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## AGENDA

### TAC Specifications Committee

Wednesday, April 2, 2008, 7 – 10 AM  
PENTHOUSE 1902, Hyatt Regency, Century Plaza  
Los Angeles, California

#### Voting Members:

David W. Johnston, Chair	D. Gene Daniel
Miroslav F. Vejvoda, Secretary (nonvoting)	Charles S. Hanskat
Jon B. Ardahl	Alfred L. Kaufman, Jr.
William L. Barringer	W. Calvin McCall
Nicholas J. Carino	Aimee Pergalsky
Jeffrey W. Coleman	Arthur T. Weiss, Jr.

#### Associate Members

Karl J. Bakke	Terence C. Holland
James R. Baty	Kenneth G. Kazanis
Daniel P. Dorfmueller	William H. Oliver, Jr.
Dale Fisher	Michael S. Stenko
Sidney Freedman	

### 1. Call to Order and Introduction of Members and Visitors

#### 1.1 Approval of Agenda

ACTION: Does TSC approve the agenda for this meeting?

#### 1.2 Approval of Minutes

ACTION: Does TSC approve the minutes of the fall 2007 meeting in Puerto Rico?

#### 1.3 Membership Report

REPORT: Attachment 1.3 shows the current roster.

ACTION: Members are asked to review the roster and inform Secretary Vejvoda of any corrections.

### 2. ACI Specification Manual (ASpM)

## **2.1 2005 version of *ASpM***

The 2005 version of the *ASpM* is available on the ACI website at:  
<http://www.concrete.org/technical/technical.htm>

ACTION: No action is required.

## **2.2 Revisions to the 2005 *ASpM***

TSC has balloted the revisions to the 2005 *ASpM* before the Puerto Rico meeting. The ballot received many negative votes and the ballot did not pass.

The following items were discussed at the meeting in Puerto Rico.

- Common terminology should be used to avoid lawsuits.
- Capitalize all defined terms as common in Contract Documents.
- Use leading caps in Reference Specifications, Guide Specifications, Manual, etc.
- When referring to the ACI specifications, state “ACI Reference Specification.”
- In the *ASpM*, the Sections may be called Chapters.
- Retain the designation “hard” and “soft” conversions; “practical” and theoretical” may be mentioned in parentheses.
- Retain “Referenced Standards” instead of the proposed “Normative References.”
- Committees should be informed of the TSC review process for specifications. The liaison member together with the TSC chair determines the appropriate timing of the TSC review group review of the draft specification.
- The TSC review group will have a conference call to finalize the comments that will be sent back to the committee.

A motion passed to change the *ASpM* draft to incorporate these discussed items.

TSC has balloted the revisions to the 2005 *ASpM* again (12/21/07-1/20/08). The ballot received many negative votes and the ballot did not pass. The remaining issues were resolved during a conference call with the negative voters and the chair. Chair Johnston asked the committee to confirm the latest revisions in a final ballot (2/25/08-3/4/08). After a successful ballot, the draft *ASpM* will be sent to a TAC ballot. It is the intent to have the 2008 *ASpM* ready for distribution at the spring convention in Los Angeles.

Secretary Vejvoda is asked to report.

ACTION: Is any TSC action required?

## **3. Status of Specification Activities**

### **3.1 Updates**

BACKGROUND: TSC members are assigned as liaisons to ACI committees known to be working on or planning to work on a specification. Committee members are appointed as associate members of TSC (unless the TSC liaison is also a member of the committee). Attachment 3.1 summarized ACI specification activities and current membership assignments.

Committee 117: Liaison Charles Hanskat. Associate Member Karl Bakke.  
Committee 301: Liaison Jon Ardahl.  
Committee 303: Liaison Alfred Kaufman. Associate Member Dan Dorfmueller.  
Committee 304: Liaison Nick Carino. Associate Member Terry Holland.  
Committee 305: Liaison Gene Daniel.  
Committee 306: Liaison Gene Daniel.  
Committee 308: Liaison Aimee Pergalsky.  
Committee 311: Liaison Aimee Pergalsky.  
Committee 330: Liaison Art Weiss. Associate Member Ken Kazanis.  
Committee 336: Liaison Art Weiss. Associate Member Billy Oliver.  
Committee 346: Liaison Alfred Kaufman.  
Committee 347: Request for a specification pending.  
Committee 350: Liaison Jon Ardahl.  
Committee 423: Liaison Charles Hanskat. Associate Member: TBD.  
Committee 440: Liaison Nick Carino.  
Committee 503: Liaison Charles Hanskat.  
Committee 506: Liaison Jon Ardahl.  
Committee 522: Liaison Aimee Pergalsky. Associate Member Dale Fisher.  
Committee 533: Liaison Art Weiss. Associate Member Sidney Freedman.  
Committee 548: Liaison Art Weiss. Associate Member Mike Stenko.  
Committee 551: Liaison Alfred Kaufman. Associate Member Jim Baty.

The procedures for obtaining approval to start writing specifications, for committee liaisons, and for final approvals of specifications are being reviewed. The revisions to the 2005 ASpM include the new procedures.

**ACTION:** TSC Liaison and Associate Members are asked to report their respective committees' activities and discuss any actions required of TSC.

## **4. Specification Review**

### **4.1 Current Review Activity**

**BACKGROUND:** Section 1.3.3 of the *ASpM* explains the TSC review process for ACI specifications. The intent is for TSC to review new and revised specifications.

Committee 311 submitted a document on testing to TSC some time ago and it was rejected as a specification. The committee included the content in an appendix to the Guide document and submitted it to TAC for approval for the 2007 summer meeting. TAC recommended the committee submit it as a standalone specification instead. The committee submitted the 311.X-XX specification to TAC for the fall convention in Puerto Rico.

At the Puerto Rico meeting, TAC reviewed the ACI 311.X-XX, "Specification for Testing of Ready-Mixed Concrete". TAC approved the document subject to satisfactory compliance with TAC comments. Because of the limited time available, TSC was asked to perform their final format review as an external reviewer during the review of the committee responses to TAC comments.

A discussion evolved on the 311 document with the following main points:

- It is a valuable document that is needed.
- How does a document on testing fit within the ACI specifications that are written to the contractor?
- This document is written to the testing agency as a contract with the owner.
- The title should be “Specification for Testing Services”. Similarly, a “Specification for Inspection Services” may be needed.

When committee 311 submits their responses to TAC comments on 311.X-XX, it will be sent to the newly established TSC review group: Jon Ardahl, Nick Carino, Jeff Coleman, Charles Hanskat, and Alfred Kaufman.

ACI 117 was submitted to TAC after the Puerto Rico meeting and reviewed immediately by TAC. It was reviewed also by ACI 301, with two members of both, 301 and TSC reviewing it for both committees (Chair Johnston and McCall).

ITG-7 is developing a specification for precast tolerances. The ITG balloted the document before the meeting and is planning on resolving negatives in Los Angeles. The plan is to submit to TAC for the summer meeting review. There are three TSC members on ITG-7: ITG-7 Chair Hanskat, Carino, and McCall.

ACTION: Is any action required?

#### **4.2 Revised Review Procedures**

As a result of the proposed revisions to the ACI Specification Manual, TSC needs to discuss how to handle reviews. Two categories may be needed (new specifications and revised specifications). Retaining intense review at time of ballot appears desirable for new specifications. The roll of the Liaison will be critical here. For revised documents, Liaison tracking and input is also important, but TSC primary review will occur in parallel with TAC review.

### **5. Requests for New Specifications**

Committee 548 requested approval to write a new specification, submitted by 548 Chair Mike Stenko. The request was circulated to the TSC; see Attachment 5.0. Concerns were relayed to TAC. Committee 548 was asked to respond by the Los Angeles convention.

ACTION: Does TSC want to approve the development of a new 548 specification?

### **6. Planning**

#### **6.1 TSC Mission (For Information)**

The TSC mission is: “Assist the technical committees in preparing and maintaining specifications in the correct format and language, and manage specification development by the Institute.”

ACTION: Is any action required?

#### **6.2 Goals for 2008**

Chair Johnston identified the following TSC goals:

- Review committee requests to develop new specifications and make recommendations to TAC;
- Coordinate specifications that overlap ACI code dependent specifications such as 301;
- Maintain updated database of ACI specification activities;
- Review draft specifications for conformance to the *ASpM* in a timely manner;
- Maintain punch list for future revisions to the *ASpM*;
- Submit for TAC review approved revisions of 2005 *ASpM*; and
- Refine liaison procedures, encourage TSC member attendance, and appoint new members.

ACTION: Is any action required?

## 7.0 ACI Specification Policy

- 7.1** BACKGROUND: Refer to the minutes of the previous TSC meetings for background. On February 8, 2004, Chair Carino submitted to TAC the TSC recommendation for the reorganization of ACI 301. At the fall 2004 meeting, TAC selected Cal McCall for a three-year term to implement this reorganization. At the spring 2005 New York City convention, a meeting was held with chairs of the committees directly affected by the new format for ACI 301. At the fall 2005 convention in Kansas City, the reorganized Committee 301 held its first meeting. McCall reported that, in consultation with the subcommittee chairs, about 30 voting and 30 nonvoting (subcommittee only) members have been appointed to ACI 301. He also suggested that the chairs (or their designates) of the expert committees that are within the scope of ACI 301 should be added as consulting members so that they will receive all Committee 301 correspondence. As of March 15, 2006, this had not been done.

After the Denver meeting, chairs of identified expert committees were invited by 301 Chair McCall to accept a consulting membership on ACI 301. Most agreed and were appointed to the committee in December 2006.

ACTION: Is any action required?

## 7.2 e-Specifications

ACI staff, TSC, and ACI 301 Chair McCall have been discussing the idea of preparing an “active” electronic specification that can be tailored to a specific project and included directly in the project specifications. Action on this item is tabled until additional direction is provided by ACI.

In Atlanta, staff member Senecal informed the committee of the intent to include an electronic specification in the Knowledge Center on the ACI website. The format would be similar to the existing case studies.

A Task Group (TG-7.2) was appointed (Ardahl, Hanskat, and Weiss) to advise staff and to review the e-specification draft. A draft will be prepared for review by TSC.

ACTION: Is any action required?

**8. Training on Specification Writing**

TSC members have developed a technical session for presentation at the Spring 2007 convention in Atlanta. It took place on Tuesday, April 24, 2007. Presenters were: Pergalsky, Weiss, Carino, Coleman, and Kaufman. Weiss was the session moderator.

Art Weiss reported on the session. It was very successful and generated a lot of interest. TSC should plan for future training workshops, possibly once a year on Tuesday morning (7:00 to 8:30 am). Another option is to include an interactive specification module on the ACI website as part of the Help page.

ACTION: Is any action required?

**9. Next Meeting**

TSC meetings are held on Wednesdays, 7 – 10 am during ACI Conventions.

ACTION: Is any action required?

**10. Adjournment**

**ATTACHMENTS:**

- Attachment 1.3 — TSC Roster with Contact and Assignment Information
- Attachment 3.1 — ACI Specifications Activity Database
- Attachment 5.0 — ACI 548 Proposal for a New Specification

**COPIES:**

- TSC Members
- ACI TAC members
- ACI Engineering staff

**Attachment 1.3  
 TSC Roster with Contact and Assignment Information**

October 2007			
Name	Assignment	Telephone No.	E-Mail Address
<b>TSC Officers and TAC Contacts</b>			
David Johnston	Chair and TAC Contact RG-440 Chair, RG-503.3 Chair	919/515-7412	<a href="mailto:johnston@eos.ncsu.edu">johnston@eos.ncsu.edu</a>
Miroslav Vejvoda	Secretary TSC (NV)	248/848-3713	<a href="mailto:miroslav.vejvoda@concrete.org">miroslav.vejvoda@concrete.org</a>
Ron Burg	Chair TAC	847/972-3050	<a href="mailto:rburg@ctlgroup.com">rburg@ctlgroup.com</a>
Daniel W. Falconer	Secretary TAC	248/848-3726	<a href="mailto:daniel.falconer@concrete.org">daniel.falconer@concrete.org</a>
<b>Voting Members</b>			
Jon B. Ardahl	301, 350, 506, TG-2.2, TG-7.2, TG-304	785/887-9991	<a href="mailto:ard00097@netzero.net">ard00097@netzero.net</a>
William L. Barringer		505/293-8368	<a href="mailto:joy2Bill@aol.com">joy2Bill@aol.com</a>
Nicholas J. Carino	304, 440, TG-2.2 Chair, TG-304	301/975-6063	<a href="mailto:ncarino@nist.gov">ncarino@nist.gov</a>
Jeffrey W. Coleman		952/841-0200	<a href="mailto:jwcoleman@chvv.com">jwcoleman@chvv.com</a>
D. Gene Daniel	305, 306, 423	479/636-1856	<a href="mailto:dgenedinc@aol.com">dgenedinc@aol.com</a> *
Charles S. Hanskat	117, 423, 503, TG-7.2, TG-304 Chair, RG-440	847/972-3146	<a href="mailto:chanskat@ctlgroup.com">chanskat@ctlgroup.com</a>
Alfred L. Kaufman, Jr.	303, 346, 551	925/866-2780	<a href="mailto:alfredl.kaufman@cemex.com">alfredl.kaufman@cemex.com</a>
W. Calvin McCall	TG-2.2	704/392-1506	<a href="mailto:wcmccall@concretees.com">wcmccall@concretees.com</a>
Aimee Pergalsky	308, 522	216/491-9265	<a href="mailto:geoaimee@aol.com">geoaimee@aol.com</a>
Arthur T. Weiss, Jr.	330, 336, 533, 548, TG-7.2, RG-440, RG-503.3	770/860-1942	<a href="mailto:aweiss7501@aol.com">aweiss7501@aol.com</a>
<b>Associate Members</b>			
Karl J. Bakke	117	303/674-2290	<a href="mailto:karl.bakke@kalmanfloor.com">karl.bakke@kalmanfloor.com</a>
James R. Baty	551	319/895-6911	<a href="mailto:jbaty@cfawalls.org">jbaty@cfawalls.org</a>
Daniel P. Dorfmueller	303	513/933-0489	<a href="mailto:dorf@go-concepts.com">dorf@go-concepts.com</a>
Dale Fisher	522	770/619-9962	<a href="mailto:dalefisher@pervious.com">dalefisher@pervious.com</a>
Sidney Freedman	533	312/786-0300	<a href="mailto:sfreedman@pci.org">sfreedman@pci.org</a>
Terence Holland	304	440/834-1697	<a href="mailto:concrete.terry@att.net">concrete.terry@att.net</a>
Kenneth G. Kazanis	330	248/354-9050	<a href="mailto:ken.kazanis@lafarge-na.com">ken.kazanis@lafarge-na.com</a>
William H. Oliver, Jr.	336	713/207-4379	<a href="mailto:billy.oliver@centerpointenergy.com">billy.oliver@centerpointenergy.com</a>
Michael S. Stenko	548	914/636-1000	<a href="mailto:mstenko@transpo.com">mstenko@transpo.com</a>

\*Text e-mail messages only; mail hard copies of any attached files

**Attachment 3.1  
 ACI SPECIFICATIONS ACTIVITY DATABASE**

<b>Comm. No.</b>	<b>Title</b>	<b>Specification</b>	<b>Number / Status</b>	<b>Comment/ Action</b>	<b>TSC Liaison</b>	<b>Nonvoting TSC Members</b>
117	Tolerances	Standard Specifications for Tolerances for Concrete Construction and Materials	117-06	ACI 117-06 was published in Oct. 2006. New ITG to produce a mandatory document based on PCI's tolerance document.	Hanskat	Bakke
301	Specifications for Concrete	Specifications for Structural Concrete	301-08 in preparation	Published Spring 2005. New Committee organized. McCall trying to keep on schedule. Three new sections balloted between Denver and Atlanta: post-tensioning, tilt up, and precast / pretensioned. Summer meeting will probably take place.	Ardahl (M)*	Not needed
303	Architectural CIP Concrete	Standard Specification for Cast-in-Place Architectural Concrete	303.1-97	Information in spec getting rolled into ACI 301. Plan to ballot by the end of the 2006. Will be a new section 6 of ACI 301.	Kaufman	Dorfmueller
304	Measuring, Mixing, Transporting, and Placing Concrete	Guide Specification for Underwater Concrete	In preparation	Outline approved by TSC April 2005; TAC approved July 2005. Committee is balloting and will send to TSC. Weiss reviewed draft before Denver and stated much more guidance from TSC is needed. A Task Group (TG-304) was appointed (Hanskat as chair, Carino, Ardahl) to provide	Carino	Holland



<b>Comm. No.</b>	<b>Title</b>	<b>Specification</b>	<b>Number / Status</b>	<b>Comment/ Action</b>	<b>TSC Liaison</b>	<b>Nonvoting TSC Members</b>
				guidance.		
305	Hot Weather Concreting	Standard Specification for Hot Weather Concreting	ACI 305-06 in Preparation	TAC and Standards Board approved closure in Denver. Will be published beginning of 2007.	Daniel	Not needed
306	Cold Weather Concreting	Standard Specification for Cold Weather Concreting	306.1-90 (R-98)	No action on Spec. Working on report first.	Daniel	Not needed
308	Curing Concrete	Standard Specification for Curing Concrete	308.1-98	Balloted summer '06. Resolving negatives. Expect to go to TAC soon.	Pergalsky (M)*	Not needed
311	Inspection of Concrete	Specification for Testing of Ready-Mixed Concrete	311.X-XX	Submitted for TAC review in Puerto Rico (Fall 2007); TSC reviewing as external reviewer.		
330	Concrete Parking Lots and Site Paving	Standard Specification for Plain Concrete Parking Lots	330.1-03	Change it to for pavements of 8 in. or less and write a heavy duty parking lot spec – discussing. It will have to be reapproved in two years.	Weiss	Kazanis
336	Footings, Mats, and Drilled Piers	Specification for the Construction of Drilled Piers	336.1-01	Committee balloting guide and are resolving negatives. Once finished it will be easier to revise spec. Spec is mostly commentary, it will take significant effort to rewrite it. This specification will be changed into a guide specification as it is very site specific.	Weiss	Oliver

<b>Comm. No.</b>	<b>Title</b>	<b>Specification</b>	<b>Number / Status</b>	<b>Comment/ Action</b>	<b>TSC Liaison</b>	<b>Nonvoting TSC Members</b>
346	CIP Pipe	Specification for Cast-in-Place Concrete Pipe	346-01	Balloting fall 2006.	Kaufman (M)*	Not needed
347	Formwork for Concrete	Formwork Specification	New, in preparation	It is not clear how different the specification would be from 301. Chair Johnston will discuss with the committee.		
350	Environmental Structures	Specification for Environmental Engineering Concrete Structures	In preparation	Balloted by main committee 2006. Has passed but need to resolve negatives. Part of it will need to be reballoted. TSC review was done by Carino and Bill Barringer. Probably will go to TAC in Spring '08.	Ardahl (M)*	Not needed
423	Prestressed Concrete	Material Specification for Unbonded Single-Strand Tendons and Commentary	423.6	TSC approved plan to prepare materials spec and separate installation spec 4/05. Spec approved by TAC July 2006 and Standards Board in Denver. Will be out for public discussion spring 2007.	Hanskat	423 chair (Andrea Schokker) to appoint TSC rep.
423	Prestressed Concrete	Specification for Installation of Unbonded Single-Strand Tendons and Commentary	423.7	TSC approved plan to prepare materials spec and separate installation spec 4/05. Spec approved by TAC July 2006 and Standards Board in Denver. Will be out for public discussion spring	Hanskat	423 chair (Andrea Schokker) to appoint TSC rep.

Comm. No.	Title	Specification	Number / Status	Comment/ Action	TSC Liaison	Nonvoting TSC Members
				2007.		
440	Fiber Reinforced Polymer Reinforcement	Specification for Carbon and Glass Fiber Reinforced Polymer (FRP) Bars for Concrete Reinforcement	440.Y-XX Submitted to TAC	In Charlotte, ACI 440 requested TSC to approve the development of this specification. TSC Review Group (RG-440) was appointed to review specification formatting: Johnston as chair, Hanskat, and Weiss; TSC review was completed on July 9, 2007. Comments forwarded to 440 as part of TAC review.	Carino	
440	Fiber Reinforced Polymer Reinforcement	Specification for Construction with Fiber Reinforced Polymer (FRP) Reinforcing Bars and Their Supports	440.X-XX Submitted to TAC	In Charlotte, ACI 440 requested TSC to approve the development of this specification. TSC Review Group (RG-440) was appointed to review specification formatting: Johnston as chair, Hanskat, and Weiss; TSC review was completed on July 9, 2007. Comments forwarded to 440 as part of TAC review.	Carino	
503	Adhesives in Concrete	Standard Specification for Bonding Concrete, Steel, Brick and Other Materials to Hardened Concrete with a Multi-Component Epoxy Adhesive	503.1-92 R97	Format revision overdue. TSC is recommending removal from the MCP.	Hanskat	

<b>Comm. No.</b>	<b>Title</b>	<b>Specification</b>	<b>Number / Status</b>	<b>Comment/ Action</b>	<b>TSC Liaison</b>	<b>Nonvoting TSC Members</b>
503	Adhesives in Concrete	Standard Specification for Bonding Plastic Concrete to Hardened Concrete with a Multi-Component Epoxy Adhesive	503.2-92 R-97	Format revision overdue. TSC is recommending removal from the MCP.	Hanskat	
503	Adhesives in Concrete	Standard Specification for Producing a Skid Resistant Surface on Concrete by the Use of a Multi-Component Epoxy System	503.3-92 R97	Format revision overdue. Expected to go to TAC in the summer 2007.	Hanskat	
503	Adhesives in Concrete	Standard Specification for Repairing Concrete with Epoxy Mortars	503.4-92 R97	Format revision overdue. TSC is recommending removal from the MCP.	Hanskat	
503	Adhesives in Concrete	Standard Specification for Crack Repair by Epoxy Injection	503.7-XX	Public discussion ended 11/30/05. Committee preparing closure.	Hanskat	
506	Shotcreting	Specifications for Shotcrete	506.2-95	Revising. There are problems with major negatives and with the commentary. Will take some time to finish.	Ardahl (M)*	Not needed
522	Pervious Concrete	Specification for Pervious Concrete Pavements	In preparation	Request approved by TAC July 2005. Balloted after Charlotte. TAC reviewed and did not approve in Denver. Committee to revise and resubmit. TAC reviewed again at this Atlanta meeting and approved the document.	Pergalsky	Fisher

<b>Comm. No.</b>	<b>Title</b>	<b>Specification</b>	<b>Number / Status</b>	<b>Comment/ Action</b>	<b>TSC Liaison</b>	<b>Nonvoting TSC Members</b>
533	Precast Panels	Proposed Specification on Precast Panels	In preparation.	TAC approval needed. Will be folded into ACI 301.	Weiss	Freedman
548	Polymers in Concrete	Standard Specifications for Latex Modified Concrete (LMC) Overlays	548.4-93 R98	Format revision overdue	Weiss	Stenko
548	Polymers in Concrete	Standard Specifications for Type EM Polymer Concrete Overlays	committee revising	Reviewed and approved by TAC in Denver. Committee responding to TAC comments. Third review approved by TSC. The mandatory side cannot refer to ICRI; it should be in the checklist. The section F8-Foreword to checklist can include such references and can be invoked by a mandatory checklist item.	Weiss	Stenko
548	Polymers in Concrete	Standard Specifications for Type ES Polymer Concrete Overlays	committee revising	Balloted.	Weiss	Stenko
548	Polymers in Concrete	Specification for Polymer Concrete and Composite Underground Utility Enclosures	Request to write a new spec.	Request reviewed by TSC; comments relayed to 548; response expected in Los Angeles	Weiss	Stenko
551	Tilt-Up Construction	Specification on Tilt-Up Construction	In preparation.	Being rolled into 301; not clear if will keep a stand alone. It will not be a specification in 551 as it is now in 301.	Kaufman	Baty

\*(M) indicates that the TSC liaison is also a member of the committee and an associate member from that committee is not necessary.

**Attachment 5.0**  
Proposal for a new Specification  
ACI Committee 548 – Mike Stenko, Chairman  
Subcommittee 548C – PC Structures

Proposed Title: ***Specification for Polymer Concrete and Composite Underground Utility Enclosures***

Scope: The proposed specification would provide the requirements for polymer concrete and fiberglass reinforced polymer composite underground utility enclosures, frequently called handholes. Enclosures would be suitable for use in light commercial and residential sidewalks, driveways, parking lots and behind curbs. They would not be installed in pavements in heavily traveled roadways where vehicle impact and fatigue loading occur. Performance and materials requirements, design criteria, and appearance would be included.

Statement of need: Enclosures (handholes) addressed by this specification are currently used by electric, water and communications utilities for access to buried outside plant equipment such as meters, splices, switches and fuses. Annual volume for PC/FRP handholes is estimated to be in the \$250 million to \$500 million range in the US. Currently, there is a regional guideline describing the features of these products (Western Underground Committee Guide 3.6) and a guide written by the Society of Cable Telecommunications Engineers (ANSI/SCTE 77-2007) directed at requirements for cable television applications. Otherwise, utilities have been either writing their own specifications, making partial reference to the two existing documents or choosing certain manufacturers to supply products without formalized specifications. This proposed specification would be a companion to the ACI 548.7 test method, providing detailed product requirements. Typically, the at-grade portions of these enclosures are polymer concrete to provide resistance to damage from equipment such as mowers and trimmers, to provide resistance to road salts and chemicals, and to provide UV resistance. By taking advantage of the strength/weight ratios, many sizes have removable covers that can be handled without heavy equipment, reducing maintenance costs. Currently, both ETL and UL have listings for these products.

Objectives: The objective of the specification is to provide a detailed, single document describing the performance requirements for precast polymer concrete and PC/FRP composite underground utility enclosures.

Proposed Outline:

- A. General
  - a. Scope
  - b. Definitions
  - c. Reference Standards
  - d. Standards-producing Organizations
  - e. Submittals
  - f. Quality Assurance

B. Products

- a. Covers – will describe standard features required for functional at-grade enclosure covers.
- b. Boxes – will describe function and accessories for the enclosures.
- c. Extensions – will describe matching extensions to increase the depth of the enclosure for grade changes, etc.
- d. Materials qualifications – will include requirements for resistance to acids, bases and petroleum products, UV resistance, water absorption, flammability, etc.
- e. Performance and strength requirements – will provide load standards, strength factors and testing criteria (ref. to ACI 548.7).

C. Execution