PROGRAMME

AMERICAN CONCRETE INSTITUTE
fall convention
at Château Laurier
OTTAWA
OCTOBER 8-12, 1973

Printed in U.S.A.

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special events

Publications Display . . . in the Ballroom Lobby. All the current ACI publications are there. Orders are taken at the Registration Desk which is also in the Ballroom Lobby.

Photo Display on Sulphur Concrete . . . in the Ballroom Lobby.

"Concrete Mixer" social hour . . . Wednesday, 6:30 to 8:00 p.m., in the Ballroom. Please wear your badge.

Forum: Recommended research and development on probabilistic approaches to structural safety in reinforced concrete buildings. Sponsored by ACI Committee 114 in cooperation with ACI Committee 348. Thursday, 7:00 p.m. in the Convention Hall.

Dworshak Dam . . . a time-lapse film on the construction of this dam presented by Donald J. Hall, member, ACI Committee 304, and chief, Dworshak Dam Foundations and Materials Branch, U. S. Army Corps of Engineers, Orofino, Idaho.

Breakfasts (by invitation only):

Tuesday, October 9, 7:30 a.m.
breakfast for program participants in the Canadian Capital Chapter Seminar, Quebec Drawing Room.

Wednesday, October 10, 7:30 a.m.
breakfast for program participants in the General Session, Durability of Concrete, and Industrialized Concrete Construction. Quebec Dining Room.

Thursday, October 11, 7:30 a.m.
breakfast for program participants in Shear in Slabs and Special Members, Properties of Fiber Reinforced Concrete, Applications of Fiber Reinforced Concrete, and Reinforced Concrete Columns. Quebec Dining Room.

Friday, October 12, 7:30 a.m.
breakfast for program participants in The Behavior of Concrete Under Temperature Extremes, Ultimate Strength Design Handbook — Workshop, and Research on Plain and Reinforced Concrete. Quebec Dining Room.

schedule

MONDAY, OCTOBER 8

2:00 p.m. - 10:00 p.m.
Technical, educational and administrative committee meetings

TUESDAY, OCTOBER 9

9:00 a.m. - 5.00 p.m.
Canadian Capital Chapter Seminar (first 2 sessions) Convention Hall

9:00 a.m. - 10:00 p.m.
Technical, educational and administrative committee meetings

7:00 p.m. - 10:00 p.m.
Canadian Capital Chapter Seminar (third session) Ballroom

WEDNESDAY, OCTOBER 10

9:00 a.m. - 12:00 noon
General Session Adam Room

2:00 p.m. - 5:00 p.m.
Canadian Capital Chapter Seminar (concluding session) Convention Hall

2:00 p.m. - 5:00 p.m.
Durability of Concrete (Committee 201) Banquet Room

2:00 p.m. - 5:00 p.m.
Industrialized Concrete Construction (Committee 356) Adam Room

2:00 p.m. - 5:00 p.m.
Technical and educational committee meetings

6:30 p.m.
Concrete Mixer Ballroom

THURSDAY, OCTOBER 11

9:00 a.m. - 12:00 noon
Shear in Slabs and Special Members (Committee 426) Adam Room

9:00 a.m. - 12:00 noon
Properties of Fiber Reinforced Concrete (first session) (Committee 544) Convention Hall

9:00 a.m. - 10:00 p.m.
Technical and educational committee meetings

2:00 p.m. - 5:00 p.m.
Application of Fiber Reinforced Concrete (concluding session) (Committee 544) Convention Hall

2:00 p.m. - 5:00 p.m.
Reinforced Concrete Columns (Committee 441) Adam Room

6:00 p.m.
Film on the Dworshak Dam Drawing Room

7:00 p.m. - 10:00 p.m.
Forum on Probabilistic Approaches to Structural Safety (Committee 114, cosponsored by Committee 348) Convention Hall

FRIDAY, OCTOBER 12

9:00 a.m. - 12:00 noon
The Behavior of Concrete Under Temperature Extremes (Canadian Capital Chapter) Adam Room

9:00 a.m. - 12:00 noon
Research on Plain and Reinforced Concrete (Committee 115) Burgundy

9:00 a.m. - 12:00 noon
Ultimate Strength Design Handbook (Committee 340) Convention Hall

12:00 noon

CONVENTION CLOSES

TOURS:

1:30 p.m. - 4:30 p.m.
Division of Building Research, National Research Council of Canada

afternoon
Pickering Nuclear Station of Ontario Hydro

Saturday, October 13

8:00 a.m. - 6:00 p.m.
Construction in Montreal

FUTURE ACI CONVENTIONS

1974—March 30 - April 5
Sheraton-Palace Hotel
San Francisco, California

1974—October 26 - November 1
Sheraton-Biltmore Hotel
Atlanta, Georgia

1975—April 6 - 11
Sheraton Boston Hotel
Boston, Massachusetts

1975—November 1 - 7
The Bayshore Inn
Vancouver, British Columbia, Canada

1976—March 28 - April 2
Benjamin Franklin Hotel
Philadelphia, Pennsylvania

COMMITTEE MEETINGS

Committee short titles are in **bold face**. Be sure to check the bulletin board for last minute changes or added meetings.

SUNDAY, Oct. 7 — 2 p.m. to 5 p.m.

COMMITTEE		Meeting Room
.....	**Technical Activities Committee**	L'Orangerie
.....	**Planning Committee**	Frobisher

MONDAY, Oct. 8 — 9 a.m. to 12 noon

.....	**Technical Activities Committee** (starts 10 a.m.)	L'Orangerie
.....	**Educational Activities Committee** (Educational program for 1974)	Frobisher
.....	**General Activities Committee**	Burgundy
212	**Admixtures** (Updating 1963 Committee Report "Admixtures for Concrete")	Quebec Dining Room
316	**Construction of Concrete Pavements and Bases** (Committee Report)	Cartier
318	Subcommittee B, **Concrete Quality, Mixing, and Placement**	Banquet Room
318	Subcommittee F, **Serviceability** (Deflection Calculation)	Macdonald
318	Subcommittee H, **Shear and Torsion** (Simplification of Chapter 11)	Champlain
359	Materials, Construction and Examination Subgroup, **Concrete Components for Nuclear Reactors**	Quebec Drawing Room
428	**Limit Design** (ASCE Cincinnati papers, Model Code Clauses, Program Library, Current Research, Other Codes)	Salle Richelieu
515	**Coating for Concrete** (Review drafts of Guides: Dampproofing and Waterproofing, Decorative Painting of Concrete)	Palladian
531	**Masonry Structures** (Review Specifications; discuss development of Masonry Code)	Renaissance
547	**Refractory Concrete** (State of the Art Report)	Tudor Room
E-702	**Enchiridia — Design** (Future Goals; Status of Work)	Drawing Room

2 p.m. to 5 p.m.

.....	**Educational Activities Committee** (Educational program for 1974)	Frobisher
.....	**General Activities Committee**	Burgundy
116	**Nomenclature** (Revision of SP-19)	Drawing Room
318	Subcommittee D, **Details and Development of Reinforcement** (Ballot on Splices, Tolerances)	Champlain
318	Subcommittee E, **Analysis and Strength Requirements**	L'Orangerie
318	Subcommittee G, **Flexure and Axial Loads** (Code Changes)	Quebec Dining Room

2 p.m. to 5 p.m.

COMMITTEE		Meeting Room
351	**Foundation for Equipment and Machinery** (Bibliography and survey of practice)	Macdonald
359	Materials, Construction and Examination Subgroup, **Concrete Components for Nuclear Reactors**	Quebec Drawing Room
411	**Reinforced Concrete Columns** (Code Modification Proposals)	Cartier
515	**Coatings for Concrete** (Review drafts of Guides: Dampproofing and Waterproofing, Decorative Painting of Concrete)	Palladian
531	**Masonry Structures** (Review Specifications; discuss development of Masonry Code)	Renaissance
E-601	**Seminars and Workshops** (Seminar schdule; Subject Matter for Future Seminars)	Banquet Room
E-703	**Enchiridia — Construction** (Development of sections of manual)	Tudor Room

7 p.m. to 10 p.m.

.....	**Specifications Review Committee** (Specification Format; Specifications for Shotcreting and for Masonry)	Quebec Drawing Room
304	**Measuring, Mixing, Transporting, and Placing Concrete** (State of the Art Reports; Heavy and Lightweight Structural Concrete; Conveying Concrete by Belts)	L'Orangerie
315	**Detailing Reinforced Concrete Structures** (Next edition of "Manual of Standard Practice")	Tudor Room
318	Subcommittee K, **Precast and Composite Concrete** (Possible proposals for changes in Code)	Macdonald
423	**Prestressed Concrete** (Code Provisions for Prestressed Concrete Flat Plates)	Burgundy
426	**Shear and Diagonal Tension** (Symposium Volume; Shear Committee Report, Design Equations)	Drawing Room
437	**Strength Evaluation of Existing Concrete Structures** (New Report Form)	Cartier
506	**Shotcreting** (Specifications)	Banquet Room
512	**Precast Structural Concrete** (Revision of ACI 512-67)	Quebec Dining Room
515	**Coatings for Concrete** (Review drafts of Guides: Dampproofing and Waterproofing, Decorative Painting of Concrete)	Palladian
516	**High Pressure Steam Curing** (Review of 62-53, Part 3, Manual of Practice)	Renaissance
543	**Concrete Piles** (Discussions received on Committee Report)	Champlain
E-701	**Enchiridia — Materials** (Enchiridia, Completed, in Preparation, and other subjects for Enchiridia)	Frobisher

TUESDAY, Oct. 9 — 9 a.m. to 12 noon

CANADIAN CAPITAL CHAPTER SEMINAR
(First of Four Sessions) See Page 26 Convention Hall

COMMITTEE		Meeting Room
.....	**Board of Direction** (starts 9:30 a.m.)	Quebec Dining Room
118	**Use of Computers** (Review of Concrete Design Programs and Symposium)	Frobisher
209	Subcommittee II, **Creep and Shrinkage in Concrete** (State of the Art Report)	Salle Richelieu
211	**Proportioning Concrete Mixes** (Appendix 4 to 211.1-70; Revision to 211-65; Progress on Mass Concrete)	Burgundy
223	**Expansive Cement Concretes** (Recommended Practice)	L'Orangerie
318	Subcommittee I, **Slab Systems** (Simplification of Chapter 13; Section 13.2.4, Section 11.13.2 Revision to Code)	Champlain
350	**Sanitary Engineering Structures** (Committee Reports and Questionnaire)	Banquet Room
356	**Industrialized Concrete Construction** (Symposium; Special Publication; Subcommittee Reports)	Palladian
359	Component Supports Subgroup, **Concrete Components for Nuclear Reactors**	Tudor Room
359	In Service Inspection Subgroup, **Concrete Components for Nuclear Reactors**	Rideau
359	Materials, Construction and Examination Subgroup, **Concrete Components for Nuclear Reactors**	Quebec Drawing Room
423	**Prestressed Concrete** (Code Provisions for Prestressed Concrete Flat Plates)	Macdonald
439	**High-Strength Reinforcement in Concrete** (Draft of Report on Research Needs for High Strength Steel)	Renaissance

2 p.m. to 5 p.m.

CANADIAN CAPITAL CHAPTER SEMINAR
(Second of Four Sessions) See Page 26 Convention Hall

.....	**Board of Direction**	Quebec Dining Room
.....	**TAC Committee on Slab Design Aids**	Macdonald
117	**Tolerances** (Tolerance Problems in ACI Publications; State of the Art)	Banquet Room
118	**Use of Computers** (Review of Concrete Design Programs and Symposium)	Frobisher
201	**Durability of Concrete** (Committee Report)	Renaissance
223	**Expansive Cement Concretes** (Recommended Practice)	L'Orangerie

2 p.m. to 5 p.m.

COMMITTEE		Meeting Room
309	**Consolidation of Concrete** (Reorganization and Missions of Subcommittees)	Cartier
354	**Design Practice**	Salle Richelieu
356	**Industrialized Concrete Construction** (Symposium; Special Publication; Subcommittee Reports)	Palladian
359	Component Supports Subgroup, **Concrete Components for Nuclear Reactors**	Tudor Room
359	In Service Inspection Subgroup, **Concrete Components for Nuclear Reactors**	Rideau
359	Materials, Construction and Examination Subgroup, **Concrete Components for Nuclear Reactors**	Quebec Drawing Room
435	**Deflection of Concrete Building Structures** (Reorganization of subcommittees; Subcommittee reports; Symposium)	Drawing Room
503	**Adhesives for Concrete** (Report of Experience; Reviews of Case History and Specification Formats)	Burgundy

7 p.m. to 10 p.m.

CANADIAN CAPITAL CHAPTER SEMINAR
(Third of Four Sessions) See Page 27 — Convention Hall

.....	**Board Committee on International Activities** (Policy)	Quebec Dining Room
201	**Durability of Concrete** (Committee Report)	Renaissance
215	**Fatigue of Concrete** (Symposium volume; Report; Bibliography)	Macdonald
301	**Specifications for Structural Concrete** (Conversion of ACI 301-72 to CSI Format)	Champlain
309	**Consolidation of Concrete**	Cartier
318	Subcommittee J, **Footings** (Change J-1)	L'Orangerie
318	Subcommittee, **Prestressed Concrete** (Changes to Chapter 18 of ACI 318-71)	Drawing Room
318	**Task Group on Code Simplification**	Mackenzie
322	**Design of Structural Plain Concrete** (New Mission)	Palladian
345	**Concrete Bridge Decks** (Recommended Practice; Symposium; Change in Mission)	Quebec Drawing Room
359	In Service Inspection Subgroup, **Concrete Components for Nuclear Reactors**	Rideau
444	**Models of Concrete Structures** (Committee Report)	Frobisher
546	**Repair of Concrete** (Review draft of Guide for Repair of Concrete Bridge Decks; Discuss Symposium)	Tudor Room
E-704	**Enchiridia — Building Code** (Enchiridia; Workshop at 1974 Annual Convention)	Burgundy

WEDNESDAY, Oct. 10 — 9 a.m. to 12 noon

GENERAL SESSION — See Page 12 — Adam Room

2 p.m. to 5 p.m.

CANADIAN CAPITAL CHAPTER SEMINAR
(Concluding Session) See Page 27 — Convention Hall

DURABILITY OF CONCRETE (Sponsored by ACI Committee 201) See Page 17 — Banquet Room

INDUSTRIALIZED CONCRETE CONSTRUCTION
(Sponsored by ACI Committee 356)
See Page 13 — Adam Room

COMMITTEE		Meeting Room
.....	**Ad Hoc Committee on Canoe Racing**	Tudor Room
207	**Mass Concrete** (Continuing Program)	Renaissance
209	**Creep and Shrinkage in Concrete** (State of the Art Report)	Champlain
318	**Standard Building Code** (Revisions to 318-71)	Drawing Room
325	**Structural Design of Concrete Pavement for Highways and Airports** (Design Procedure; Symposium)	Salle Richelieu
336	**Combined Footings and Pier Foundations** (Draft Caisson Construction Specification; Review Report "Suggested Design Procedures for Combined Footings and Mats")	Frobisher
347	**Formwork for Concrete** (Review of Symposium Papers; Revisions to ACI 347 Recommended Standards)	Macdonald
348	**Structural Safety** (Structural error survey; Symposia)	Quebec Drawing Room
359	**Concrete Components for Nuclear Reactors** (Discussion of proposed Code Commentary)	L'Orangerie
443	**Concrete Bridge Design** (Committee Report)	Palladian
517	**Accelerated Curing of Concrete at Atmospheric Pressure** (Review drafts of chapters; Prepare Reports)	Quebec Dining Room
544	**Fiber-Reinforced Concrete** (Symposium arrangements)	Cartier

THURSDAY, Oct. 11 — 9 a.m. to 12 noon

SHEAR IN SLABS AND SPECIAL MEMBERS
(Sponsored by ACI Committee 426) See Page 18 — Adam Room

PROPERTIES OF FIBER REINFORCED CONCRETE
(First session) (Sponsored by ACI Committee 544) See Page 19 — Convention Hall

214	**Evaluation of Results of Tests Used to Determine the Strength of Concrete** (Revision of 214-65)	Tudor Room

9 a.m. to 12 noon

COMMITTEE		Meeting Room
302	**Concrete Floor Finishes** (Updating of Recommended Practice)	Burgundy
311	**Inspection of Concrete** (Revisions of Inspection Manual and Standard; Certification of Concrete Inspectors)	Banquet Room
318	**Standard Building Code** (Revision to 318-71)	Drawing Room
333	**Composite Construction** (State of the Art Report)	Mackenzie
408	**Bond Stress** (Current research; Code inadequacies, Committee reports)	Macdonald
443	**Concrete Bridge Design** (Committee Report)	Palladian
504	**Joint Session** (Revision of Guide for Joint Sealants)	Rideau
523	**Insulating and Cellular Concretes** (Resolution of negative votes on Committee Document)	Frobisher
532	**Lightweight Concrete Masonry**	Champlain

2 p.m. to 5 p.m.

	APPLICATION OF FIBER REINFORCED CONCRETE (concluding session) (Sponsored by ACI Committee 544) See Page 20	Convention Hall
	REINFORCED CONCRETE COLUMNS (Sponsored by ACI Committee 441) See Page 21	Adam Room
.....	**Board Committee on Chapter Activities**	L'Orangerie
	Standards Board (Proposed Standards)	Quebec Drawing Room
114	**Research and Development** (Forum on "Probabilistic Approaches;" Future forums; R&D projects)	Champlain
120	**History of Concrete** (Plans and current activities)	Macdonald
213	**Lightweight Aggregates and Lightweight Aggregate Concrete** (Revision of ACI 213 Guide)	Burgundy
214	**Evaluation of Results of Tests Used to Determine the Strength of Concrete** (Revision of 214-65)	Tudor Room
306	**Cold Weather Concreting**	Renaissance
311	**Inspection of Concrete** (Revision of Inspection Manual and Standard; Certification of Concrete Inspectors)	Banquet Room
318	**Standard Building Code** (Revision to 318-71)	Drawing Room
340	**Ultimate Strength Design Handbook** (Revision of existing handbook)	Quebec Dining Room
344	**Circular Prestressed Concrete Structures** (Updating Committee Report)	Cartier
349	**Concrete Nuclear Structures**	Palladian

7 p.m. to 10 p.m.

	FORUM ON PROBABILISTIC APPROACHES TO STRUCTURAL SAFETY (Sponsored by ACI Committee 114, cosponsored by ACI Committee 348) See Page 22	Convention Hall
	FILM ON THE DWORSHAK DAM	Adam Room

COMMITTEE		Meeting Room
.....	**Convention Committee** (Suggestions received from members)	L'Orangerie
213	**Lightweight Aggregates and Lightweight Aggregate Concrete** (Revision of ACI 213 Guide)	Burgundy
222	**Corrosion of Metals in Concrete** (Symposium Volume; Recommended Practices)	Champlain
308	**Curing**	Macdonald
322	**Residential Concrete Work** (Recommended Practice for Residential Concrete)	Renaissance
349	**Concrete Nuclear Structures**	Palladian
352	**Joints and Connections in Monolithic Concrete Structures** (Design Recommendations for Joints)	Banquet Room
355	**Anchorage to Concrete** (State of the Art Report)	Mackenzie
421	**Design of Reinforced Concrete Slabs** (Subcommittee Reports; Code Simplification)	Tudor Room
438	**Torsion** (Subcommittee assignments; Code provisions; Research needs, Current research reports)	Rideau
548	**Polymers in Concrete** (State of the Art Report, Cooperation with British Concrete Society)	Frobisher

FRIDAY, Oct. 12 — 9 a.m. to 12 noon

	THE BEHAVIOR OF CONCRETE UNDER TEMPERATURE EXTREMES (Sponsored by ACI Canadian Capitol Chapter) See Page 23	Adam Room
	RESEARCH ON PLAIN AND REINFORCED CONCRETE (Sponsored by ACI Committee 115) See Page 24	Burgundy
	ULTIMATE STRENGTH DESIGN HANDBOOK (Sponsored by ACI Committee 340) See Page 25	Convention Hall
.....	**TAC Task Group on Transportation** (Plans and current activities)	L'Orangerie
224	**Cracking** (Reorganization; Application of new knowledge)	Palladian
318	**Standard Building Code** (Revision to 318-71)	Drawing Room
442	**Response of Buildings to Lateral Forces** (Shear walls and seismic response)	Macdonald

wednesday, october 10

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

GENERAL SESSION

Adam Room

CONVENTION CHAIRMAN AND WELCOME TO OTTAWA
V. M. Malhotra, materials engineer, Construction Materials Section, Mineral Processing Division, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario

PRESIDING OFFICER: Robert E. Philleo, President, ACI, and chief, Concrete Branch, Department of the Army, Office, Chief of Engineers, Washington, D. C.

Raymond E. Davis Lecture: From a Diverse Heritage . . . Teachers I Never Knew
Howard Newlon Jr., chairman, ACI Committee 120, and assistant state highway research engineer, Virginia Highway Research Council, Charlottesville, Virginia

Presentation of Alberta Chapter Charter
Presentation of Gavel to Alberta Chapter in Commemoration of the Institution of Another Canadian Chapter
Announcement of Approval of Atlantic Chapter Headquartered in Halifax

Canadian National Tower—World's Tallest Concrete Structure
Roger R. Nicolet, consulting engineer, Nicolet, Dressel, Mercille, Montreal, Quebec

Proposed: Recommended Practice for Construction of Concrete Pavement and Bases (to supersede ACI 617-58)
by ACI Committee 316. Presentation by W. M. Stingley, chairman, Committee 316, and assistant engineer of planning and development—research implementation, State Highway Commission of Kansas, Topeka, Kansas

Proposed: Recommended Practice for Concrete Bridge Deck Construction
by ACI Committee 345. Presentation by Philip D. Cady, chairman, Committee 345, and associate professor of civil engineering, Pennsylvania State University, University Park, Pennsylvania

Proportioning Heavyweight Concrete — A Proposed Revision of ACI 211.1-70: Recommended Practice for Selecting Proportions for Normal Weight Concrete
by ACI Committee 211. Presentation by John R. Wilson, chairman, Committee 211, and director of technical services, Martin Marietta Corporation, Baltimore, Maryland.

Proposed: Standard Code for Concrete Reactor Vessels and Containments
by ACI-ASME Committee 359. Presentation by T. E. Northup, chairman, Committee 359, and manager, PCRV Engineering Branch, Gulf General Atomic, Inc., San Diego, California

Proposed: Amendment to ACI Bylaws, Article VII—Standards
Presentation by William Schmidt, structural engineer, William Schmidt and Associates, Chicago, Illinois

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

INDUSTRIALIZED CONCRETE CONSTRUCTION

Adam Room

sponsored by aci committee 356

A second session of this symposium will be held at the 1974 Annual Convention in San Francisco.

Session Chairman: Kenneth D. Cummins, vice-president, Testing Engineers & Consultants, Inc., Troy, Michigan

The Applicability and Relevance of Existing Codes and Specifications
Thomas J. D'Arcy, director of engineering, Rocky Mountain Prestressed Inc., Englewood, Colorado

Loading and Safety
N. F. Somes, chief, Structures Section, Center for Building Technology, National Bureau of Standards, Washington, D. C.

wednesday, october 10

The Design Process
Dick J. Tadjer, partner, Tadjer-Cohen Associates, Silver Spring, Maryland

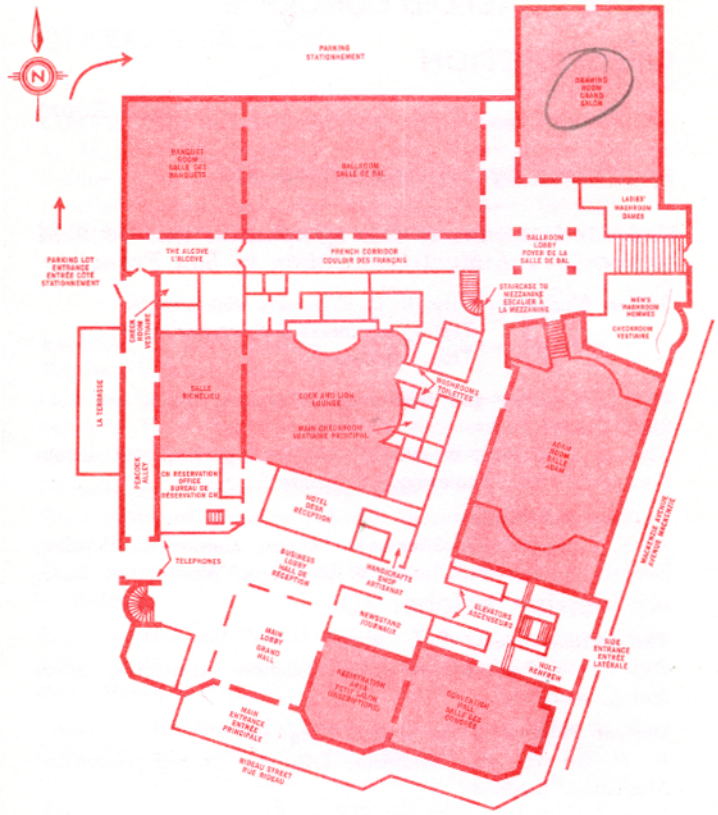
Current Practice in the United Kingdom
F. W. Gifford, chief engineer, Concrete Limited, Hounslow, Middlesex, England

Production and Assembly
K. Bruce, general manager, Lake Ontario Cement, Toronto, Ontario

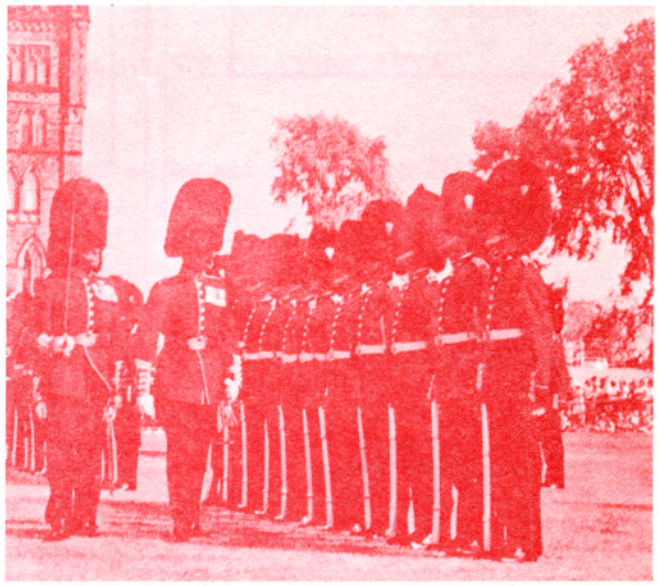
Systemization and Industrialization
David M. Pellish, housing technology officer, Urban Development Corporation of State of New York, New York, New York

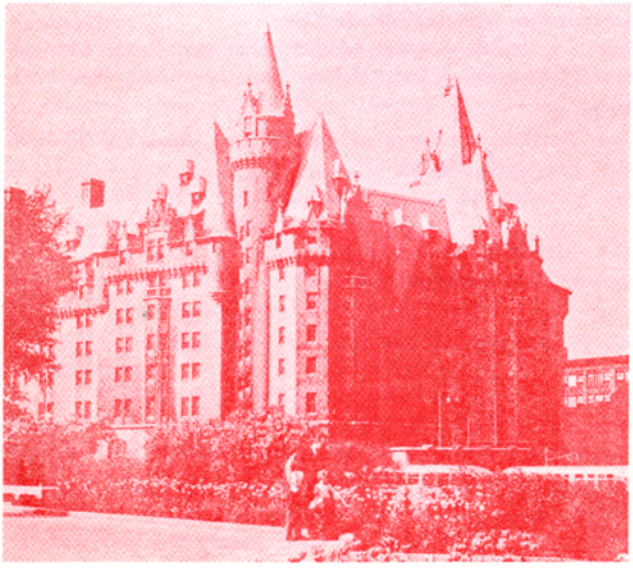
Summary
Colin Davidson, professor of architecture, University of Montreal, Montreal, Quebec

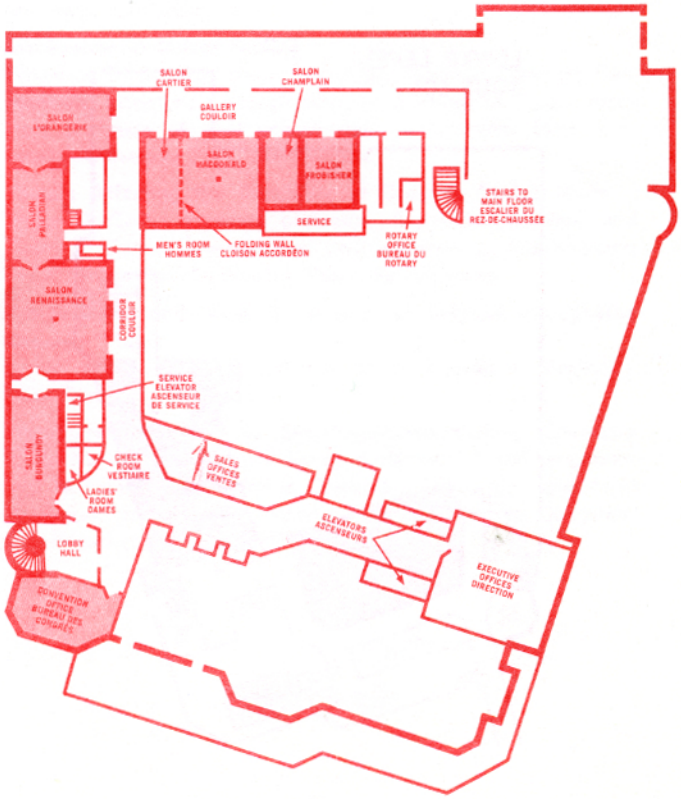
GROUND FLOOR PLAN



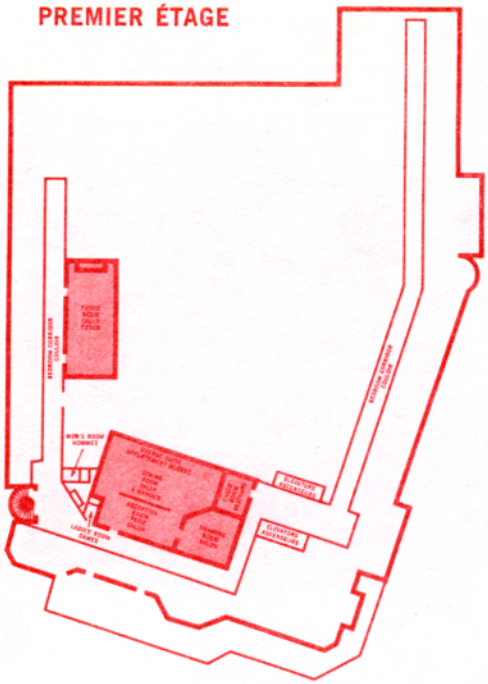
PLAN DU REZ DE CHAUSSEE



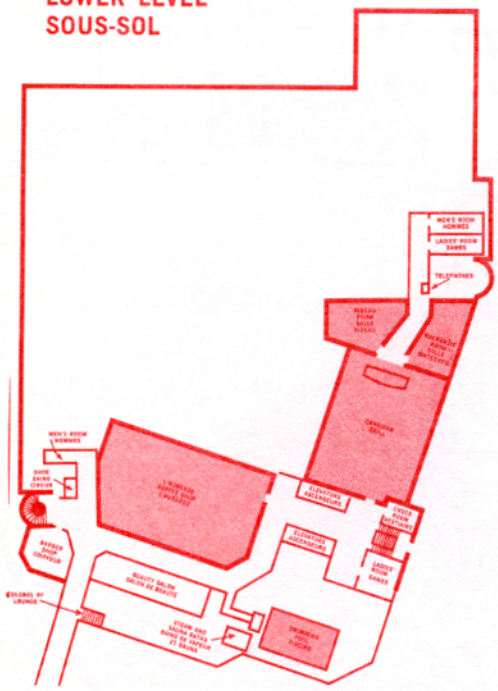




FIRST FLOOR
PREMIER ÉTAGE



LOWER LEVEL
SOUS-SOL



wednesday, october 10

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

DURABILITY OF CONCRETE

Banquet Room

sponsored by aci committee 201

This is the second session of a two-part symposium. The first session was held at the 1973 Annual Convention in Atlantic City.

Session Chairman: Charles F. Scholer, chairman, ACI Committee 201, and assistant professor, Department of Civil Engineering, Purdue University, West Lafayette, Indiana

Durability of Vacuum Saturated Concrete and Grout
Richard A. Kaden, concrete and materials specialist, Walla Walla District, U. S. Army Corps of Engineers, Walla Walla, Washington; Orville E. Borge, chief, and James A. Paxton, assistant branch chief, Concrete Branch, North Pacific Division, U. S. Army Corps of Engineers, Troutdale, Oregon

Long-Term Freeze-Thaw Durability of Concrete in Catch Basins, Sidewalks, and Pavement Slabs
Joseph Hode Keyser, chief engineer, and Michel Kushnir, engineer, Research and Control Laboratory, City of Montreal, Montreal, Quebec

Mechanism of Deicer Scaling
Frederick P. Browne, project engineer, San-Vel Concrete Corporation, Littleton, Massachusetts; and Philip D. Cady, associate professor of civil engineering, Pennsylvania State University, University Park, Pennsylvania

Factors Affecting the Durability of Concrete Bridge Decks
Philip D. Cady, associate professor of civil engineering; and Roger E. Carrier, instructor of civil engineering, Pennsylvania State University, University Park, Pennsylvania

Freeze-Thaw and Acid Resistance of Polymer-Impregnated Concrete
G. W. DePuy, physical scientist, U. S. Bureau of Reclamation, Denver, Colorado

Free-Thaw Durability of Shrinkage-Compensating Concretes
P. K. Mehta, and Milos Polivka, professors of civil engineering, University of California, Berkeley, California; and John A. Baker, Jr., engineer, Pacific Gas and Electric Company, San Francisco, California

thursday, october 11

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

SHEAR IN SLABS AND SPECIAL MEMBERS

Adam Room

sponsored by aci-asce committee 426

Note: The papers presented at this session and the two previous Shear Symposia in Atlantic City (1973 Annual Convention) will be published early in 1974 as an ACI Special Publication.

Session Chairman: John M. Hanson, secretary, ACI Committee 426, and director of structural research, Wiss, Janney, Elstner & Associates, Northbrook, Illinois

Shear Strength of Beam-Column Joints
James O. Jirsa, associate professor of civil engineering, University of Texas at Austin, Austin, Texas

Shear Walls: A Researcher's Approach to Design Practice
Alex E. Cardenas, consulting engineer and professor of structural engineering, Catholic University of Peru, Lima, Peru

Shear Strength, Deformation and Explosion of Reinforced Concrete Short Columns
Minoru Yamada, professor of architectural engineering, Kobe University, Kobe, Japan

An Overview of the 1973 Shear Committee Report on Shear Strength of Slabs
Neil M. Hawkins, professor of civil engineering, University of Washington, Seattle, Washington

Static and Dynamic Response of Reinforced Concrete Slab-Column Connections
Marvin E. Criswell, assistant professor of civil engineering, Colorado State University, Fort Collins, Colorado

A Finite Element Analysis of the Punching Strength of Flat Plates
Adrian E. Long, lecturer, Civil Engineering Department, Queen's University, Belfast, Northern Ireland; and Daniel M. Masterson, research and development engineer, FENCO Ltd., Calgary, Alberta

thursday, october 11

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

PROPERTIES OF FIBER REINFORCED CONCRETE

Convention Hall

sponsored by aci committee 544

Session I

Session Chairman: George C. Hoff, research civil engineer, U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi

The Mechanics of Fiber Reinforcement of Cement Matrices
R. N. Swamy, senior lecturer, University of Sheffield, Sheffield, England

Fiber Reinforced Brittle Matrix Materials
Herbert Krenchel, research engineer, Structural Research Laboratory, Technical University of Denmark, Copenhagen, Denmark

The Effect of Fiber Reinforcements on the Rheological Properties of Concrete Mixes
A. G. B. Ritchie, senior lecturer in structural engineering, and T. A. Rahman, post-graduate research student, University of Strathclyde, Glasgow, Scotland; presentation by R. N. Swamy, senior lecturer, University of Sheffield, Sheffield, England.

The Strength and Behavior of Steel Fiber Reinforced Lightweight Concrete Made with Regulated Set Cement and Sintered Fly-Ash
Muthian Gunasekaran, senior engineer, and Yoshio Ichikawa, fellow engineer, Ceramics and Glasses Department, Westinghouse Research Laboratories, Pittsburgh, Pennsylvania

Some Properties of Glass Fiber Reinforced Concrete
Junji Takagi, research engineer, Shimizu Construction Company, Ltd., Tokyo, Japan, and graduate student, Department of Materials Engineering, University of Illinois at Chicago Circle, Chicago, Illinois

On the Fracture Toughness of Fiber Reinforced Concrete
S. R. Parmi, post-doctoral fellow in civil engineering, University of Waterloo, Waterloo, Ontario; and J. K. Sridhar Rao, assistant professor in civil engineering, Indian Institute of Technology, Kanpur, India

thursday, october 11

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

APPLICATIONS OF FIBER REINFORCED CONCRETE

Convention Hall

sponsored by aci committee 544

Session II

Session Chairman: Bobby H. Gray, engineer, Jay Evans Testing Laboratory, Inc., Albany, Georgia

Glassfiber Reinforced Cement
A. J. Majumdar, Building Research Station, Garston, Watford, England; and A. G. Tallentire, Pilkington Brothers Limited, St. Helens, Lancashire, England

Bridge Deck and Pavement Overlays with Steel Fibrous Concrete
David R. Lankard, project engineer, and Alvin J. Walker, concrete technician, Battelle, Columbus Laboratories, Columbus, Ohio

Fiberglas Surface Bonding
Thomas E. Pecuil, project engineer, and Henry N. Marsh, Jr., supervisor of construction development, Owens-Corning Fiberglas Corporation, Granville, Ohio

Investigation of Fiber Reinforced Breakwater Armor Units
Saul Barab, supervisory structural engineer, and Dean Hanson, supervisory civil engineer, U. S. Army Corps of Engineers, San Francisco Engineer District, San Francisco, California

Centrifugated Wire Fiber Reinforced Concrete Products
E. F. P. Burnett, associate professor, T. Constable, and P. A. Cover, research assistants, Department of Civil Engineering, University of Waterloo, Waterloo, Ontario

Short slide talks of application:

An Investigation of Large Diameter Fiber Reinforced Concrete Pipe
Robert L. Henry, associate professor of civil engineering, University of Mississippi, University, Mississippi

Product Design wth Fibrous Concrete
Mike H. Azmi, design engineer, The Steel Company of Canada, Ltd., Hamilton, Ontario

thursday, october 11

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

REINFORCED CONCRETE COLUMNS

Adam Room

sponsored by aci-asce committee 441

Session Chairman: Hedley E. H. Roy, partner, Searle, Wilbee, Rowland, Don Mills, Ontario

Repeated Loading Tests of Reinforced Concrete Columns
Roger Green, associate professor, Department of Civil Engineering, University of Waterloo, Waterloo, Ontario; and J. Hellesland, engineer, A. Aas-Jakobsen, Consulting Engineers, Oslo, Norway

Rectangular Columns—Biaxial Bending Simplified
Albert J. Gouwens, structural engineer, Engineers Collaborative Ltd., Chicago, Illinois

Reinforced Concrete Columns with Bases Fixed in Rock Sockets
Ali Yazdi, engineering supervisor, Bechtel Power Corporation, Gaithersburg, Maryland

Critical Loads for Slender Reinforced Concrete Columns
James Colville, associate professor of civil engineering, University of Maryland, College Park, Maryland

Design of Slender Reinforced Concrete Columns for Biaxially Eccentric Loads
Noel J. Gardner, associate professor, and S. I. Abdel-Sayed, research assistant, Department of Civil Engineering, University of Ottawa, Ottawa, Ontario

progress through knowledge

thursday, october 11

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

FORUM: recommended research and development on probabilistic approaches to structural safety in reinforced concrete buildings sponsored by aci committee 114 in cooperation with aci committee 348

There are three aspects of design of reinforced concrete buildings to be considered in fostering a probabilistic approach to safety for building codes. These three areas are: (1) Conditions of load (intensity, duration, probability of occurrence); (2) response of the structure; and (3) strength of the materials. Expressions of opinion from interested persons are needed so that research and development programs can be developed in appropriate form and detail and that necessary funds can be secured.

It is agreed that the probabilistic approach to structural safety is feasible, but opinions differ among authorities as to whether the benefits of more precise evaluations and more uniform safety provisions will justify the substantial cost of the necessary investigations. Whether by experience, judgment, intuitive appraisals, or probabilistic methods, decisions are made daily in every detail related to structures. The proposed investigations will evaluate such decisions in more comprehensible, precise, quantitative, and consistent form.

Current proposals stress field tests and surveys. However, some authorities emphasize the laboratory approach because of the opportunity to control conditions and limit variables.

The total expenditure will be well up in six figures; however, the final results are expected to be of inestimable value. ACI 114 invites thoughtful comments from all interested persons and urge them to attend this forum.

friday, october 12

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

THE BEHAVIOR OF CONCRETE UNDER TEMPERATURE EXTREMES

Adam Room

sponsored by aci canadian capital chapter

Session Chairman: Carl Berwanger, professor of civil engineering, University of Ottawa, Ottawa, Ontario

Low Temperature Effects on Hardened Concrete
K. W. Nasser, professor of civil engineering, University of Saskatchewan, Saskatoon, Saskatchewan; and G. A. Evans, project engineer, Canada Department of Public Works, Whitehorse, Yukon Territory

Early Freezing of Vacuum Processed Concrete
Brian B. Hope, associate professor of civil engineering, Queen's University at Kingston, Kingston, Ontario; and Peter J. Quelch, assistant engineer, Canadian National Railways, Montreal, Quebec

Winter Curing of Concrete as Related to the New Canadian Standard
J. N. Mustard, supervising engineer, Ontario Hydro, Toronto, Ontario

Effect of Below-Freezing Temperatures on Strength Development of Concrete
V. M. Malhotra, materials engineer, Construction Materials Section, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario; and Carl Berwanger, professor of civil engineering, University of Ottawa, Ottawa, Ontario (to be presented by title only)

Hot Concrete for Achievement of High Early Strength
R. A. Lapinas, manager of technical control, Francon, Division of Canfarge Ltd., Montreal, Quebec

Effect of Sustained and Cyclic Temperature Exposures on Lightweight Concrete
N. G. Zoldners, head, and H. S. Wilson, research scientist, Construction Materials Section, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario

Design of Concrete Masonry Walls for Fire Endurance
T. Z. Harmathy, research officer, Division of Building Research, National Research Council of Canada, Ottawa, Ontario

friday, october 12 9:00 a.m. - 12:00 noon

RESEARCH ON PLAIN AND REINFORCED CONCRETE

Burgundy

sponsored by aci committee 115

(Brief and confidential unpublished reports)

Session Chairman: Herbert K. Cook, chairman, ACI Committee 115, and vice-president of engineering, Master Builders, Cleveland, Ohio

Secretary: George W. Washa, secretary, Committee 115, and professor of engineering mechanics, University of Wisconsin, Madison, Wisconsin

Permeability Tests on Fresh Concrete
T. G. Clendenning, research engineer, Masonry Section, Structural Research Department, Ontario Hydro, Toronto, Ontario

The Creep Characteristics of Epoxy-Coated and Uncoated Reinforcing Bars
James R. Clifton, research chemist, Hugh F. Beeghly, metallurgist, and Robert G. Mathey, assistant chief, Materials and Composites Section, Center for Building Technology, IAT, National Bureau of Standards, Washington, D. C.

Torsion, Bending and Shear in Prestressed Concrete I-Beams
J. Warwaruk, professor of civil engineering, and D. L. N. Rao, graduate student in civil engineering, University of Alberta, Edmonton, Alberta

Accelerated Test for Determining the 28-Day Splitting-Tensile Strength of Concrete
Raymundo Rivera V., chief of laboratories, School of Engineering, University of Nuevo Leon, Monterrey, N. L., Mexico

Fiber-Concrete Combined with Conventional Reinforcement in Earthquake Resistant Design—Flat Plate to Column Joint
Frederick P. Wiesinger, professor of structural engineering, Department of Architecture, University of Illinois at Chicago Circle, and consulting engineer, Wiesinger-Holland Ltd., Structural Engineers; and Robert J. Lamoureaux, Jr., graduating senior, Department of Architecture, University of Illinois at Chicago Circle, Chicago, Illinois

Simulation of Realistic Thermal Restraint During Fire Tests of Floor and Roof Assemblies
M. S. Abrams, manager, Fire Research Section, Portland Cement Association, Skokie, Illinois

Shear Reinforcement for Beam-Column Joints
Neil M. Hawkins, professor of civil engineering, University of Washington, Seattle, Washington

Response to Lateral Loads of Reinforced Concrete Frames with Columns of Widely Varying Stiffness
John E. Breen, Richard W. Furlong, and J. A. Yura, professors, Civil Engineering Structures Research Laboratory, University of Texas at Austin, Austin, Texas

The Performance of Galvanized Reinforcing Steel in High Chloride Bridge Deck Environments
Daryl E. Tonini, technical director, American Hot Dip Galvanizers Association, Washington, D. C.

Behavior of Cast-In-Place Beam-Column Joints Under Slow Load Reversal
S. M. Uzumeri, associate professor, Department of Civil Engineering, University of Toronto, Toronto, Ontario

friday, october 12
9:00 a.m. - 12:00 noon

ULTIMATE STRENGTH DESIGN HANDBOOK—WORKSHOP

Convention Hall

sponsored by aci committee 340

Session Chairman: Fritz Kramrisch, chairman, ACI Committee 340, and chief civil engineer, Albert Kahn Associates, Inc., Detroit, Michigan

Introduction
Fritz Kramrisch, chairman, Committee 340

Flexure
Fritz Kramrisch, chairman, Committee 340

Regular Reinforcement and General Tables
Timothy L. Moore, staff engineer, American Concrete Institute, Detroit, Michigan

Crack Control
E. G. Nawy, professor of civil engineering, Rutgers University, New Brunswick, New Jersey

Development and Splice Lengths
George F. Bishop, vice-president, Murphy Engineering, Metairie, Louisiana

Anchorage
Albert J. Gouwens, structural engineer, Engineers Collaborative Ltd., Chicago, Illinois

Shear, Torsion, and Brackets
Charles G. Salmon, professor of civil engineering, University of Wisconsin, Madison, Wisconsin

Footings
Jacob Grossman, associate, Robert Rosenwasser, Consulting Engineer, New York, New York

Deflections
Wayne A. Hamilton, professor of civil engineering, University of Maine, Orono, Maine

Columns
Richard W. Furlong, professor of civil engineering, University of Texas at Austin, Austin, Texas

tuesday, october 9
9:00 a.m. - 12:00 noon

CANADIAN CAPITAL CHAPTER SEMINAR

Convention Hall

Session I

Session Chairman: Louis A. Gottheil, President, Canadian Capital Chapter, and materials engineer, Independent Cement Inc., Montreal, Quebec

Welcome
Louis A. Gottheil, president, Canadian Capital Chapter

Presentation of Plaques to Past Chapter Presidents
Robert E. Philleo, President, ACI, and chief, Concrete Branch, Department of the Army, Office, Chief of Engineers, Washington, D.C.

Use of Waste Materials in Construction
W. B. Ledbetter, research engineer, Texas Transport Institute, Texas A&M University, College Station, Texas

Use of Industrial Waste in Concrete
Pierre-Claude Aitcin, associate professor, Faculty of Applied Sciences, University of Sherbrooke, Sherbrooke, Quebec

A Versatile Mix-Proportioning Concept for Fly Ash Concrete
T. G. Clendenning, research engineer, and M. T. Loughborough, Masonry Section, Research Division, Ontario Hydro, Toronto, Ontario

New Reinforcing Materials in Concrete
S. P. Shah, professor of civil engineering, University of Illinois at Chicago Circle, Chicago, Illinois

tuesday, october 9
2:00 p.m. - 5:00 p.m.

CANADIAN CAPITAL CHAPTER SEMINAR

Convention Hall

Session II

Session Chairman: Cutberto Diaz-Gomez, executive director, Instituto Mexicano del Cemento y del Concerto, Mexico, D. F., Mexico

Practical Applications of Expansive Cements
George C. Hoff, chief, Materials Properties Branch, Concrete Laboratory, U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi

Practical Applications of Polymer Concrete
James T. Dikeou, supervisory research physical scientist, U. S. Bureau of Reclamation, Denver, Colorado

Concrete Admixtures for the Future
V. H. Dodson, technical service manager, W. R. Grace & Company, Cambridge, Massachusetts

Concrete Quality Control for Dworshak Dam
Donald L. Houghton, engineer, U. S. Army Corps of Engineers, North Pacific Division, Portland, Oregon; and Donald J. Hall, chief, Dworshak Dam Foundations and Materials Branch, U. S. Army Corps of Engineers, North Pacific Division, Orofino, Idaho

tuesday, october 9
6:30 p.m. - 10:00 p.m.

CANADIAN CAPITAL CHAPTER SEMINAR

Ballroom

materials research in canada

Session III

Session Chairman: Jules Houde, professor, Ecole Polytechnique, Montreal, Quebec

Micro-Mechanics of Concrete
Ron H. Mills, professor of civil engineering, University of Toronto, Toronto, Ontario

Slow Crack Growth in Concrete
Sidney Mindness, assistant professor, and J. S. Nadeau, Department of Civil Engineering, University of British Columbia, Vancouver, British Columbia

Durability of Concrete Sidewalks
L. E. Rodway, engineer, R. M. Hardy & Associates Ltd., Calgary, Alberta

Permeability of Ferro-Cement in Sea Water
Julius G. Potyondy, associate professor of civil engineering, Nova Scotia Technical College, Halifax, Nova Scotia

Effect of Highly Deleterious Shale in Concrete
Jean Berard, associate professor, Department of Geological Engineering, Ecole Polytechnique, Montreal, Quebec

Current Research at National Research Council
Peter J. Sereda, head, Building Materials Group, National Research Council, Ottawa, Ontario

Construction Films

wednesday, october 10
1:30 p.m. - 5:00 p.m.

CANADIAN CAPITAL CHAPTER SEMINAR

Convention Hall

Session IV

Session Chairman: Richard C. Mielenz, vice-president of research and development, Master Builders, Cleveland, Ohio

High Strength Concrete—A World-Wide Review
C. D. Johnston, associate professor of civil engineering, University of Calgary, Calgary, Alberta

Some Structural Properties and Applications of High Strength Concrete
R. N. Swamy, senior lecturer, University of Sheffield, Sheffield, England

Development of High Strength Concrete for the Canadian National Tower
John A. Bickley, general manager, Construction Testing Services Ltd., Toronto, Ontario

Contribution of Gap-Grading to the Development of High Strength Concrete
V. Ramakrishnan, professor of civil engineering, South Dakota School of Mines and Technology, Rapid City, South Dakota

Use and Interpretation of ACI 214, Recommended Practice for Evaluation of Compression Test Results of Field Concrete
Edward A. Abdun-Nur, consulting engineer, Denver, Colorado

LIST OF CONTRIBUTORS

The following organizations and companies have made financial contributions toward the success of this meeting.

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Ladies' Program
J. R. Emery
Dept. of Industry, Trade and Commerce—Ottawa

The officers, staff, and members of ACI would like to thank the Local Committee, the Hostesses, and the Chapter for their part in the 1973 Fall Convention.

ladies program

TUESDAY

Morning
Downtown walking tour of Ottawa including a visit to the Parliament Buildings, National Art Centre, and National Art Gallery.

Afternoon
Luncheon at Japanese Restaurant

WEDNESDAY

Afternoon
London double-decker bus tour of Gatineau Park with refreshments
Tea at Camp Fortune Chalet

Evening
Concrete Mixer — Chateau Laurier

THURSDAY

Morning Boat Tour of Rideau Canal system

Afternoon
Visit Royal Canadian Mint, Rideau Hall, the Residence of the Governor General of Canada. Tea with the Mayor of Ottawa at the City Hall.

Morning coffee and light refreshments will be provided at the hotel, starting Monday morning, in a suite set aside for a ladies' meeting room. Registration fee is $15.00.