

**ACI 362 - PARKING STRUCTURES
Minutes of Meeting**

Toronto, Ontario, Canada

October 22, 2012

LIST OF ATTENDEES

<u>MEMBERS</u>	<u>ASSOCIATE MEMBERS</u>	<u>VISITORS</u>
Erich Martz, Chair Jim Donnelly, Secretary Keith Jacobson Carl Walker Prakash Surali Ned Cleland Boris Dragunsky Rashid Ahmed Tony Kojundic Harry Gleich	Terry McDonald Jack Gibbons Jeff Adams Brian Pulver Paul Brienens Don Kline Zuming Xia Amy Trygestad Pericles Stivaros	Randy Carwile Jim Horst Larry Sennour Jason Krohn Aamer Syed Ralf Leistikow Larry Kaiser Suzanne Aultman Greg Zeisler

1.0 CALL TO ORDER

Chairman Erich Martz called the meeting to order at 1:05 p.m.

2.0 ATTENDANCE

Meeting attendees briefly introduced themselves. A sign-in sheet was passed around. Those in attendance for all or part of the meeting are listed above. Chairman Martz reminded attendees that they should review and update the contact information listing on the committee website if any of their contact information had changed.

3.0 APPROVAL OF MINUTES

A motion was made by Boris Dragunsky and seconded by Rashid Ahmed to approve the Dallas, TX meeting minutes. The minutes were approved by unanimous voice vote.

4.0 PUBLICATION OF REVISED “GUIDE FOR THE DESIGN OF DURABLE PARKING STRUCTURES” DOCUMENT (362.1)

Chairman Martz announced that the revised Guide for the Design of Durable Parking Structures document has now been published by ACI. Chairman Martz recognized the extended effort of the committee to get the document revised with all the changes in direction from TAC.

Boris Dragunsky brought up an issue regarding the chloride content limits shown in the new document, and was concerned that background chloride levels that do not affect the corrosion threshold are not addressed. He mentioned that actual chloride limits vary depending on the reinforcing steel, type of construction, etc. It was agreed that this issue should be treated as new business and addressed in the next version of the document.

5.0 MAINTENANCE DOCUMENT SUBCOMMITTEE STATUS UPDATE

Secretary Donnelly briefly reviewed the status of the revision of the Maintenance Document based on discussion and attendance during the subcommittee meeting on the previous day. The status is summarized below:

- Chapter 1 - Introduction (D’Arcy): No update given, as Mr. D’Arcy was not in attendance.
- Chapter 2 - Developing a Maintenance Program (Wagner): In progress.
- Chapter 3 - Deterioration Associated with Parking Structures (Pulver): Chapter has been reviewed and revisions made. Document is ready for review and discussion by subcommittee.
- Chapter 4 - General Maintenance Considerations (Downs): No update given, as Mr. Downs was not in attendance.
- Chapter 5 - Maintenance Tasks and Frequencies Affecting Parking Structure Performance (D’Arcy): No update given, as Mr. D’Arcy was not in attendance.
- Chapter 6 - Service Life and Resiliency (Church): Chariman Martz indicated that he had spoken to Mr. Church and that work on the draft had begun, but was still underway.

6.0 TAC APPROVAL OF NEW DOCUMENTS

The process that the committee has been directed to follow for approval of the two new Tech Note documents was briefly described. The task group for each document will be preparing a document approval request that is to include a title, outline, and reason for approval. This request will then be submitted to TAC for formal approval. It was expected that the request would be submitted within a month. Greg Zeisler of ACI suggested that the Tech Note documents should be kept simple and short in accordance with the intent of this type of document.

7.0 SUPPLEMENTAL CEMENTITIOUS MATERIALS TASK GROUP STATUS UPDATE

The Chairman of this task group, Mr. Tony Kojundic, briefly discussed how the Tech Note regarding the use of supplemental cementitious materials in parking garage construction is proceeding. At this time, the Tech Note is partially drafted, with one case study involving the use of silica fume and fly ash done, and with two additional case studies needed. Jack Gibbons has committed to provide a second case study, which will involve the use of slag. Harry Gleich volunteered to get a case study involving the use of fly ash in a precast parking structure developed. It was proposed that these two new case studies be completed by the end of the year, so that the task group could make the text cohesive in time to have the Tech Note balloted by the time of the next convention.

There was also some discussion regarding the scope of this task group. The need for a Tech Note regarding the use of carbon fiber reinforcing in parking structures was also suggested, but it was agreed that this was outside the scope of the current document. A suggestion regarding mix design admixtures was also made, which would fall within the scope of this committee. Chairman Martz stated that the current Tech Note document should be limited to the use of SCMs in parking structures, given the size limitations of tech note documents. It was also recommended that the document be written to focus on the enhanced durability and improved sustainability that the use of SCMs provides. A title of “The Use of Supplemental Cementitious Materials in Parking Structures (Durability and Sustainability)” was proposed.

It was suggested that, in light of the refined focus of the current task group as described above, the name of this task group should be changed from “Materials” to “Supplemental Cementitious Materials”. The committee was in agreement with this suggestion, and this change is reflected in these minutes.

8.0 PROTECTIVE SURFACE TREATMENTS TASK GROUP STATUS UPDATE

Chairman Martz reported that he had spoken to the Chairman of this task group, Mr. Mo Iqbal, and that an outline had been prepared for the Tech Note regarding the protective surface treatments in parking structures. Chairman Martz indicated that he will ask Mr. Iqbal to prepare the Tech Note request for submittal to TAC.

The membership of this task group was also discussed. There are currently 4 members of this task group, and it was mentioned that Mr. Iqbal could use additional help. Terry McDonald volunteered to assist Mr. Iqbal with moving the work of this task group forward.

9.0 FUTURE CONFERENCE SESSION

The committee was in general agreement that there should be a session at a future conference, and that it could be associated with the release of the new “Guide for the Design of Durable Parking Structures” document (ACI 362.1). Materials topics in parking garages was also mentioned as a possible theme. It was mentioned that requests for sessions at the Fall 2013 convention were due this coming Friday. As a result, Chairman Martz requested volunteers to make presentations. The following suggestions were made:

- Historical perspective by Carl Walker
- Drainage issues in parking structures by Jeff Adams or Jim Donnelly
- Service life studies by Larry Church or Erich Martz
- Vehicular impact on parking barrier design by Mo Iqbal
- Issues with post-tensioned structures/case studies by Rashid Ahmed
- Flange connectors by Harry Gleich or Sami Riskalla
- Carbon fiber reinforcing by Ned Cleland
- Testing issues by Jack Gibbons
- Other materials related topics such as low shrinkage concrete and supplemental cementitious materials

Subsequent to this meeting, the list of potential topics and speakers was refined and adjusted, and submitted to ACI.

10.0 FUTURE PRESENTATIONS TO COMMITTEE

The possibility of future presentations to the committee at the Spring 2013 convention was discussed. Ned Cleland suggested a couple of topics regarding precast garage structures, including load distribution in double-tee beam flanges or spandrel beam research, which could be made by Mr. Gleich or Mr. Cleland, although they would need to obtain approval from the sponsor of the research. It was mentioned that Mo Iqbal had wanted to make a presentation on vehicle barrier design. A presentation on a contractor’s perspective on rapid-cycle construction was also suggested. Amy Trygestad indicated that she could line up a Minneapolis-area contractor for this. It was agreed that time would be allotted at the Spring 2013 committee meeting for the vehicle barrier design and rapid-cycle construction presentations.

11.0 NEW BUSINESS

The topic of rapid-cycle post-tensioned concrete construction of parking structures was briefly described to the committee. This construction technique requires stressing of the PT tendons approximately 20 hours after concrete placement, by which time the new concrete has attained a compressive strength typically in the range of 3500 to 4000 psi. This strength gain is confirmed with the use of maturity meters. The effect of this accelerated construction technique on the long-term shrinkage and creep of the concrete was not known.

12.0 REPORT FROM PCI GARAGES COMMITTEE

Ned Cleland reported on the activities of the PCI garages committee. He indicated that the committee was currently updating the document regarding the recommended practice for precast concrete parking structures. This document is currently targeted for completion by the Fall of 2013. It was also mentioned that this PCI committee is considering developing a document regarding garage repair.

Two long-term research projects underway for PCI were also mentioned. One involves the performance of bearing ledges such as found in inverted tee beams, for which the finite element analysis is done and the testing work is beginning. The other involves daps in double-tee beam stems, which involves surveying precasters and then developing testing procedures.

13.0 OLD BUSINESS

There was no old business.

14.0 NEXT MEETING

Minneapolis, Minnesota (Spring 2013 Convention):

- Monday, April 15, 2013 – 1:00 to 5:00 pm (Main Committee)
- Sunday, April 14, 2013 – 12:00 noon to 3:00 p.m. (Joint Subcommittee Meeting)

15.0 ADJOURN

A motion to adjourn was made by Ned Cleland, seconded by Rashid Ahmed, and approved by the full committee. The meeting adjourned at 3:00 p.m.