ACI Committee Document
Abstracts

The following ACI documents are, or will soon be, available:

"Reinforced Concrete Design for Thermal Effects on Nuclear Safety-Related Structures—Report (ACI PRC-349.1-24)"

Reported by ACI Committee 349, Concrete Nuclear Structures

Madhumita Sirca, Chair*; Lisa M. Anderson, Vice Chair*; John F. Silva, Vice Chair; Amit H. Varma, Vice Chair*; Carlos Cantarero-Leal, Secretary; Omesh B. Abhat, Adeola K. Adediran, Monzer M. Allam, Taha D. Al-Shawaf, Sungjin Bae*, Saahastaranshu Bhardwaj*, Mi-Geum Chorzepa*, Rolf Eligehausen, Werner A.F. Fuchs, Stewart C. Gallocher, Branko Galunic, Partha S. Ghosal*, Herman L. Graves, James A. Hammell, Charles J. Hookham, Thomas T.C. Hsu, Ronald J. Janowiak, Scott A. Jensen, Christopher A. Jones, Carl J. Larosche, Nam-Ho Lee, W. Calvin McCall, Javeed Munshi, Jaspal Saini, David B. Scott, Matthew R. Sherman, Bozidar Stojadinovic, Shen Wang*, Andrew S. Whittaker, and Charles A. Zalesiak, Members; Hansraj G. Ashar, Peter J. Carrato, Ronald A. Cook, Dan J. Naus, Barendra K. Talukdar, and Albert Y.C. Wong, Consulting Members.

*Members of the subcommittee authoring this report.

Abstract: This report presents a design-oriented approach for considering thermal effects on nuclear safety-related concrete structures. The approach presented in this report is intended to assist the licensed design professional in addressing the requirements of Appendix E of ACI CODE-349-13. Although this report is focused on the requirements of ACI CODE-349, the general behavior of structures under thermal effects and the significant issues to consider in design are broadly applicable in the design of other types of reinforced concrete members and structures. Three types of structures—frame structures, concrete wall structures, and axisymmetric structures—are addressed. For concrete wall structures, thermal and structural behaviors are discussed. Guidelines are provided for determining the required strengths for concrete walls subject to thermal loading combinations. For frame structures, a rationale is described for determining the extent of component cracking that can be assumed for purposes of obtaining the cracked structure's thermal forces and moments. Stiffness coefficients and carryover factors are presented in graphical form as a function of the extent of component cracking along its length and the reinforcement ratio. Fixed-end thermal moments for cracked components are expressed in terms of these factors for: 1) a temperature gradient across the depth of the component; and 2) end displacements due to a uniform temperature change along the axes of adjacent components. For the axisymmetric shells, normalized cracked section thermal moments are presented in graphical form. These moments are normalized with respect to the cross-sectional dimensions and the temperature gradient across the section. The normalized moments are presented as a function of the internal axial forces and moments acting on the section and the reinforcement ratio. Use of the graphical information is illustrated by examples.

"Post-Installed Adhesive Anchors in Concrete—Qualification Requirements and Commentary (ACI CODE-355.4-24)"

Reported by ACI Committee 355, Anchorage to Concrete

Andra Hoermann-Gast, Chair; Jay Dorst, Vice Chair; John F. Silva, Vice Chair; Neal S. Anderson, Jacques A. Bertrand, T.J. Bland, Rachel Chicchi Cross, Rolf Eligehausen, Werner A.F. Fuchs, Brian C. Gerber, Jan Erich Hofmann, Chiwan Wayne Hsieh, Amy S. Kolczak, Thomas A. Kolden, Anthony J. Lamanna, Giovanni Muciaccia, Daniel T. Mullins, John E. Pearson, Marlou B. Rodriguez, Milton Rodriguez, Peter C. Schillinger, Howard Silverman, Luke Tavernit, Jason H. Wagner, and Roman Wan-Wendner, Members; Peter J. Carrato, Ronald A. Cook, Branko Galunic, Neil M. Hawkins, Christopher La Vine, Nam-Ho Lee, Lee W. Mattis, Robert R. McGlohn, Donald F. Meinheit, Conrad Paulson, and Dan R. Stoppenhagen, Consulting Members.

Abstract: This Code prescribes testing programs and evaluation requirements for post-installed adhesive anchors intended for use in concrete under the design provisions of

ACI 318-19. Testing and assessment criteria are provided for various conditions of use, including seismic loading, sustained loading, aggressive environments, reduced and elevated temperatures, and for determining whether anchors are acceptable for use in uncracked concrete only, or acceptable for service in both cracked and uncracked concrete. Criteria are provided for establishing the characteristic bond strength, reductions for adverse conditions, and the anchor category and associated jobsite quality control requirements.

"Design and Construction of Fixed Offshore Concrete Structures—Guide (ACI PRC-357-24)"

Reported by ACI Committee 357, Offshore and Marine Concrete Structures

Jeremiah D. Fasl, Chair; Jonathan Hurff, Secretary; Erik Åldstedt, Domenic D'Argenzio, Raymond R. Foltz, Kjell Tore Fosså, Michael J. Garlich, Anton Magne Gjorven, Kare Hjorteset, Mohammad S. Khan, Jonah C. Kurth, Abbas Mokhtar-zadeh, Robert Moser, Jose Pacheco, Barry J. Pecho, Jorge L. Quiros Jr., Felipe Saavedra, Watsamon Sahasakkul, Joar Tistel, Widianto*, and Samuel X. Yao

*Chair of the Task Group.

Abstract: This document is a guide for the design and construction of fixed reinforced and prestressed concrete structures for service in a marine environment. Only fixed structures that are founded on the seabed are covered.

Contents include materials and durability; dead, deformation, live, environmental, and accidental loads; design and analysis; foundations; construction and installation; and inspection and repair. The two appendixes discuss environmental loads such as wave, wind, and ice loads in detail, as well as the design of offshore concrete structures for earthquake resistance.