PROGRAM
AMERICAN
CONCRETE
INSTITUTE
1968 Fall Convention
November 3-8, 1968
SHERATON-PEABODY
Memphis, Tennessee
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*Address
AMERICAN CONCRETE INSTITUTE
P.O. Box 4754
Detroit, Michigan 48219

--- CONVENTION REGISTRATION ---

Sunday, November 3 . . . 1:00 p.m. to 5:00 p.m.
Monday, November 4 through
Thursday, November 7 . . . 8:00 a.m. to 6:00 p.m.
Friday, November 8 . . . 8:00 a.m. to 2:00 p.m.

REGISTRATION FEES:
ACI Members $15.00
Nonmembers $25.00
Students Free

Registration fees cover attendance at all ACI technical committee meetings, general sessions, and symposia.

*** SPECIAL EVENTS ***

*Cocktail Party "Concrete Mixer" . . . Thursday, November 7, 6:30 p.m. — Please wear your badge . . . Continental Ballroom

*University of Illinois Alumni Breakfast. Tickets are available from alumni and University of Illinois staff members.

** NOTE FOR PROGRAM PARTICIPANTS **

A program breakfast is planned for Thursday at 7:30 a.m. in Room 200. Breakfast is by invitation only.

** NOTE FLOOR PLANS ON PAGES 8 AND 9 OF YOUR PROGRAM **

ACI Headquarters and Press Room in Room 202.

MONDAY, November 4 9 a.m. to 12 noon

TECHNICAL COMMITTEE MEETINGS
Meeting topics are in italics. Be sure to check the bulletin board for last minute changes or added meetings.

COMMITTEE Meeting Room
213 Subcommittee C, Lightweight Aggregate Concrete—Construction Practices Arkansas
309 Consolidation of Concrete (runs to 11:15 a.m.) Louis XVI
315 Detailing Reinforced Concrete Structures (1970 Manual) Airlines
340 Ultimate Strength Design Handbook (Volumes I and II) (Continued on Page 2) Cotton
<table>
<thead>
<tr>
<th>COMMITTEE</th>
<th>Meeting Room</th>
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<tr>
<td>344, 423, 438, 441, 512, 516, 533, 545</td>
<td>Continental Ballroom</td>
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<td>428, 443, 453, 517, 523, 533, 543</td>
<td>Venetian</td>
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<td>211, 213, 309, 315, 344, 347, 408, 421, 318, 438, 443, 504, 515, 114, 213, 215, 318, 443, 543</td>
<td>Forest</td>
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<td>212, 213, 224, 311, 316, 344, 428, 443, 517, 523, 533, 543</td>
<td>Louis XVI</td>
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<td>211, 213, 309, 315, 344, 347, 408, 421, 318, 438, 443, 504, 515, 114, 213, 215, 318, 443, 543</td>
<td>Airlines</td>
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**MONDAY, November 4**

### 2:00 p.m. to 5:00 p.m.

- **211** Proportioning Concrete Mixes (Revision of ACI 613-54)
- **213** Subcommittee B, Lightweight Aggregate Concrete—Concrete Properties
- **309** Consolidation of Concrete (Draft of revised standard)
- **315** Detailing Reinforced Concrete Structures (1970 Manual)
- **344** Circular Prestressed Concrete Structures (Design)
- **347** Formwork for Concrete (Revision of Manual)
- **408** Bond Stress (Research in progress)
- **421** Joint session on reinforced concrete slabs
- **318** Subcommittee 20—Standard Building Code—Slabs and Joists
- **438** Torsion (Tentative recommendations)

### 7:00 p.m.

- **114** Research and Development
- **213** Subcommittee A, Lightweight Aggregate Concrete—Aggregate Properties
- **215** Subcommittee IIB, Fatigue of Concrete—Research Needs
- **318** Subcommittee 8, Standard Building Code—Details of Reinforcement (1970 Code)
- **443** Concrete Bridge Design (Proposed standard)
- **543** Concrete Piles (Final draft)

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<td>Airlines</td>
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**TUESDAY, November 5**

### 2:00 p.m. to 5:00 p.m.

- **118** Use of Computers
- **201** Durability of Concrete (Review of report)
- **213** Lightweight Aggregates and Lightweight Aggregate Concrete
- **216** Fire Resistance
- **308** Curing Concrete (Proposed standard)
- **325** Structural Design of Concrete Pavements for Highways and Airports (Subcommittee reports)
- **344** Circular Prestressed Concrete Structures
- **428** Limit Design (Committee report)
- **443** Concrete Bridge Design (Proposed standard)
- **543** Concrete Piles (Final draft)

### 7:00 p.m.

- **301** Specifications for Structural Concrete (Draft of revised standard)
- **322** Design of Structural Plain Concrete
- **349** Criteria for Nuclear Containment Vessels (Design criteria)
- **352** Joints and Connections in Monolithic Structures (Proposed standard)
- **443** Concrete Bridge Design (Proposed standard)
- **543** Concrete Piles (Final draft)
WEDNESDAY, Nov. 6 9 a.m. to 12 noon

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<tr>
<th>COMMITTEE</th>
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<tr>
<td>Ad Hoc Committee on Structural Model Analysis (Future role)</td>
<td>Airlines</td>
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<tr>
<td>207 Mass Concrete (Final report)</td>
<td>213</td>
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<tr>
<td>223 Expansive Cement Concretes (New activities)</td>
<td>Forest</td>
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<tr>
<td>303 Architectural Concrete (Committee report)</td>
<td>Louis XVI</td>
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<tr>
<td>304 Measuring, Mixing, Transporting, and Placing Concrete (Revised standard)</td>
<td>200</td>
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<tr>
<td>305 Hot Weather Concreting (Draft of revised standard)</td>
<td>215</td>
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<tr>
<td>Residential Concrete Work (Program and aims)</td>
<td>Cotton</td>
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<tr>
<td>Sanitary Engineering Structures (Draft report)</td>
<td>Tennessee</td>
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<tr>
<td>435 Subcommittee 5, Deflection of Concrete Building Structures—Deflection of 2-Way Slabs, Flat Plates and Slabs (International symposium)</td>
<td>214</td>
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<tr>
<td>443 Concrete Bridge Design (Proposed standard)</td>
<td>Arkansas</td>
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<tr>
<td>531 Concrete Masonry Structures (Proposed report)</td>
<td>Venetian</td>
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<td>533 Precast Panels</td>
<td>216</td>
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<td>2:00 p.m. to 5:00 p.m.</td>
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<tr>
<td>104 Notation (Future plans)</td>
<td>213</td>
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<tr>
<td>119 Education (National C/T project)</td>
<td>216</td>
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<tr>
<td>215 Fatigue of Concrete (Committee report)</td>
<td>214</td>
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<tr>
<td>Structural safety (Probabilistic design)</td>
<td>Louis XVI</td>
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<tr>
<td>Sanitary Engineering Structures (Draft report)</td>
<td>Tennessee</td>
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<tr>
<td>439 High Strength Reinforcement in Concrete (Committee assignments)</td>
<td>215</td>
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<tr>
<td>443 Concrete Bridge Design (Proposed standard)</td>
<td>Arkansas</td>
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<tr>
<td>506 Shotcrete (Draft of revised standard)</td>
<td>200</td>
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<tr>
<td>531 Concrete Masonry Structures (Literature review)</td>
<td>Venetian</td>
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<tr>
<td>544 Fiber-Reinforced Concrete</td>
<td>Forest</td>
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<tr>
<td>7:00 p.m.</td>
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<tr>
<td>301 Specifications for Structural Concrete (Draft of revised standard)</td>
<td>Forest</td>
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<tr>
<td>302 Concrete Floor Finishes</td>
<td>216</td>
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<td>307 Reinforced Concrete Chimneys</td>
<td>213</td>
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<td>313 Concrete Bins and Silos</td>
<td>214</td>
</tr>
<tr>
<td>443 Concrete Bridge Design (Proposed standard)</td>
<td>200</td>
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THURSDAY, November 7 9:00 a.m.

FIRST GENERAL SESSION  . . . Continental Ballroom

CHAIRMAN: Frank P. Palumbo, co-chairman, 1968 ACI Fall Convention, and consulting engineer, Memphis, Tennessee

Welcome to Memphis

Revision of ACI Standard
Presentation of the revised standard ACI 613A-59, "Recommended Practice for Selecting Proportions for Structural Lightweight Concrete" by ACI Committee 211, Subcommittee 1, H. I. King, chairman, Subcommittee 1, and concrete consultant, St. Mary's Cement Co., Toronto, Ontario, Canada

Lake Point Tower Instrumentation
(a 6-part presentation)
3. Dimensional Changes of High-Rise Reinforced Concrete Buildings — W. S. Kinne, Jr., professor, Department of Civil Engineering, University of Wisconsin, Madison
4. Time-Dependent Performance of Reinforced Concrete Columns — Laboratory Study — Donald W. Pfeifer, manager, Concrete Products Research Section, Research and Development Division, Portland Cement Association, Skokie, Illinois
5. Time-Dependent Performance of Reinforced Concrete Columns — Field Investigation — Donald D. Magura, research engineer, Concrete Products Research Section, Research and Development Division, Portland Cement Association, Skokie, Illinois

Plugging the Hole with Concrete (Education in Concrete Technology) — Howard C. Wiechman, chairman, ACI Committee 119, and national administrator, Technical and Vocational Education, Portland Cement Association, Skokie, Illinois

U.S.-Japan Seminar on Research on Basic Properties of Various Concretes — Clyde E. Kesler, past president of ACI, and professor of theoretical and applied mechanics and of civil engineering, T & AM Department, University of Illinois, Urbana
## Symposium on the Effect of Temperature on Concrete
### Continental Ballroom

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>2:00</td>
<td>Introductory Remarks — Raymond E. Davis, professor emeritus, University of California, Berkeley</td>
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<td>2:10</td>
<td>Thermal Properties of Concrete Under Sustained Elevated Temperature — a Review — Nikolai G. Zoldner, head, Construction Materials Section, Mineral Processing Division, Department of Energy, Mines and Resources, Ottawa, Ontario, Canada</td>
</tr>
<tr>
<td>2:45</td>
<td>Compressive Strength of Concrete at Temperatures to 1600°F — M. S. Abrams, senior research engineer, Fire Research Section, Research and Development Division, Portland Cement Association, Skokie, Illinois</td>
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<tr>
<td>3:15</td>
<td>BREAK</td>
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<tr>
<td>3:30</td>
<td>Effects of Moisture Content on the Constitution and Structural Properties of Portland Cement Concrete Exposed to Temperatures up to 500°F — D. R. Lankard, research ceramic; D. L. Birkimer, research structural engineer; F. F. Fondriff, associate chief; and M. J. Snyder, chief, Ceramic Research Division, Battelle Memorial Institute, Columbus, Ohio</td>
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<tr>
<td>4:00</td>
<td>Properties of Concrete at Elevated Temperatures — P. J. E. Sullivan, professor and lecturer, Department of Civil Engineering, Imperial College of Science and Technology, London, England; and Mellor P. Poucher, chairman, Civil Engineering Department, Faculty of Engineering Science, University of Western Ontario, London, Ontario, Canada</td>
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<tr>
<td>4:30</td>
<td>Contraction of Cement Paste Caused by Heat Curing — R. Malinowski, associate professor, Department of Concrete Structures, Chalmers University of Technology, Gothenburg, Sweden</td>
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<td>4:40</td>
<td>Effect of Elevated Temperature on Strength of Portland Cement — Rahel Shalon, head, and D. Ravina, research engineer, Building Research Station, Technion — Israel Institute of Technology, Haifa, Israel (D. Ravina is currently at Purdue University, Lafayette.)</td>
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## Symposium on the Application of Probabilistic Concepts to the Strength Design of Reinforced Concrete Members
### Venetian Room

(Sponsored by ACI Committee 348)

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<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>2:00</td>
<td>The Rational Probabilistic Code Format — Subcommittee E of Committee 348. Presented by H. C. Shah, associate professor, Department of Civil Engineering, Stanford University, Stanford, California</td>
</tr>
<tr>
<td>2:45</td>
<td>Difficulties in Application of Probabilistic Code Formats to Real Structures — Robert G. Sexsmith, assistant professor, Department of Structural Engineering, Cornell University, Ithaca, New York; and Mark F. Nelson, assistant professor, Department of Civil Engineering, Massachusetts Institute of Technology, Cambridge</td>
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<tr>
<td>3:25</td>
<td>BREAK</td>
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<tr>
<td>3:40</td>
<td>A Probabilistic Basis for a Deterministic Code — Jack R. Benjamin, professor, Department of Civil Engineering, Stanford University, Stanford, California; and Neil C. Lind, professor, Department of Civil Engineering, University of Waterloo, Waterloo, Ontario, Canada</td>
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<tr>
<td>4:20</td>
<td>A Probability-Based Structural Code — C. Allin Cornell, associate professor, Department of Civil Engineering, Massachusetts Institute of Technology, Cambridge</td>
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</table>
SYMPOSIUM ON THE EFFECT OF TEMPERATURE ON CONCRETE (continued)
Continental Ballroom


9:00 Creep of Concrete at Low Stress-Strength Ratios and Elevated Temperatures — K. W. Nasser, associate professor, Department of Civil Engineering, University of Saskatchewan, Saskatoon, Sask., Canada

9:30 Thermoelectric Application of Temperatures on Models of Concrete Structures — Gilbert L. Butler, supervisory structural engineer, Division of Research, Bureau of Reclamation, Denver, Colorado

9:55 Effects of Temperature on a Prestressed Concrete Reactor Vessel Model — T. E. Northup, manager, Structural Engineering Branch; and F. S. Ople, Jr., structural research and development engineer, HTGR Division, Gulf General Atomic, Inc., San Diego, California

10:25 BREAK

10:35 The Modulus of Concrete and the Coefficient of Expansion of Concrete and Reinforced Concrete at Below Normal Temperatures and Thermal and Shrinkage Stresses in Composite Bridge Structures — Carl Berwanger, associate professor, Department of Civil Engineering, University of Ottawa, Ottawa, Ontario, Canada

11:05 Analysis of Warping Stresses and Temperature Measurements in Concrete Pavements — Josef Eisenmann, associate professor, Institut für Eisenbahnbau und Strassenbau, Technische Hochschule München, Munich, Germany

11:35 Influence of Temperature on the Creep of Mass Concrete — A. F. da Silveira, head, Department of Dams; and C. A. Florentino, head, Observation Division, Department of Dams, Laboratorio Nacional de Engenharia Civil, Ministerio das Obras Publicas, Lisbon, Portugal

11:45 Temperature Rise of Mass Concrete Mixtures — William O. Tynes, chief, Concrete and Rock Properties Section, Engineering Mechanics Branch, Concrete Division, U.S. Army Engineer Waterways Experiment Station, Jackson, Mississippi

DESIGN/CONSTRUCTION
Venetian Room

CHAIRMAN: Warner Howe, consulting engineer, Gardner and Howe, consulting engineers, Memphis, Tennessee

9:00 Preview of the 1970 Code . . .
Provisions for Reinforced Concrete Slab Design — Mete A. Sozen, secretary, ACI-ASCE Committee 421, and professor, Department of Civil Engineering, University of Illinois, Urbana

9:45 The State Office Building — Memphis, Tennessee—O. Clarke Mann, consulting engineer, Memphis, Tennessee

10:20 BREAK

10:35 Corrosion of Aluminum and Other Metals in Concrete — Richard C. Elstner, a principal and secretary; Kenneth T. Burton, development engineer, Wiss, Janney, Elstner and Associates, consulting and research engineers, Northbrook, Illinois; Norman L. Scott, president, The Consulting Engineers Group, Glenview Illinois; and Robert D. Krause, consulting engineer, Santa Fe, New Mexico

11:15 Some Field Experience in the Use of an Accelerated Method of Estimating 28-Day Strength of Concrete — V. M. Malhotra, concrete engineer; and N. G. Zoldners, head, Construction Materials Section, Mineral Processing Division, Department of Energy, Mines, and Resources, Ottawa, Ontario, Canada
RESEARCH ON PLAIN AND REINFORCED CONCRETE

Under the supervision of ACI Committee 115 — Current Research. This research in progress session differs from the other ACI general sessions in that the reports given are not for publication. Request is made that the proceedings be regarded as confidential.

CHAIRMAN: Adrian Fauv, chairman of ACI Committee 115, and acting dean, College of Engineering, University of Missouri, Columbia

SECRETARY: J. H. Walker, secretary of ACI Committee 115, and vice-president, Research and Development Division, Portland Cement Association, Skokie, Illinois

Recent Work on Alkali-Carbonate Rock Reaction in Concrete — Alan D. Buck, geologist, Concrete Division, U.S. Army Engineer Waterways Experiment Station, Jackson, Mississippi

The Shear Strength of Reinforced Concrete Slab-Column Connections Subjected to Static and Dynamic Loads — Marvin E. Criswell, research structural engineer, Nuclear Weapons Effects Division, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi

Fatigue Strength of High-Yield Reinforcing Bars — John M. Hanson, principal research engineer; and Norman F. Somes, research engineer, Structural Research Section, Research and Development Division, Portland Cement Association, Skokie, Illinois

Field Investigation of Prestressed Concrete Highway Bridges — William L. Gamble, assistant professor, Department of Civil Engineering, University of Illinois, Urbana

Combined Torsion, Shear, and Flexure in Prestressed Concrete Beams — H. Aldridge Gillespie, assistant chairman, School of Civil Engineering and Environmental Sciences, University of Oklahoma, Norman

Gap-Graded vs. Continuously-Graded Concrete — Shu-tien Li, professor, Department of Civil Engineering, and director; and P. S. Dravid, associate director, Concrete Technology Research, South Dakota School of Mines and Technology, Rapid City.

Effect of Test Specimen Size on the Direct-Tensile, Ring-Tensile, and Splitting-Tensile Strengths of Concrete — V. M. Malhotra, concrete engineer, Construction Materials Section, Mineral Processing Division, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario, Canada

Fly Ash Aggregate Lightweight Concrete — Donald W. Pfeifer, manager, Concrete Products Research Section, Research and Development Section, Portland Cement Association, Skokie, Illinois

Incremental Collapse Due to Progressive Bond Failure — Richard E. Woodring, professor, Department of Civil Engineering, Drexel Institute of Technology, Philadelphia, Pennsylvania (Currently on leave of absence in engineering practice with Sanders & Thomas, Inc., Pottstown, Pennsylvania)

Deterioration of Concrete Due to Wetting and Drying Cycles Using Various Salt Solutions — Roger M. Zimmerman, assistant dean, College of Engineering, New Mexico State University, Las Cruces; and Wayne P. Dominick, associate professor, Civil Engineering Department, Fresno State College, Fresno, California
MEMPHIS
HOSTESS COMMITTEE

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Mrs. James Barksdale (Marie)
Mrs. John Brough (Martha)
Mrs. William Carrier (Mary)
Mrs. A. G. Cox (Nancy)
Mrs. James B. Ellers (Terry)
Mrs. Harold Fanning (Frances)
Mrs. Robert Hagenhoff (Verna)
Mrs. Warner Howe (Geraldine)
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Mrs. Frank P. Palumbo (Betty Ann)
Mrs. William Pollard (Gloria)
Mrs. Sam Reaves (Nancy)
Mrs. Riles Thomas (Gwenn)

LADIES PROGRAM
HOSPITALITY SUITE . . . Mississippi Room

Monday, November 4
9:00 a.m.-4:00 p.m.—Registration and Hospitality

Tuesday, November 5
9:30 a.m.-11:30 a.m.—Registration and Hospitality
11:30 a.m.
—Luncheon and elegant Fabric Showing at Sheraton-Peabody
—followed by tour of the Fontaine House

Wednesday, November 6
9:30 a.m.-12:00
—Registration and Hospitality
10:30 a.m.
—Tour of Holiday Inn Institutional Mart, Luncheon at the Mart—Bus trip back to Sheraton-Peabody via Elvis Presley home

Thursday, November 7
9:30 a.m.-12:00
—Hospitality
10:00 a.m.
—Tour of Brooks Art Museum Sightseeing
12:30 p.m.
—Luncheon at the Summit Club

Friday, November 8
9:30 a.m.-12:00
—Hospitality

REGISTRATION: $9.00. Covers all the listed events above.
MEMPHIS CONVENTION COMMITTEE

Co-Chairman
Frank P. Palumbo
Consulting Engineer,
Memphis, Tennessee

Co-Chairman
Charles McVean
Supervisory Construction Engineer,
U.S. Army Corps of Engineers, Memphis

Secretary
Walter Baker

Treasurer
George Jett

Technical Programs
W. E. (Don) Painter

Publicity
James B. Ellers

Registration
Joe Thomas

Membership Promotion
James Barksdale

Inspection Trips
John Brough

Finance
Robert Mosby

Social Activities
Ed Tate Parker

Ladies Program
Mrs. Walter Baker