Atlanta, Georgia

SAN DIEGO CONVENTION COMMITTEE

General Chairman
James R. Libby
Libby-Perkins Engineers

Assistant General Chairman
Richard E. Miller
Master Builders

Secretary & Treasurer
William McCullagh
City of San Diego

Family Members Program
Eugene J. Grady
City of Chula Vista

Financial Chairman
Alex O. Swanson
Pre-Mixed Concrete Company

Transportation
John Conner
Southwestern Portland Cement Company

Publicity
Philip K. Markham
Philip K. Markham AIA

Social Event Chairman
Richard Stage
Structural Engineer

Sessions Monitor
Richard E. Miller
Master Builders

Local Committee & Hospitality Desk
Philip K. Markham
Philip K. Markham AIA

The officers, staff, and members of ACI would like to thank the Local Committee, the Hostesses, and the San Diego International Chapter for their part in the 1977 Annual Convention.

NOTES