

**1978 ANNUAL CONVENTION
AMERICAN CONCRETE INSTITUTE**

Royal York Hotel

April 9-14



CONCRETE



PROGRAM 74th ANNUAL CONVENTION

April 9 — 14, 1978
Toronto, Ontario

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

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SUSTAINING MEMBERS OF THE AMERICAN CONCRETE INSTITUTE

- Master Builders
Division of Martin Marietta Corporation
Cleveland, Ohio
- Southwestern Portland Cement Company
Los Angeles, California
- Portland Cement Association
Skokie, Illinois
- Sika Chemical Corporation
Lyndhurst, New Jersey

SCHEDULE

SUNDAY, APRIL 9

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

Administrative and technical committee meetings

MONDAY, APRIL 10

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

Administrative, technical, and educational committee meetings

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

Seminar: Introduction to CSA Metric Standards on Concrete Design and Concrete Construction (Canadian Standards Association) Registration fee: \$25.00, payable to CSA

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

Metric Awareness: As the World Turns Metric

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

Concrete in Canada: Segmental Construction (ACI Ontario Chapter)

TUESDAY, APRIL 11

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

Administrative, technical, and educational committee meetings

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

Concrete in Canada: Outstanding Concrete Structures (ACI Ontario Chapter)

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

Seminar: Design of Sanitary Engineering Structures (Committee E-702 — Registration fee: \$45.00 ACI Members; \$55.00 Nonmembers)

12:00 noon - 5:30 p.m.

CONCRETE CANADA '78 opens and "Poket" launching

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

Concrete in Canada: Economics in the Use of Waste Material for Concrete and Cement Manufacture

WEDNESDAY, APRIL 12

8:15 a.m. - 9:00 a.m.

Breakfast Assembly

9:00 a.m. - 10:30 a.m.

General Session

10:30 a.m.

ACI Rap Session

12:00 noon - 6:00 p.m.

CONCRETE CANADA '78 open

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

Student Activities Seminar (ACI Committee E-801)

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

Seminar: Introduction to New ACI 318-77 Building

Code (Committee 318 — Registration fee: \$35.00
ACI Members, \$45.00 Nonmembers)

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

Technical and educational committee meetings

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

Concrete Mixer

THURSDAY, APRIL 13

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

Symposium: Ferrocement: Materials and Applications (ACI Committee 549)

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

Administrative, technical, and educational committee meetings

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

Research on Plain and Reinforced Concrete (ACI Committee 115)

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

Symposium: Mathematical Modeling of Reinforced Concrete Structures (ACI Committee 442)

12:00 noon - 5:30 p.m.

CONCRETE CANADA '78 open

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

Awards Luncheon

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

Symposium: Precast Concrete Bearing Wall Buildings: Design Considerations for Safety Against Progressive Collapse and Seismic Effects (ACI Committee 356)

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

Symposium: North American Practice in Segmental Bridges (ACI Committee 443 and the Post-Tensioning Institute)

4:00 p.m. - 6:30 p.m.

Contractors' Forum

5:30 p.m.

CONCRETE CANADA '78 closes

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

Forum: Needed Research and Development for Fiber Reinforced Concrete (ACI Committees 114 and 544)

FRIDAY, APRIL 14

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

Technical committee meetings

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

Symposium: Behavior and Design of Beam-Column Joints (ACI Committee 352)

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

Symposium: Lessons from Structural Performance (ACI Committee 348)

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

Symposium: Railroad and Rail Transit Bridges (ACI Committee 443)

SPECIAL EVENTS

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

Education at the Convention . . . Three half-day programs and one full-day seminar are being presented. Except for the Student Activities Program, each seminar requires a separate registration fee. Since enrollment is limited, early registration is advised.

Introduction to CSA Metric Standards on Concrete Design and Concrete Construction . . . Monday, 9:00 a.m. - 12:00 noon, in the Ballroom. Sponsored by the Canadian Standards Association, this seminar will concentrate on the updated metric standards expected to be published by early 1978.

Design of Sanitary Engineering Structures . . . Tuesday, 9:00 a.m. - 12:00 noon and 2:00 p.m. - 5:00 p.m., in the Ontario room. Both rectangular and circular tanks will be discussed and analyzed at this all-day seminar and the possibility of their design features being applied to other structures.

Student Activities Seminar . . . Wednesday, 2:00 p.m. - 5:00 p.m., in the Ontario room. Arranged specifically for the engineering student, this seminar will cover community projects and competitions plus a briefing on ACI's technical activities.

Introduction to the New ACI 318 Building Code . . . Wednesday, 2:00 p.m. - 6:00 p.m., in the Ballroom. The just-published "Building Code Requirements for Reinforced Concrete (ACI 318-77)" will be the topic and the instructors are members of the committee that updated it. Each attendee will receive a copy of the new Code, Commentary, and the Seminar Program Workbook.

Metric Awareness: As the World Turns Metric . . . Monday, 2:00 p.m. - 4:00 p.m., in the Ontario room. This short session is an audio-visual presentation of the metric awareness and training program put on by the Ontario Ministry of Transportation and Communications.

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

Films on Shotcrete . . . starting at 2:00 p.m., Tuesday, in the Quebec. As a special added attraction, ACI Committee 506, Shotcreting, will show a slide presentation on shotcrete safety and a short movie on shotcrete applications. These will be incorporated as part of their regular committee meeting and visitors are invited to attend.

Concrete Canada '78 . . . 12:00 noon - 5:30 p.m., Tuesday through Thursday in the Convention Centre at the Harbour Castle hotel. Technical and educational exhibits which will demonstrate the latest tools and services available to the concrete industry. "Poket" launching is scheduled for noon on Tuesday. Buses

will run continuously between the Royal York and the Harbour Castle Convention Centre for your convenience, starting at 11:45 a.m. each day.

Breakfast Assembly . . . 8:15 a.m. - 9:00 a.m., Wednesday, in the Canadian room. A complimentary continental breakfast will be served buffet style prior to the start of the General Session.

Members' "Rap" Session . . . 10:30 a.m., Wednesday, in the Canadian room. This is your chance to talk informally with ACI Officers and Staff.

"Concrete Mixer" . . . 6:00 p.m. - 8:00 p.m., Wednesday. This traditional event will be held in the Harbour Castle Convention Centre among the exhibits. Buses will be running continuously between the two hotels. Please wear your badge and bring your ticket.

Awards Luncheon . . . 12:15 p.m. - 2:30 p.m., Thursday, in the Concert Hall. Good food and drink and multi-media presentations are combined into a pleasing format. Get your tickets early. . . they're only \$7.50 this year!

Contractors' Forum . . . 4:00 p.m. - 6:30 p.m., Thursday, in the Algonquin room. A constructors' get-together to look at construction methods. ACI wants to know about your concrete construction problems and your concrete successes.

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!

Technical tours . . . have also been planned by the Local Convention Committee. Further information on them can be found on page 9 of this booklet. The Ontario Chapter has tickets for them in the Family Members' Hospitality room.

CONTRIBUTORS TO THE ONTARIO CHAPTER PROGRAM (as of March 3, 1978)

Sternson Limited
W.R. Grace & Company Limited
Construction Chemicals Limited
Construction Testing Services Limited
J.T. Donald & Company Limited
Peto MacCallum Limited
Canadian Portland Cement Association
Metropolitan Toronto Ready Mixed
Concrete Association
Mulco Incorporated
Master Builders Company Limited
Griffels Associates Limited
Proctor and Redfern Group

TORONTO CONVENTION COMMITTEE

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University of Toronto

Hotel and Publicity

William G. Townsend
St. Lawrence Cement Company

Fund Raising

Gary Woolgar
Dufferin Concrete Products

The officers, staff, and members of ACI would like to thank the Local Committee, the Hostesses, and the Ontario Chapter for their part in the 1978 Annual Convention!



Win A Valuable Prize In the ACI New Member Campaign

You could take home the news of four great days in Cancun, Mexico . . . or other valuable prizes in ACI's new membership program.

Help the cause — yours and ACI's. Be a special hero next November — in your family and among all your friends in ACI.

Pick up your contest rules and membership applications at the ACI Registration area.

TECHNICAL TOURS

Technical tours have been scheduled to the C.N. Tower in Toronto and Ontario Hydro's Pickering Nuclear Generating Station.

The tour to the C.N. Tower will be scheduled at various times during the week as requests are received (and it includes a film about the Tower). A discount will be given by the restaurant for dinner if at least 40 persons go at one time.

The tour to the Pickering Generating Station is scheduled for Wednesday at 1:00 p.m. with return at 5:30 p.m.

Please check with the ACI Ontario Chapter Committee in the Family Members' Hospitality suite for further information on these tours. It is recommended that you make your reservations early for these events.

TECHNICAL ACTIVITIES COMMITTEE

JOHN E. BREEN, Chairman
SAMUEL J. HENRY, Secretary*

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EMERY FARKAS

EDWIN L. HEDSTROM

EDWARD L. KAWALA

BOYD C. RINGO

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

COMMITTEE MEETINGS

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

COMMITTEE

Meeting Room

SUNDAY

APRIL 9

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

— Technical Activities Committee Saskatchewan

MONDAY

APRIL 10

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

- Institute and Industry
- Advancement Committee Confederation 4
- Technical Activities Committee Saskatchewan
- Educational Activities Committee Nova Scotia
- 223** Expansive Cement Concrete Confederation 5
- 302** Construction of Concrete Floors Algonquin
- 318** Subcommittee 3, Details — Development and Splices of Reinforcement York
- 318** Subcommittee 9, Precast-Prestressed and Composite Concrete Library
- 351** Foundations for Equipment and Machinery Manitoba
- 351** Subcommittee Alberta
- 351** Subcommittee Quebec
- 435** Deflection of Concrete Building Structures Room 3
- 441** Reinforced Concrete Columns Tudor 7
- 512** Precast Structural Concrete Tudor 9
- 531** Masonry Structures Tudor 8
- 533** Precast Panels Toronto

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

SEMINAR: INTRODUCTION TO CSA METRIC STANDARDS ON CONCRETE DESIGN AND CONCRETE CONSTRUCTION

(Sponsored by Canadian Standards Association)

Ballroom

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

- Institute and Industry
- Advancement Committee Confederation 4
- Technical Activities Committee Saskatchewan
- Educational Activities Committee Nova Scotia
- 104** Notation Newfoundland
- 302** Construction of Concrete Floors Algonquin
- 318** Subcommittee 3, Details — Development and Splices of Reinforcement York
- 318** Subcommittee 9, Precast-Prestressed and Composite Concrete Library
- 351** Foundations for Equipment and Machinery Manitoba
- 351** Subcommittee Alberta
- 351** Subcommittee Quebec
- 435** Deflection of Concrete Building Structures Room 3
- 512** Precast Structural Concrete Tudor 9

531 Masonry Structures Tudor 8
533 Precast Panels Toronto

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

METRIC AWARENESS: AS THE WORLD TURNS METRIC

(Sponsored by Ontario Ministry of Transportation and Communications) Ontario

— Board Committee on Metrication Confederation 4
 — Ad Hoc Committee on Publications Policies Tudor 9
 — Educational Activities Committee Nova Scotia
212 Admixtures Confederation 5
225 Hydraulic Cements Library
301 Specifications for Structural Concrete British Columbia
307 Reinforced Concrete Chimneys Algonquin
315 Details of Concrete Reinforcement Room 3
318 Subcommittee 6, Flexure and Axial Loads New Brunswick
318 Subcommittee 7, Shear and Torsion Prince Edward Island
336 Combined Footings and Pier Foundations Quebec
340 Strength Design Handbook Alberta
344 Circular Prestressed Concrete Structures Territories
351 Foundations for Equipment and Machinery Manitoba
408 Bond and Development of Reinforcement Tudor 7
421 Design of Reinforced Concrete Slabs Confederation 6
442 Response of Buildings to Lateral Forces Toronto
443 Concrete Bridge Design Saskatchewan
531 Masonry Structures Tudor 8
532 Concrete Masonry Newfoundland

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

CONCRETE IN CANADA: SEGMENTAL CONSTRUCTION

(Sponsored by ACI Ontario Chapter) Ballroom

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

— Ad Hoc Committee on Publications Policies Tudor 9
 — Educational Activities Committee Nova Scotia
212 Admixtures Confederation 5
225 Hydraulic Cements Library
301 Specifications for Structural Concrete British Columbia
303 Architectural Concrete Confederation 4
307 Reinforced Concrete Chimneys Algonquin
315 Details of Concrete Reinforcement Room 3
318 Subcommittee 6, Flexure and Axial Loads New Brunswick

318 Subcommittee 7, Shear and Torsion Prince Edward Island
336 Combined Footings and Pier Foundations Quebec
340 Strength Design Handbook Alberta
344 Circular Prestressed Concrete Structures Territories
351 Foundations for Equipment and Machinery Manitoba
408 Bond and Development of Reinforcement Tudor 7
421 Design of Reinforced Concrete Slabs Confederation 6
442 Response of Buildings to Lateral Forces Toronto
443 Concrete Bridge Design Saskatchewan
516 High Pressure Steam Curing Tudor 8

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

318 Subcommittee 10, Special Provisions for Seismic Design Confederation 4
318 Subcommittee 12, Performance Code Confederation 6
318 Task Group on Plain Concrete Tudor 7
318 Task Group on Liaison with Other Materials Groups Tudor 9
516 High Pressure Steam Curing Tudor 8

TUESDAY

APRIL 11

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

— Board of Direction British Columbia
 — Specifications Review Committee Room 3134
117 Tolerances Confederation 4
211 Subcommittee 1, Proportioning Concrete Mixes Canadian E
211 Subcommittee 7, Mass Concrete Mixture Proportioning Manitoba
221 Aggregates Confederation 5
224 Cracking Nova Scotia
309 Consolidation of Concrete Confederation 6
311 Inspection of Concrete Tudor 9
313 Concrete Bins and Silos Prince Edward Island
318 Subcommittee 5, Serviceability Requirements Tudor 7
318 Subcommittee 8, Two-Way Slabs Canadian C
332 Residential Concrete Work Algonquin
344 Circular Prestressed Concrete Structures Room 3132
360 Design of Slabs on Grade Canadian D
426 Shear and Diagonal Tension (See Committee 445)
438 Torsion (See Committee 445)
445 Shear and Torsion Toronto
506 Shotcreting Quebec
517 Accelerated Curing of Concrete at Atmospheric Pressure Tudor 8
523 Insulating and Cellular Concretes Room 3140
546 Repair of Concrete Saskatchewan

9:00 a.m. - 12:00 noon
**CONCRETE IN CANADA: OUT-
 STANDING CONCRETE STRUCTURES**

(Sponsored by ACI Ontario Chapter)

Ballroom

**SEMINAR: DESIGN OF SANITARY
 ENGINEERING STRUCTURES**

(Sponsored by ACI Committee E-702)

(first session) Ontario

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

- **Board of Direction** British Columbia ←
- Specifications Review Committee Room 3134
- Ad Hoc Committee on Energy and Resources Conservation Canadian E
- 117** Tolerances Confederation 4
- 207** Mass Concrete Confederation 5
- 211** Proportioning Concrete Mixes Manitoba
- 224** Cracking Nova Scotia
- 309** Consolidation of Concrete Confederation 6
- 311** Inspection of Concrete Tudor 9
- 313** Concrete Bins and Silos Prince Edward Island
- 318** Subcommittee 5,
- Serviceability Requirements Tudor 7
- 318** Subcommittee 8, Two-Way Slabs Canadian C
- 332** Residential Concrete Work Algonquin
- 344** Circular Prestressed Concrete Structures Room 3132
- 360** Design of Slabs on Grade Canadian D
- 426** Shear and Diagonal Tension (See Committee 445)
- 438** Torsion (See Committee 445)
- 445** Shear and Torsion Toronto
- 506** Shotcreting Quebec
- 517** Accelerated Curing of Concrete at Atmospheric Pressure Tudor 8
- 523** Insulating and Cellular Concretes Room 3140
- 546** Repair of Concrete Saskatchewan
- E-701** Materials for Concrete Construction New Brunswick

12:00 noon - 5:30 p.m.

CONCRETE CANADA '78 opens and "Pokel" launching Harbour Castle Hotel

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

- **Board of Direction** British Columbia ←
- 121** Quality Assurance Systems for Concrete Toronto
- 207** Mass Concrete Confederation 5
- 213** Lightweight Aggregates and Lightweight Aggregate Concrete Confederation 4
- 214** Evaluation of Results of Tests Used to Determine the Strength of Concrete Tudor 7
- 311** Inspection of Concrete Tudor 9
- 313** Concrete Bins and Silos Prince Edward Island
- 318** Subcommittee 2, Concrete Quality — Construction Requirements Tudor 8
- 318** Subcommittee 4, Analysis — Strength Requirements Canadian C

- 334** Concrete Shell Design and Construction Room 3132
- 345** Concrete Bridge Construction and Maintenance Canadian D
- 347** Formwork for Concrete Confederation 6
- 350** Sanitary Engineering Structures Canadian E
- 357** Offshore Concrete Structures Manitoba
- 358** Concrete Guideways Nova Scotia
- 423** Prestressed Concrete New Brunswick
- 439** Steel Reinforcement Saskatchewan
- 444** Models of Concrete Structures Algonquin
- 503** Adhesives for Concrete Room 3134
- 506** Shotcreting Quebec
- E-801** Student Concrete Projects Room 3140

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

**CONCRETE IN CANADA: ECONOMICS
 IN THE USE OF WASTE MATERIAL
 FOR CONCRETE AND
 CEMENT MANUFACTURE**

(Sponsored by ACI Ontario Chapter)

Ballroom

**SEMINAR: DESIGN OF SANITARY
 ENGINEERING STRUCTURES**

(Sponsored by ACI Committee E-702)

(second session) Ontario

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

- **Board of Direction** British Columbia ←
- 120** History of Concrete Room 3140
- 121** Quality Assurance Systems for Concrete Toronto
- 207** Mass Concrete Confederation 5
- 214** Evaluation of Results of Tests Used to Determine the Strength of Concrete Tudor 7
- 311** Inspection of Concrete Tudor 9
- 313** Concrete Bins and Silos Prince Edward Island
- 318** Subcommittee 2, Concrete Quality — Construction Requirements Tudor 8
- 318** Subcommittee 4, Analysis — Strength Requirements Canadian C
- 345** Concrete Bridge Construction and Maintenance Canadian D
- 347** Formwork for Concrete Confederation 6
- 350** Sanitary Engineering Structures Canadian E
- 357** Offshore Concrete Structures Manitoba
- 358** Concrete Guideways Nova Scotia
- 423** Prestressed Concrete New Brunswick
- 437** Strength Evaluation of Existing Concrete Structures Confederation 4
- 439** Steel Reinforcement Saskatchewan
- 444** Models of Concrete Structures Algonquin
- 503** Adhesives for Concrete Room 3134
- 506** Shotcreting Quebec

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

- International Activities Committee Manitoba
- 304** Measuring, Mixing, Transporting, and Placing Concrete British Columbia
- 308** Curing Concrete Toronto

- 318** Subcommittee 1, General — Code Organization Tudor 8
318 Task Group on Code Simplification Tudor 9
318 Task Group on Metrication Tudor 7

WEDNESDAY

APRIL 12

8:15 a.m. - 9:00 a.m.

BREAKFAST ASSEMBLY Canadian

9:00 a.m. - 10:30 a.m.

GENERAL SESSION Canadian

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

- 359** Subgroup on Design Nova Scotia
359 Working Group on Component Supports New Brunswick

10:30 a.m. - 12:00 noon

ACI RAP SESSION Canadian

12:00 noon - 6:00 p.m.

CONCRETE CANADA '78 open
 Harbour Castle Hotel

1:00 p.m. - 7:00 p.m.

- 359** Working Group on Reinforcing and Prestressing Systems Tudor 9

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

- Chapter Activities Committee Quebec
 — Convention Committee Library
118 Use of Computers Confederation 4
120 History of Concrete Saskatchewan
201 Durability of Concrete Confederation 5
209 Subcommittee V (Creep and Shrinkage in Concrete) Confederation 6
215 Fatigue of Concrete Toronto
216 Fire Resistance and Fire Protection of Structures Tudor 7
222 Corrosion of Metals in Concrete Alberta
348 Structural Safety Territories
349 Working Group on Design Algonquin
349 Working Group on Impact and Impulse York
352 Joints and Connections in Monolithic Concrete Structures Tudor 8
356 Industrialized Concrete Construction British Columbia
547 Refractory Concrete Room 3
548 Polymers in Concrete Manitoba

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

STUDENT ACTIVITIES SEMINAR
 (Sponsored by ACI Committee E-801)
 Ontario

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

SEMINAR: INTRODUCTION TO NEW ACI 318-77 BUILDING CODE
 (Sponsored by ACI Committee 318)
 Ballroom

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

- Convention Committee Library
115 Current Research Saskatchewan
118 Use of Computers Confederation 4
201 Durability of Concrete Confederation 5
209 Subcommittee V (Creep and Shrinkage in Concrete) Confederation 6
305 Hot Weather Concreting Toronto
348 Structural Safety Territories
349 Working Group on Design Algonquin
349 Working Group on Impact and Impulse York
352 Joints and Connection in Monolithic Concrete Structures Tudor 8
356 Industrialized Concrete Construction British Columbia
504 Joint Sealants Quebec
547 Refractory Concrete Room 3
548 Polymers in Concrete Manitoba
549 Ferrocement Alberta
E-702 Designing Concrete Structures Tudor 7

THURSDAY

APRIL 13

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

- Planning Committee Alberta
209 Creep and Shrinkage in Concrete Confederation 6
306 Cold Weather Concreting Manitoba
318 Standard Building Code Quebec
325 Concrete Pavements Toronto
349 Working Group on Design Algonquin
349 Working Group on Embedments Confederation 4
349 Working Group on Impact and Impulse York
349 Working Group on Materials Newfoundland
359 Working Group on Concrete Saskatchewan
359 Working Group on Concrete Reactor Vessels Confederation 5
359 Working Group on Liners Tudor 8
359 Working Group on Reinforcing and Prestressing Systems Tudor 9
547 Refractory Concrete Room 3

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

FERROCEMENT: MATERIALS AND APPLICATIONS

(Sponsored by ACI Committee 549)
 Canadian

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

RESEARCH ON PLAIN AND REINFORCED CONCRETE

(Sponsored by ACI Committee 115)
 Ontario

MATHEMATICAL MODELING OF REINFORCED CONCRETE STRUCTURES

(Sponsored by ACI Committee 442)
 (first session) Ballroom
359 Subgroup on Design Nova Scotia

- 359** Working Group on Component Supports New Brunswick
359 Working Group on Concrete Containments British Columbia

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

- Standards Board Prince Edward Island
114 Research and Development Tudor 7
209 Creep and Shrinkage in Concrete Confederation 6
306 Cold Weather Concreting Manitoba
318 Standard Building Code Quebec
349 Working Group on Design Algonquin
349 Working Group on Embedments Confederation 4
349 Working Group on Impact and Impulse York
349 Working Group on Materials Newfoundland
359 Working Group on Concrete Saskatchewan
359 Working Group on Concrete Reactor Vessels Confederation 5
359 Working Group on Liners Tudor 8
359 Working Group on Reinforcing and Prestressing Systems Tudor 9
515 Coatings for Concrete Alberta
547 Refractory Concrete Room 3
E-703 Concrete Construction Practices Toronto

12:00 noon - 5:30 p.m.

CONCRETE CANADA '78 open
 Harbour Castle Hotel

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

AWARDS LUNCHEON Concert Hall

1:00 p.m. - 5:00 p.m.

- 359** Subgroup on Design Nova Scotia
359 Working Group on Component Supports New Brunswick
359 Working Group on Concrete Containments British Columbia

1:30 p.m. - 3:30 p.m.

- 359** Working Group on Concrete Saskatchewan
359 Working Group on Liners Tudor 8
359 Working Group on Reinforcing and Prestressing Systems Tudor 9

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

- New Board of Direction Toronto
318 Standard Building Code Quebec
349 Concrete Nuclear Structures Confederation 6
355 Anchorage to Concrete York
359 Working Group on Concrete Reactor Vessels Confederation 5
428 Limit Design Confederation 4
515 Coatings for Concrete Alberta
544 Fiber Reinforced Concrete Manitoba
547 Refractory Concrete Room 3
E-601 Seminars and Workshops Prince Edward Island

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

PRECAST CONCRETE BEARING WALL BUILDINGS: DESIGN CONSIDERATIONS FOR SAFETY AGAINST PROGRESSIVE COLLAPSE AND SEISMIC EFFECTS

(Sponsored by ACI Committee 356) Ontario

MATHEMATICAL MODELING OF REINFORCED CONCRETE STRUCTURES

(Sponsored by ACI Committee 442) (second session) Ballroom

NORTH AMERICAN PRACTICE IN SEGMENTAL BRIDGES

(Sponsored by ACI Committee 443 and the Post-Tensioning Institute) Canadian

3:30 p.m. - 6:00 p.m.

- 359** Subgroup on Materials, Construction, and Examination Tudor 9

4:00 p.m. - 6:30 p.m.

CONTRACTORS' FORUM Algonquin

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

- New Board of Direction Toronto
318 Standard Building Code Quebec
349 Concrete Nuclear Structures Confederation 6
515 Coatings for Concrete Alberta
544 Fiber Reinforced Concrete Manitoba
547 Refractory Concrete Room 3
E-601 Seminars and Workshops Prince Edward Island

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

FORUM: NEEDED RESEARCH AND DEVELOPMENT FOR FIBER REINFORCED CONCRETE

(Sponsored by ACI Committees 114 and 544) Concert Hall

**FRIDAY
 APRIL 14**

8:00 a.m. - 1:00 p.m.

- 359** Concrete Components for Nuclear Reactors Quebec

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

BEHAVIOR AND DESIGN OF BEAM-COLUMN JOINTS

(Sponsored by ACI Committee 352) Concert Hall

LESSONS FROM STRUCTURAL PERFORMANCE RAILROAD AND RAIL TRANSIT BRIDGES

(Sponsored by ACI Committee 443) Ontario

MONDAY, APRIL 10

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

**SEMINAR: INTRODUCTION TO
CSA METRIC STANDARDS ON
CONCRETE DESIGN AND CON-
CRETE CONSTRUCTION**

sponsored by the Canadian Standards
Association

Ballroom

This seminar will concentrate on the updated
metric standards expected to be published by
early 1978 and will cover the following subjects:

Codes and Standards in Canada
Role of the CSA Steering Committee on Con-
crete
Resource Support for Standardization
Design of Concrete Structures for Buildings
(CSA Standard A23.3)

Speakers for this part of the seminar are
Stanley Cumming and James G. MacGregor.

Following these speakers will be a panel
discussion on "Concrete Materials and Methods
of Construction (CSA Standards A23.1, A23.2,
A23.4)." The panel chairman will be V.M.
Malhotra and the members of the panel will be
Philip T. Seabrook, Louis A. Gottheil, J. Neil
Mustard, and Kai Holbek.

NOTE: A separate registration fee of \$25.00 is
charged for this seminar. This fee is payable to
the Canadian Standards Association (CSA desk
is near the ACI Registration in the Convention
Lobby).

MONDAY, APRIL 10

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

**CONCRETE IN CANADA:
SEGMENTAL CONSTRUCTION**

sponsored by ACI Ontario Chapter

Ballroom

Session Chairman: Laurence Cazaly, principal,
Cazaly Associates Limited,
Thornhill, Ontario

**The Production Casting and Handling of
Precast Concrete Segments for the Mon-
treal Olympic Stadium**

Kai Holbek, president, Kai Holbek Associates,
Vancouver, British Columbia

**Post-Tensioning of the Montreal Olympic
Stadium**

William M. Slater, president, Conenco In-
ternational Ltd., Toronto, Ontario

**Mass Production of Highly Toleranced
Precast Concrete Tunnel Segments**

John A. Bickley, vice-president, The Trow Group
Ltd., Rexdale, Ontario

**Technical and Economic Advantages of
Precast Concrete Tunnel Segments**

Douglas D. Dunbar, director, R.V. Anderson
Associates, Ltd., Toronto, Ontario



TUESDAY, APRIL 11

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

**CONCRETE IN CANADA:
OUTSTANDING
CONCRETE STRUCTURES**

sponsored by ACI Ontario Chapter

Ballroom

Session Chairman: D. B. Redfern, Proctor and Redfern Limited, Consulting Engineers, Toronto, Ontario

Construction of the Shubenacadie River Bridge at South Maitland, Nova Scotia

Daniel H. Franklin, vice-president, Whitman, Benn and Associates Ltd., Halifax, Nova Scotia

Body Architecture in North York Federal Building

Macy DuBois, principal, DuBois and Associates, Architects and Planners, Toronto, Ontario

Construction of Burrad Inlet Ferry Terminal

Andy Smail, chief engineer, Dillingham Corporation Ltd., West Vancouver, British Columbia



TUESDAY, APRIL 11

**9:00 a.m.-12:00 noon and
2:00 p.m.-5:00 p.m.**

**SEMINAR: DESIGN
OF SANITARY
ENGINEERING STRUCTURES**

sponsored by ACI Committee E-702

Ontario

The following topics will be discussed and analyzed at this all-day seminar:

1. Design of rectangular open top tanks including earthquake loading considerations;
2. Design of circular prestressed concrete tanks;
3. City of Montreal waste water facility (envisaged to be the world's largest).

Since both rectangular and circular tanks will be discussed, it is possible to apply their design features to other structures.

NOTE: A separate registration fee is charged for this seminar of \$45.00 for ACI Members and \$55.00 for non-members. Since enrollment is limited, early registration is advised.

ACI FUTURE CONVENTIONS

1978 Fall Convention

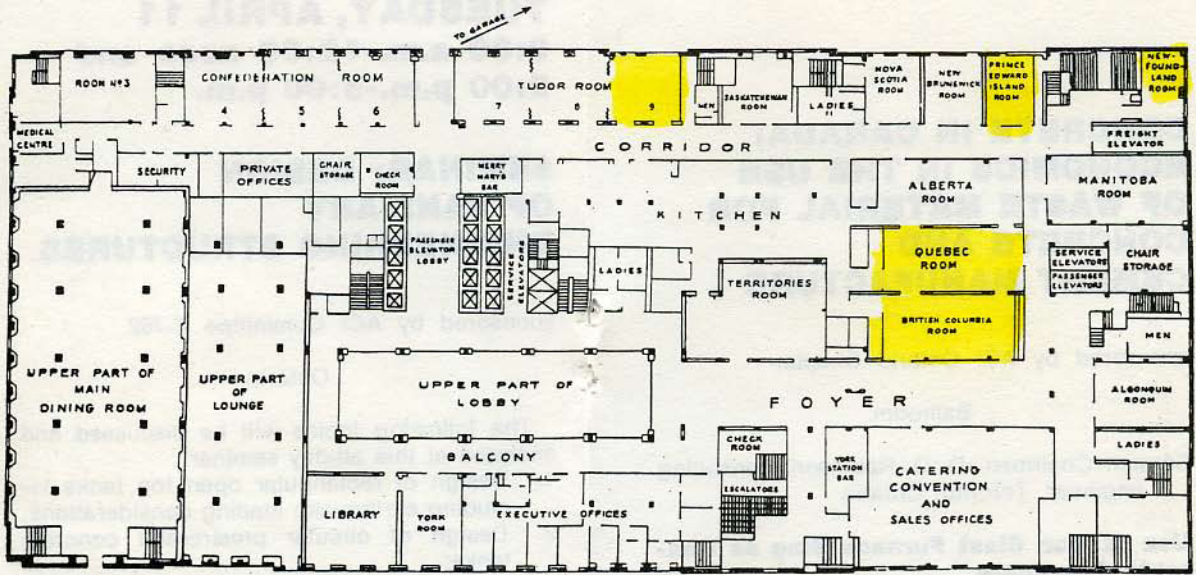
October 29-November 3
Hyatt Regency Hotel
Houston, Texas

1979 Annual Convention

March 18-23
Marc Plaza Hotel
Milwaukee, Wisconsin

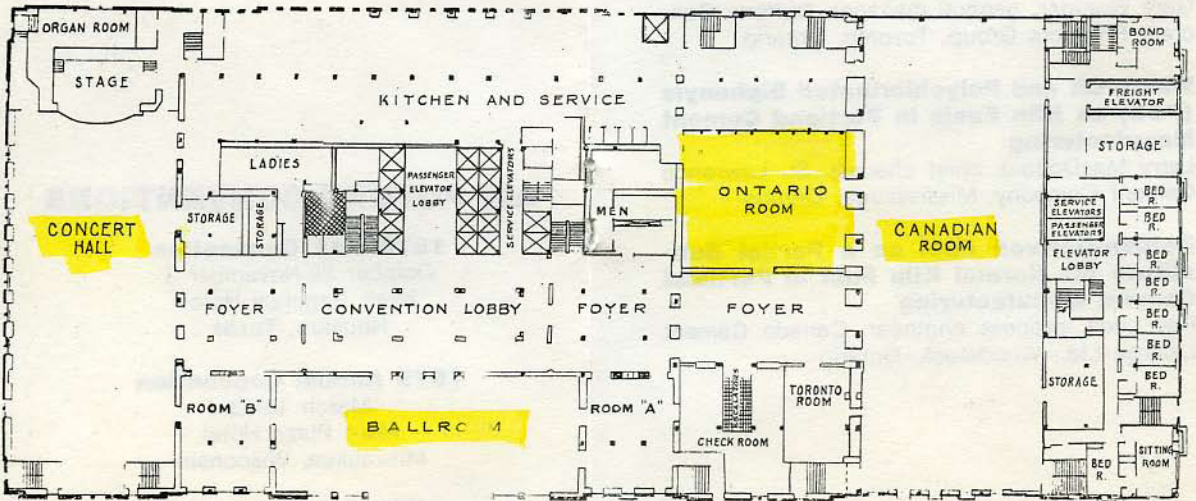
1979 Fall Convention

October 28-November 2
The Capital Hilton Hotel
Washington, D.C.



MAIN MEZZANINE FLOOR PLAN

Royal York Hotel



CONVENTION FLOOR

WEDNESDAY, APRIL 12

8:15 a.m.

Continental Breakfast

Canadian Room

9:00 a.m.-10:30 a.m.

GENERAL SESSION

Canadian Room

Session Chairman: John A. Bickley, general chairman, 1978 Annual ACI Convention, and vice-president, The Trow Group Limited, Rexdale, Ontario

Keynote Address

David Crombie, Mayor, City of Toronto, Toronto, Ontario

Presidential Address

Richard C. Mielenz, President, ACI, and vice-president, Research and Development, Master Builders, Cleveland, Ohio

Acknowledgment of Chapter Officers

Presentation of the Delmar L. Bloem Distinguished Service Awards

Recipients: W. GENE CORLEY
EUGENE P. HOLLAND

A Preview of the Tall Buildings Monograph: Vol. CB

James G. MacGregor, professor, Department of Civil Engineering, University of Alberta, Edmonton, Alberta

10:30 a.m.

ACI Rap Session

Canadian Room

WHAT DO YOU WANT TO KNOW ABOUT ACI?

Richard C. Mielenz, President

&

**George F. Leyh,
Executive Director**

Invite YOU to Ask Them

**CONCRETE IN CANADA:
ECONOMICS IN THE USE
OF WASTE MATERIAL FOR
CONCRETE AND
CEMENT MANUFACTURE**

sponsored by ACI Ontario Chapter

Ballroom

Session Chairman: D. O. Robinson, consulting engineer, Toronto, Ontario

Use of Iron Blast Furnace Slag as Concrete Aggregate

John Emery, McMaster University, Hamilton, Ontario

Use of Ground Iron Blast Furnace Slag as a Replacement for Portland Cement

Peter Mollard, Standard Industries Ltd., Toronto, Ontario

Use of Pulverized Fuel Ash by the Ready Mix Concrete Producer

Gary Woolgar, general manager, Dufferin Concrete Products Group, Toronto, Ontario

Waste Oil and Polychlorinated Biphenyls (PCB) as Kiln Fuels in Portland Cement Manufacturing

Larry MacDonald, chief chemist, St. Lawrence Cement Company, Mississauga, Ontario

Refuse-Derived Fuel as a Partial Substitute for Normal Kiln Fuel in Portland Cement Manufacturing

Ray Luca, process engineer, Canada Cement Lafarge Ltd., Woodstock, Ontario

WEDNESDAY, APRIL 12
2:00 p.m.-5:00 p.m.

STUDENT ACTIVITIES SEMINAR

sponsored by ACI Committee E-801

Ontario

This program has been developed by the "Student Concrete Projects" Committee especially for engineering students. There is no fee for this program.

Discussion of the Technical Activities of ACI

John E. Breen, chairman, ACI Technical Activities Committee, and professor, Department of Civil Engineering, University of Texas, Austin, Texas

Plans to Develop Performance Codes and Specifications for Design and Construction

Eugene P. Holland, chairman, ACI Committee 318, Standard Building Code, and president, Wiesinger-Holland Limited, Chicago, Illinois

Community Projects for Students and Professionals

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

Competitive Design Projects and Models

Boyd C. Ringo, member, ACI Educational Activities Committee, and professor, Department of Civil Engineering, University of Cincinnati, Cincinnati, Ohio

Concrete Canoe Racing Program

Charles F. Scholer, chairman, ACI Committee E-801, Student Concrete Projects, and professor, Department of Civil Engineering, Purdue University, West Lafayette, Indiana

WEDNESDAY, APRIL 12
2:00 p.m.-6:00 p.m.

SEMINAR: PREVIEW AND SUMMARY OF THE NEW BUILDING CODE ACI 318-77: "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE"

sponsored by ACI Committee 318

Ballroom

The following topics will be covered in this seminar:

- a) Editorial and Format Changes
- b) Technical Changes
- c) 318 Beyond '77

Each attendee will receive a copy of the new Code, Commentary, and the Seminar Program Workbook. The panel of instructors will be 318 members and directed by:

Eugene P. Holland, chairman, ACI Committee 318, and president, Wiesinger-Holland, Ltd., Chicago, Illinois and Gerald B. Neville, secretary, ACI Committee 318, manager, structural codes, Portland Cement Association, Skokie, Illinois

NOTE: A separate registration fee is charged for this seminar of \$35.00 for ACI Members and \$45.00 for non-members. Since enrollment is limited, early registration is advised.

THURSDAY, APRIL 13

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

FERROCEMENT — MATERIALS AND APPLICATIONS

sponsored by ACI Committee 549

Canadian Room

Session Chairman: Gajanan M. Sabnis, associate professor, Department of Civil Engineering, Howard University, Washington, D.C.

Ferrocement — Past and Present

Gajanan M. Sabnis, session chairman

Survey of Mechanical Properties of Ferrocement as a Structural Material

Gordon Batson, professor, Department of Civil and Environmental Engineering, Clarkson College, Potsdam, New York

Ferrocement Applications in Mexico City Low Cost Housing

Jose Castro, head of construction area, Universidad Autonoma Metropolitana, Mexico City, Mexico

Design Predictions of Crack Widths in Ferrocement

Antoine E. Naaman, assistant professor of structural design, Department of Materials Engineering, University of Illinois at Chicago Circle, Chicago, Illinois

Development of Fibrous Ferrocement

Douglas Alexander and Maurice Atcheson, partners, Alexander and Poore, Consulting Engineers, Auckland, New Zealand

A Study of Tensile Cracks and Bond-Slip in Ferrocement

Ricardo P. Pama and V. Intaragumhaeng, Department of Civil Engineering, Asian Institute of Technology, Bangkok, Thailand

Uses of Ferrocement in the Middle-East Countries

H. R. Al-Alusi, lecturer, Department of Civil Engineering, University of Baghdad; and Abdul-Salam Alwash, civil engineer, Baghdad, Iraq

Tentative Recommendations for the Construction of Ferrocement Tanks

S. P. Shah, professor of civil engineering, Department of Materials Engineering, University of Illinois at Chicago Circle, Chicago, Illinois

The Efficient and Economical System for Producing Ferrocement Elements

B. R. Walkus, professor, Department of Civil Engineering, Lodz Technical University, Lodz, Poland

Research Needs and Future of Ferrocement as a Structural Material

James P. Romualdi, chairman, ACI Committee 549, and professor, Department of Civil Engineering, Carnegie-Mellon University, Pittsburgh, Pennsylvania

THURSDAY, APRIL 13
9:00 a.m.-12:00 noon

MATHEMATICAL MODELING OF REINFORCED CONCRETE STRUCTURES

sponsored by ACI Committee 442

Ballroom

Session Chairman: **James G. MacGregor**,
professor of civil engineering, University of
Alberta, Edmonton, Alberta

Session 1

Introduction

S. M. Uzumeri, professor, Department of Civil
Engineering, University of Toronto, Toronto

Significance of Stiffness Assumptions on Lateral Force Criteria

Sigmund A. Freeman, structural engineer and
associate; R. Martin Czarnecki and Kenneth K.
Honda, civil engineers, URS/John A. Blume and
Associates, Engineers, San Francisco, California

The Practical Application of Computer Analysis to the Design of Reinforced Concrete Structures for Earthquake Forces

Chris D. Poland, civil engineer, Henry J.
Degenkolb and Associates, San Francisco

The Loading History for Use in Quasi- Static Simulated Earthquake Loading Tests

A. T. Derecho and M. Iqbal, structural engineers;
Mark Fintel, director, Engineering Design and
Standards; and **W. Gene Corley**, director,
Engineering Development Department, Portland
Cement Association, Skokie, Illinois

Theoretical and Experimental Studies of the Response of Reinforced Concrete Structures to Earthquake Motions

Mete A. Sozen, professor, Department of Civil
Engineering, University of Illinois, Urbana

Problems in Mathematical Modeling of Reinforced Concrete Buildings to Predict Their Response to Lateral Forces

V. V. Bertero, professor, Department of Civil
Engineering, University of California, Berkeley

THURSDAY, APRIL 13
9:00 a.m.-12:00 noon

RESEARCH ON PLAIN AND REINFORCED CONCRETE

(Brief and confidential reports)

sponsored by ACI Committee 115

Ontario

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

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

Behavior of Reinforced Concrete Columns Under Simulated Biaxial Earthquake Loads

S. Otani, University of Toronto, Toronto, Ontario

Properties of Mass Concrete Containing Fly Ash at High Temperatures

K. W. Nasser, University of Saskatchewan,
Saskatoon, Saskatchewan

Structural Behavior of a Skew Box Girder Bridge

Alex C. Scordelis and Jack G. Bouwkamp,
University of California, Berkeley, California

The Use of Partially Ground Pelletized Slag as a Binder Replacement in Autoclaved Concrete Blocks

R. D. Hooton and J. J. Emery, McMaster Univer-
sity, Hamilton, Ontario

Use of Small Scale Direct Models to Study the Progressive Collapse of Industrialized Large Panel Buildings

Harry G. Harris and John C. Muskvitch, Drexel
University, Philadelphia, Pennsylvania

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

Anton Tedesco has been selected by the Reinforced Concrete Research Council to receive the 1978 Arthur J. Boase Award "... in recognition of his many contributions to the advancement of knowledge and use of reinforced concrete and, in particular, for his work in thin-shell concrete."

Determination of In-Place Strength of Concrete by the Pullout Method

Tarun R. Naik and Bharat J. Shad, University of Wisconsin-Milwaukee, Milwaukee, Wisconsin

Correlation Between Frost Durability and Complete Pore-Size Distribution of Coarse Aggregates

M. Kaneuji, D. N. Winslow, and W. L. Dolch, Purdue University, West Lafayette, Indiana

Current Bond Tests at Berkeley

E. P. Popov, V. V. Bertero, and S. Viwathahateps, University of California, Berkeley, California

Design of Large-Panel Structures in Seismic Zones

M. Iqbal, N. W. Hanson, and A. T. Derecho, Portland Cement Association, Skokie, Illinois

**The Testing of the South River Bridge
The Testing of the South River Bridge**

M. Holowka and P. F. Csagoly, Ministry of Transportation and Communications, Downsview, Ontario



**THURSDAY, APRIL 13
2:30 p.m.-5:30 p.m.**

**PRECAST CONCRETE
BEARING WALL BUILDINGS:
DESIGN CONSIDERATIONS
FOR SAFETY AGAINST
PROGRESSIVE COLLAPSE
AND SEISMIC EFFECTS**

sponsored by ACI Committee 356

Ontario

Session Chairman: Eric F. P. Burnett, chairman, ACI Committee 356, and associate professor, Department of Civil Engineering, University of Waterloo, Waterloo, Ontario

The Nature of the Problem

Mark Fintel, director, Advanced Engineering Services, Portland Cement Association, Skokie

The Structural Safety of Wall Systems

Donald M. Schultz, senior structural engineer, Portland Cement Association, Skokie, Illinois

The Structural Safety of Precast Hollow Core Floor or Roof Systems

Eric F. P. Burnett, session chairman

The Performance of the Wall-to-Floor Joints in Large Panel Buildings

N. W. Hanson, principal structural engineer; and L. S. Johal, construction engineer, Portland Cement Association, Skokie, Illinois

The State of Current Design Practice in Precast Concrete Bearing Wall Buildings for Seismic Considerations

Vilas Mujumdar, principal structural engineer, Ecodyne Cooling Products Division, Ecodyne Corporation, Santa Rosa, California

Seismic Considerations in the Design of Precast Concrete Panel Buildings

James M. Becker, assistant professor, Massachusetts Institute of Technology, Cambridge, Massachusetts

A Critical Review of the Latest Design Provisions for the Structural Integrity of Precast Concrete Buildings

Irwin J. Speyer, consulting engineer, New York
Reaction to PCA Report 4 — Hollow Core Slab Committee, PCI

Donald R. Buettner, president, Computerized Structural Design Inc., Milwaukee, Wisconsin

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P.O.Box 19150
Detroit, Michigan 48219

AWARDS LUNCHEON THURSDAY, APRIL 13, 12:15 P.M.

Concert Hall

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

Honorary Memberships:

William A. Gordon
T.Y. Lin
Robert E. Philleo
R.E. Rowe
Alfred A. Yee

Charles S. Whitney Award:

Bechtel Power Corporation

Henry C. Turner Award:

Arthur R. Anderson

Alfred E. Lindau Award:

Mark Fintel

Roger H. Corbetta Concrete Constructor Award:

Charles Prokop

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Frank G. Erskine

Wason Medal for Most Meritorious Paper:

James R. Libby

Wason Medal for Materials Research:

V.M. Malhotra

Raymond C. Reese Structural Research Award:

Neil M. Hawkins

Construction Practice Award:

Frank A. Randall, Jr. *CE? or Arch E?*
Peter D. Courtois

Henry L. Kennedy Award:

V.M. Malhotra

Chapter Activities Committee Award:

Edward G. Nawy

Recognition of Retiring Officers

Introduction of New Officers

Presentation of Memento to
Retiring President

THURSDAY, APRIL 13
2:30 p.m.-5:30 p.m.

MATHEMATICAL MODELING OF REINFORCED CONCRETE STRUCTURES

sponsored by ACI Committee 442

Ballroom

Session Chairman: Joseph Schwaighofer,
professor of civil engineering, University of
Toronto, Toronto, Ontario

Session II

Response of Slab-Column Structures to Lateral Forces

Adrian E. Long, lecturer, Department of Civil
Engineering, Queen's University of Belfast,
Belfast, Northern Ireland; and D. W. Kirk,
professor at civil engineering, Royal Military
College of Canada, Kingston, Ontario

A Grid Model for Predicting Hysteretic Behavior of Slab-Column Connections Transferring Moments

M. S. Sheu and Neil M. Hawkins, professor of
civil engineering, University of Washington,
Seattle, Washington

Hysteretic Response of Reinforced Concrete Structural Walls

Ralph G. Oesterle, structural engineer; Anthony
E. Fiorato, manager, Construction Methods; J.
Dario Aristizabal-Ochoa, structural engineer;
and W. Gene Corley, director, Engineering
Development Department, Portland Cement
Association, Skokie, Illinois

Distribution of Inertial Forces Over the Height of Reinforced Concrete Structural Walls Subjected to Strong Ground Motion

M. Iqbal and A. T. Derecho, structural engineers;
and W. Gene Corley, director, Engineering De-
velopment Department, Portland Cement
Association, Skokie, Illinois

The Effect of Nonlinear-Inelastic Connection Behavior on Precast Panelized Shear Walls

C. Llorente; James M. Becker, assistant
professor; and Jose M. Roesset, professor,
Massachusetts Institute of Technology, Cam-
bridge, Massachusetts

Mathematical Modeling of Infilled Frames

Richard E. Klingner, assistant professor, Depart-
ment of Civil Engineering, University of Texas at
Austin, Austin, Texas

The Behavior of Outrigger-Braced Tall Building Structures

B. Stafford-Smith, professor, Department of Civil
Engineering, and I.O. Nwaka, McGill University,
Montreal, Quebec

Tentative Schedule of ACI 318-77 CODE AND COMMENTARY Seminar Series

April 18

co-sponsor: Oregon Chapter, ACI
Portland, Oregon

April 19

co-sponsor: New England Chapter, ACI Woburn,
Massachusetts

April 20

co-sponsor: Michigan Chapter, ACI, Detroit area

May 9

co-sponsor: Chicago Area Chapter, ACI
Chicago, Illinois

May 10

co-sponsor: Atlanta Chapter, ACI
Atlanta, Georgia

May 11

co-sponsor: Greater Miami Valley Chapter, ACI
Dayton, Ohio

May

co-sponsor: Washington State Chapter, ACI
Seattle, Washington

May 16

co-sponsor: The Cleveland Engineering Society
Cleveland, Ohio

May 17

co-sponsor: Houston Chapter, ACI, Rice Cam-
pus

May 18

co-sponsor: Concrete Industry Board, N.Y.C.
New York City

May 23

co-sponsor: Delaware Valley Chapter, ACI
Philadelphia, Pennsylvania

September 13

co-sponsor: New Jersey Chapter, ACI
Rutgers University

THURSDAY, APRIL 13

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

NORTH AMERICAN PRACTICE IN SEGMENTAL BRIDGES

sponsored by ACI Committee 443 and the Post-Tensioning Institute

Canadian Room

Session Chairman: Roger A. Dorton, manager, Structural Office, Ministry of Transportation and Communications, Downsview, Ontario

Islands Joined By Record Span, Koror-Bablethuap Bridge

Donald J. Ward, Dywidag Canada Ltd., Downsview, Ontario

Islington Avenue Bridge, Toronto

J. A. B. Lovell, Maksymek & Associates Ltd. Toronto, Ontario

Incremental Launched Box Girder — Wabash River, Indiana

David T. Swanson, VSL Corporation, Los Gatos, California

Zilwaukee Bridge Design Considerations

Brice Bender, president, BVN-STS, Indianapolis, Indiana

Kishwaukee River Bridge, Illinois

James M. Barker, Post-Tensioning Institute, Glenview, Illinois

Construction of Segmental Bridges

Daniel Demarthe, president, Preconsult Canada Ltd., Montreal, Quebec



THURSDAY, APRIL 13

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

FORUM: NEEDED RESEARCH AND DEVELOPMENT FOR FIBER REINFORCED CONCRETE

sponsored by ACI Committee 114 in cooperation with ACI Committee 544

Concert Hall

Although considerable research on Fiber Reinforced Concrete (FRC) has been communicated to ACI Committee 544, Fiber Reinforced Concrete, the committee believes the need exists for additional research and development to provide a better understanding of the behavior of the material systems, to broaden the acceptance of FRC in current applications, and to generate new applications. Areas of research and development needed to provide this understanding and acceptance are as follows:

1. Standardized methods need to be established for measuring FRC performance characteristics. Many of the presently accepted methods of concrete materials testing may need to be modified before they can be applied meaningfully to FRC.
2. Work is needed to further quantify the effect of fiber additions on mortar and concrete.
3. Theoretical models need to be developed to utilize FRC performance in analysis and design.

We invite those interested in sponsoring or carrying out the needed research and development to attend and participate in this Forum. The following panel will lead the discussion:

Moderator: Robert L. Henry, manager, Fort Worth Facility, Texas Testing Laboratories, Inc., Fort Worth, Texas

Panel Members: Ernest K. Shrader, civil engineer, Foundations and Materials Branch, U. S. Army Corps of Engineers, Walla Walla, Washington

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

Ronald F. Zolo, associate professor, University of Miami, Coral Gables, Florida

FRIDAY, APRIL 14
9:00 a.m.-12:00 noon

BEHAVIOR AND DESIGN OF BEAM-COLUMN JOINTS

sponsored by ACI Committee 352

Concert Hall

Session Chairman: **J. O. Jirsa**, chairman, ACI Committee 352 and professor, Department of Civil Engineering, University of Texas at Austin, Austin, Texas

Beam-Column Joints for Seismic Resistance

Brian W. Buchanan, research and development engineer; and Garry R. McKay, design engineer, Structural Section, Ministry of Works and Development, Wellington North, New Zealand

A Critical Evaluation of ACI 352 Recommendations

N. W. Hanson, principal structural engineer; and **W. Gene Corley**, director, Engineering Development Department, Portland Cement Association, Skokie, Illinois

Design Considerations for Frames in High and Low Seismicity Areas

Donald R. Strand, Brandow and Johnson Associates, Los Angeles, California

Shear Strength of Beam-Column Joints

Donald F. Meinheit, assistant professor, Department of Civil Engineering, University of Notre Dame, Notre Dame, Indiana

Beam-Column Joints — An Examination of Performance Expectations

S. M. Uzumeri, professor; and M. Seckin, graduate assistant, Department of Civil Engineering, University of Toronto, Toronto, Ontario

Post-Earthquake Damage in Beam- Column Joints

Mete A. Sozen, professor, Department of Civil Engineering, University of Illinois at Urbana-Champaign, Urbana, Illinois

FRIDAY, APRIL 14
9:00 a.m.-12:00 noon

LESSONS FROM STRUCTURAL PERFORMANCE

sponsored by ACI Committee 348

Ballroom

Session Co-Chairmen: Robert G. Drysdale, associate professor, Department of Civil Engineering, McMaster University, Hamilton, Ontario and David E. Allen, research officer, Division of Building Research, National Research Council of Canada, Ottawa.

Strength, Stiffness and Ductility Required in Earthquake-Resistant Multistory Reinforced Concrete Buildings

A. T. Derecho, structural engineer, S. K. Ghosh, senior structural engineer, M. Iqbal, structural engineer, and M. Fintel, director, Advanced Engineering Services, Portland Cement Association, Skokie, Illinois

Investigation, Rehabilitation, and Maintenance to Prevent Deterioration of a Concrete Building

Arthur H. Anderson, Jr., senior project design engineer, Chemical Systems Division, United Technologies, Inc., Sunnyvale, California

Reliability of Multistory Slab Structures Against Progressive Collapse During Construction

F. A. Webster, Engineering Decision Analysis Company Inc., Palo Alto, California

Model Studies on a Multistory Panel Structure

Graham S. T. Armer, principal scientific officer, Structural Design Division, Building Research Station, Garston, Watford, England

Binary Case of Gross Error

A. S. Nowak, research associate, Department of Civil Engineering, University of Waterloo, Waterloo, Ontario

Control of Cracking on the Side Faces of Large Reinforced Concrete Beams

Gregory C. Frantz, research assistant, and John E. Breen, J. J. McKetta professor of engineering, University of Texas, Austin, Texas

Designing Structures Instead of In- dividual Members

Robert G. Drysdale, session co-chairman

FRIDAY, APRIL 14

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

RAILROAD AND RAIL TRANSIT BRIDGES

sponsored by ACI Committee 443

Ontario

Session Chairman: Ti Huang, secretary, ACI Committee 443, and professor of civil engineering, Fritz Engineering Laboratory, Lehigh University, Bethlehem, Pennsylvania

Load Factor Design in AREA Bridge Code
Gerald B. Neville, manager, Structural Codes, Portland Cement Association, Skokie, Illinois

Concrete Bridges for Railroads

W. E. Brakensiek, Missouri Pacific Railroad Company, St. Louis, Missouri.

Replacement of Timber Decks on Railroad Bridges with Prestressed Concrete Slabs

W. R. Hyma, bridge engineer, Atchison, Topeka and Santa Fe Railway Company, Chicago, Illinois

Pretensioned Double-Tee Girders for Dade County Rapid Transit Aerial Guideways

Thomas T. C. Hsu, chairman, Civil Engineering Department, University of Miami; and Sarosh Dhondy, Kaiser Transit Group, Coral Gables, Florida

Design and Construction of the Elevated Structure for Canadian Urban Transportation System

James S. Guarre, Darrell T. Joque, and Prakash V. Limaye, ABAM Engineers, Inc., Tacoma, Washington; and Glyn D. Jones, Kilmer Van Nostrand Company, Ltd., Toronto, Ontario

Design Study of Guideway for a High-Speed Magnetically-Levitated Vehicle

T. I. Campbell and K. VanDalen, associate professors of civil engineering; D. L. Atherton, professor of physics; and A. R. Eastham, research associate, Canadian Institute of Guided Ground Transport; Queen's University, Kingston, Ontario

FAMILY MEMBERS PROGRAM

**Hospitality: Room B.
Convention Floor**

Morning coffee and light refreshments will be provided in the hospitality room starting Monday morning at 8:30 a.m. It will be staffed by local committee members who will assist in organizing activities such as dinner parties, theatre parties, and shopping tours. The suite will be open and staffed all day and will act as a meeting and gathering place for attendees.

SCHEDULE OF TOURS

MONDAY, APRIL 10 CITY TOUR AND LUNCH

10:00 a.m.

Depart Hotel for a City tour. This deluxe tour will take you all over Toronto, including Yonge Street; Bay Street and the Financial District; The Eaton's Centre; Rosedale, Forest Hill and Bayview residential areas with their many celebrity homes; Yorkdale; the Science Centre; Casa Loma; University of Toronto Campus; the Royal Ontario Museum and McLaughlin Planetarium; The Hydro Building; the Lakeshore and Harbour; Exhibition Park; High Park, etc. (not in chronological order and subject to revision). There will be a stop for coffee during this tour.

12:30 p.m. (approx.)

Arrive at the Manu-Life Centre in the heart of fashionable Bloor Street. A ride to the top of this high rise will take you to the Aquarius Lounge, where you will lunch in this beautifully redesigned room, renowned as having one of the finest views in the City. To enhance your luncheon enjoyment, there will be a pianist for the duration.

2:30 p.m.

After lunch, your Hostess will escort you through Bloor Street and Yorkville to Hazelton Lanes, that 'little piece of Cannes in Toronto.' From here, either —

3:00 p.m.

Take our charter bus back to the Royal York, or stay and browse and make your own way back to the Hotel when you choose (Subway token provided!). Cost per person: \$15.00

TUESDAY, APRIL 11 **BLACK CREEK AND** **KLEINBURG**

9:30 a.m.

Depart Hotel by bus for Black Creek Pioneer Village, a re-creation of the way an Ontario township looked and felt in the last century. Among other interesting items, note the General Store, Print House, Town Hall, Fire House and 1840's Mill with its four-ton wooden water-wheel and wander into homes that reflect the life-styles of their original owners, where you will see today's 'Pioneer' residents going about their household tasks and working at trades reminiscent of that era.

11:45 a.m.

Re-board your buses and head towards the town of Kleinburg. Once there, stop at the Doctor's House and Livery, one of the oldest residences in Kleinburg, where you will lunch.

2:00 p.m.

After lunch, your buses will take you the short distance to the McMichael Gallery, a fascinating structure which houses important works by the famous 'Group of Seven' Canadian Artists, and also much Indian and Inuit art.

4:30 p.m. (approx.)

Arrive back at your Hotel.
Cost per person: \$19.75.

WEDNESDAY, APRIL 12 **C. N. TOWER BREAKFAST**

8:00 a.m.

Your buses will pick you up and drive you to the C.N. Tower, the world's tallest free-standing structure. The restaurant and observation galleries have a potential 75-mile view, and are an absolute must for the camera buffs among you!

8:30 a.m.

After a breath-taking ride up the side of the Tower, relax in the Top of Toronto Restaurant, where you will enjoy a delicious breakfast while the restaurant revolves to give you an ever-changing view of the City of Toronto and its surroundings.

9:45 a.m.

Buses return you to the Royal York Hotel.
Cost per person: \$13.50

THURSDAY, APRIL 13 **LUNCHEON AND CABARET**

1:15 p.m.

Meet in the lobby of the Hotel and your Hostesses for today will escort you across to the Tellers' Cage theatre restaurant in the Commerce Court, where sherry will be served for your pre-luncheon enjoyment. Either during this time, or later in the afternoon, you will have a chance to meet the cast personally and chat about the show.

2:00 p.m.

Luncheon.

2:45 p.m.

Cabaret time.

4:45 p.m. (approx.)

Arrive back at your Hotel.
Cost per person: \$19.50



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