ACI Committee Document
Abstracts

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

"Use of Normalweight and Heavyweight Aggregates in Concrete—Guide (ACI PRC-221-25)"

Reported by ACI Committee 221, Aggregates

Anol Kanti Mukhopadhyay, Chair; Mark R. Lukkarila, Secretary; Hakim S. Abdelgader, Mengesha Beyene, James M. Casilio, Bryan R. Castles, John M. Fox, Kristen E. Freeman, Shubhada Gadkar-Kolson, Alfred Gardiner, R. Doug Hooton, Sam R. Johnson, Kai-Wei Liu, Jim S. Pierce, Prasada R. Rangaraju, Hadi Rashidi, Clayton M. Reichle, Leandro F.M. Sanchez, Xijun Shi, Richard G. Sibbick, April Snyder, and Lawrence L. Sutter, Members; Marc Andre Berube, Omar A. Omar, Aimee Pergalsky, James Don Powell, James R. Van Acker, and Richard Yelton, Consulting Members.

Abstract: This Guide presents information on the selection and use of normalweight and heavyweight aggregates in concrete. The selection and use of aggregates in concrete should be based on technical criteria as well as economic considerations and knowledge of types of aggregates generally available in construction. The properties of aggregates and their processing and handling influence the properties of both fresh and hardened concrete. The effectiveness of processing, stockpiling, and aggregate quality control procedures will affect batch-to-batch and day-to-day variation in the properties of concrete. Aggregates that do not comply with the specification requirements may be suitable for use if the properties of the concrete using these aggregates are acceptable, as per Chapter 6. Materials that can be recycled or produced from waste products are potential sources of concrete aggregates; however, special evaluation may be necessary.

"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 and John F. Silva, Vice Chairs; 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 CODE-318-25. 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 both in 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.

"Post-Installed Reinforcing Bar Systems in Concrete—Qualification Requirements and Commentary (ACI CODE-355.5-24)"

Reported by ACI Committee 355, Anchorage to Concrete

Andra Hoermann-Gast, Chair; Jay Dorst and John F. Silva, Vice Chairs; 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.

Special acknowledgment is given to K. McBride for his contribution to this Code.

Abstract: This Code prescribes testing programs and evaluation requirements for post-installed reinforcing bars intended for use in concrete under the straight-bar development and splice length design provisions of ACI CODE-318. Testing and assessment criteria are provided for various conditions of use, including seismic loading, sustained loading, aggressive environments, and reduced and elevated temperatures. Criteria are provided for establishing the required characteristic bond strength, reductions for adverse conditions, and associated jobsite quality control requirements.

"Design of Circular Concrete-Filled Fiber-Reinforced Polymer Tubes—Guide (ACI PRC-440.14-25)"

Reported by ACI Committee 440, Fiber-Reinforced Polymer Reinforcement

Maria Lopez de Murphy, Chair; John J. Myers, Secretary; Ehab Ahmed, Tarek Alkhrdaji, Charles E. Bakis, Abdeldjelil Belarbi, Brahim Benmokrane, Luke A. Bisby, Gregg J. Blaszak, Hakim Bouadi, Timothy E. Bradberry, Vicki L. Brown, John P. Busel*, Christian Carloni, Lijuan Dawn Cheng, Raafat El-Hacha, Ehab F. El-Salakawy, Garth J. Fallis, Amir Z. Fam†, Will J. Gold, Nabil F. Grace, Mark F. Green, Doug D. Gremel, Issam E. Harik, Kent A. Harries, Mark P. Henderson, Ravi Kanitkar, Yail Jimmy Kim, Michael W. Lee, Eric MacFarlane, Radhouane Masmoudi, Antonio Nanni, Ayman M. Okeil, Carlos E. Ospina, Maria Anna A. Polak, Max L. Porter, Hayder A. Rasheed, Pedram Sadeghian*, Rudolf Seracino, Venkatesh Seshappa, Xavier Seynave, Carol K. Shield, Jay Thomas, Douglass G. Tomlinson*, J. Gustavo Tumialan, Erblina Vokshi, Sarah E. Witt, and Paul Zia‡, Members; P.N. Balaguru, Lawrence C. Bank, C.J. Burgoyne, Rami M. Elhassan, David M. Gale, Russell Gentry, Srinivasa L. Iyer, Koichi Kishitani, Howard S. Kliger, Ibrahim M. Mahfouz, Kyuichi Maruyama, Amir Mirmiran, Antoine E. Naaman, Hajime Okamura, Mark A. Postma, Sami H. Rizkalla, Rajan Sen, Surendra P. Shah, Mohsen Shahawy, Yasuhisa Sonobe, Minoru Sugita, Luc R. Taerwe, Houssam A. Toutanji, and Taketo Uomoto, Consulting Members; Tanarat Potisuk, and Scott Thomas Smith, Liaison Members.

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Abstract: The circular concrete-filled fiber-reinforced polymer (FRP) tube (CFFT) system is an alternative to traditional reinforced concrete structures. The pre-cured FRP tube, which comprises layers of engineered fibers oriented in different directions, provides a corrosion-resistant stay-in-place structural form to retain freshly cast concrete that speeds up construction and, at the same time, provides primary reinforcement in the two orthogonal directions instead of traditional longitudinal steel reinforcing bars, ties, and stirrups. Typical applications of CFFT include piles, columns, and poles used in building and bridge construction. The FRP tube provides confinement and environmental protection of the concrete core, increasing its strength, ductility, and durability, as well as protection of the minimum internal steel reinforcement. Due to the unique characteristics of CFFTs in which reinforcement in the orthogonal directions is integrated into one continuous membrane—namely, the tube—specific guidance on the design of members using this system is needed. This Guide provides general information and background on CFFT technology, including applications and limitations, characteristics of circular FRP tubes, and the interface bond between tube and concrete. The Guide provides provisions for design for flexure, axial load, shear, combined loading, connections, and a design approach aimed at mitigating the risk of accidental tube loss. This Guide is based on the knowledge gained from experimental research, analytical work, and field applications of CFFTs.