





American Concrete Institute®
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Analysis and Design Issues in Liquid-Containing Structures

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ACI
WEB SESSIONS

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Introduction of ACI 350.5, Specification for Environmental Engineering Concrete Structures

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Why have a Specification?

- ACI 350-06 *Code Requirements for Environmental Engineering Concrete Structures*
- Intended for who?
 - Designers
 - Not appropriate for Contractors

Why have a Specification?

- ACI 350.5 Specification for Environmental Engineering Concrete Structures
- Is specifically and entirely intended for the Contractor

Why not Use ACI 301 Specification?

- ACI 301 is intended for
 - Structural concrete for buildings
 - Parallels ACI 318
- ACI 350.5 is intended for
 - Structural concrete for liquid-containing structures
 - Parallels ACI 350

Why not Use ACI 301 Specification?

- Liquid-Containing Structures (LCS) are not the same as building
 - Higher loads
 - Dynamic loads



Why not Use ACI 301 Specification?

- Constant exposures to aggressive environments
 - Liquids
 - Chemicals



Why not Use ACI 301 Specification?

- Extremely sensitive to cracking that affects serviceability
 - Through section cracks 5 mils wide will leak
 - High fluid pressure



Why not Use ACI 301 Specification?

- Special Structures or Processes not Covered by ACI 301
 - Membrane floors
 - Thin, highly reinforced concrete slabs on soil.
 - Circular wrapped prestressed tanks
 - Shotcrete

Circular Wrapped Prestressed Tanks



Circular Wrapped Prestressed Tanks



Shotcrete



ACI 350.5 Compared to ACI 301

- Similar Layout and Organization
- Greater Cover Requirements
- Enhanced Material Requirements for Exposures
- Shotcrete
- Higher Prestressed Reinforcement Protection
- Additional Section on Wrapped Prestressed Reinforcement
- Includes “Membrane Floors”, Doesn’t Include “Industrial Floors”

Specification is Addressed To

“ACI Specification 350.5 cannot and does not address responsibilities for any project participant other than Contractor.”

But What about the Checklists?

- Guidance to the specifier
 - Mandatory
 - Optional
- Are not part of the ACI 350.5 Specification
- Serve as Flags
 - Items Specifier evaluates in developing the specific Project Specification

But What about the Checklists?

- Mandatory Checklist Items
“indicates work requirements regarding specific qualities, procedures, materials, and performance criteria that are not defined in ACI Specification 350.5.”

But What about the Checklists?

- Mandatory Checklist Items
“The Specifier must include these requirements in the Project Specification.”

But What about the Checklists?

- Optional Checklist Items
“identifies Specifier choices and alternatives. The checklist identifies the Sections, Parts, and Articles of the ACI Reference Specification 350.5 and the action required or available to the Specifier.”

But What about the Checklists?

- Optional Checklist Items
“Specifier should review each of the items in the Checklist and make adjustments to the needs of a particular project by including those selected alternatives as mandatory requirements in the Project Specification.”

When Can We Get One?

- ACI 350.5 Completed
 - Committee Balloting
 - TAC Review
 - Public Review
- Response to Public Comments Complete
- Next is Approval of Standards Board
- Publication Formatting
- Committee Review of Proofs
- Publication – Maybe End of 2012, Early 2013