

## More durability – it's the law

"It's not just a recommendation, it's now the law, wherever the new residential code has been adopted." Those were the words of Dan Ernst, spoken at seminars his family's company recently presented for residential concrete driveway contractors. (Dan is an attorney.)

Ohio Ready Mixed Concrete (ORMCA) producer member, Ernst Enterprises, Inc., of Dayton OH, organized and conducted four seminar lunch programs in their southwestern Ohio market area. The purpose was to familiarize their customers with the new concrete requirements in the *2004 Residential Code of Ohio for One- Two- and Three-Family Dwellings*.

Most of the communities in southwestern Ohio have adopted the new code, which was effective January 1 or March 1, 2005. Dan was referring to the fact that the new code requires a 0.45 maximum water-cementitious ratio and a minimum compressive strength of 4,500 psi for all exterior concrete in a severe weathering region. All of Ohio falls into that weathering category, according to a map in the code.

Using handouts and PowerPoint™ presentations, Dan, along with Steve Harvey, Ernst's Quality Control Manager, discussed the code's new tables and text that address concrete durability. They focussed first on Table R301.2 (5), which specifically includes driveways and 4,500 psi concrete in severe weather exposure.

Steve explained how a lower water cementitious ratio leads to a higher compressive strength in concrete. He talked about the new mixes the company will have for this work and how they may behave compared to previous "driveway" mixes.

Steve emphasized that curing also is now addressed in the code. He quoted from Section R402.2, which states in part, "... and concrete for flatwork shall be placed, finished, jointed and cured in accordance with *ACI Slabs on Grade (CCS-1)*, chapters 5, 6 and 7."

Dan pointed out that publication CCS-1 is required reading for the ACI Concrete Flatwork Technician and Flatwork Finisher Certification by the American Concrete Institute (ACI). He urged the contractors to consider obtaining this certification for marketing their services or for proving their expertise in court.

A supplement to the concrete information at the seminar was provided by a local building official. He described the new electrical grounding system – connecting the ground wire to reinforcing steel in the concrete footing- per the National Electrical Code (NEC) 2005, Article 250.50.

Dan concluded the seminar by pointing out that Governor Taft signed House Bill 175 on February 23, 2005, which calls for a statewide residential building code for the first time in Ohio. He said it will likely be modeled after the code referenced in this seminar.

Ernst presented the seminar in the cities of Kettering, Springfield, Mason and Troy, attracting over 100 attendees at some locations. A copy of the *2004 Residential Code of Ohio for One- Two- and Three-Family Dwellings*, can probably be found in the reference section of a public library in most communities that have adopted it. In addition it can generally be obtained through local homebuilding or building officials' organizations.

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## **FINDING CONCRETE IN THE NEW RESIDENTIAL BUILDING CODE**

The local building department, home builders association or public library should have a copy of the residential building code that is in effect in that community.

Following are the specific parts of the *RESIDENTIAL CODE OF OHIO For One-, Two-, and Three Family Dwellings 2004 EDITION* (the model residential code developed by the Ohio Building Officials Association, or OBOA) that apply to concrete for exterior flatwork.

### Chapter 3 BUILDING PLANNING

#### **Page 24R**

Table R301.2(1) - Climatic and Geographic Design Criteria  
footnote a

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Table R301.2(4) – Requirements for Special Exposure Conditions  
Table R301.2(5) – Minimum Specified Compressive Strength ( $f'_c$ )  
Table R301.2(6) – Requirements for Concrete Exposed to Deicing Chemicals

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Table R301.2(7) – Total Air Content for Frost Resistant Concrete

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Figure R301.2(3) Weathering Probability Map for Concrete

### Chapter 4 FOUNDATIONS

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Section R402.2 Concrete