PITTSBURGH AREA CHAPTER

December 2011

Chapter News

Focus On F-Numbers

What are F-numbers? How does the industry define floor flatness? Can concrete finishers influence floor levelness? If your work already focuses on concrete flooring, then you may know that there is often confusion on the subject. Let's focus on the facts while answering these questions.

What are F-numbers?

F-numbers are a means to define the surface profile of a floor. They were created about twenty five years ago due to a need in the flooring industry to accurately quantify surface tolerances[1]. Narrow aisle warehouses were a growing market that required quantitative measurements of floor flatness, and so F-numbers became critical to the industry.

F-numbers are easy to understand, but it helps to recognize that there are two completely different F-number systems. Floors can have "defined-traffic" or "random-traffic." The narrow aisle warehouses mentioned above have forklifts that travel along the exact same path, making them defined-traffic floors. The flatness and levelness of defined-traffic floors is measured using a single number called **F-min**. Since these types of floors only represent about 1% of the flooring in the United States[2], our focus is on the other F-number system: **F_F and F_L**. **F_F** represents **floor flatness**, its curvature, up or down, over a 2-foot interval. **F_L** represents the floor levelness, the slope over a 10-foot interval. These F-numbers are specified for random-traffic floors. To make matters easier, ASTM E1155 clearly defines how to determine these values[3].

River City Casino - *photo courtesy of SYNTHEON Inc.*

How does the industry define floor flatness?

Just to keep you on your toes, different tolerances for floor flatness exist in industry. Concrete contractors (Division 3) and flooring contractors (Division 9) actually measure floor flatness differently. Division 3 specifications require measurements to be taken in accordance with ASTM E1155-96 (**F_F and F_L**) while Division 9 specifications typically require measurements of allowable gaps beneath a straightedge. In addition, floor flatness changes over time due to curling. You can imagine how these factors can be a source of confusion and debate when it comes to floor tolerances. To help bridge the gaps, The American Society of Concrete Contractors (ASCC) issued a position statement on floor flatness tolerances (Position Statement #6)[4] and two national flooring associations have endorsed that statement: National Wood Flooring Association and the Flooring Contractors Association. Remember that concrete contractors are responsible for meeting the requirements of Division 3 specifications which typically includes F_F requirements. ASCC has additional guidance in its position statement if you need further clarification.

Can concrete finishers influence floor levelness?

The answer to this question is "NO." According to Mike Moore[5], "floor levelness is determined by the contractor's ability to set and strike off forms while floor flatness is determined by the concrete finisher." So if a floor is not level, the concrete finisher has limited ability to change that dimension. All he can control is the flatness. As a concrete finisher, it is in your best interest to understand the difference between floor flatness and levelness and the factors that control the two. It is a sobering fact that removing and replacing a concrete slab generally costs two and a half to three times the original cost[6], which is good motivation for understanding job specifications and floor tolerances before offering a bid or agreeing to specifications.

If you need to expand your knowledge of concrete flatwork or certify your skills, please consider attending an ACI certification program. ACI National

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Proctor Help for Grade 1 Certification Classes:

Our Chapter holds six to seven Concrete Field Testing Technician Grade I classes a year and the certification committee knows the work involved in preparing and conducting each of these schools. In September 2008 the Board of Directors implemented a credit system for hosting and/or proctoring at the Grade I Certification classes. The guidelines are as follows:

- The host of a Grade I class will receive one free registration per school hosted.
- Companies who send proctors to help will receive 1 credit per person per school. Accumulation of 10 credits will equal a free re-certification (no review class or workbook) and 15 credits will equal free certification (full course and workbook).

In addition to the above points system, the Chapter Board of Directors has recently added another incentive effective November 2011. As a token of our appreciation to those members who volunteer their time to help conduct these classes, the Chapter will present a Visa card in the amount of $50 to all who help proctor.

These classes are essential in helping to educate the technicians needed to continue making quality concrete and without your volunteer help this would never happen.

If you have any questions, please feel free to **contact Andy Lawrence** at **andy.r.lawrence@gmail.com** or **724.992.2620**.

Chapter News is published by the American Concrete Institute, Pittsburgh Area Chapter for the purpose of informing members and others about issues of concern to the concrete industry. If you have information to include in this publication or any comments, contact ACI Pittsburgh Chapter at 724-452-1468

TINK BRYAN AWARD – TRIBUTE TO: THOMAS "TINK" BRYAN

The Tink Bryan Award was created in honor of an outstanding individual who dedicated himself to his family, business and the concrete industry. For several years now, the Chapter has honored one individual each year with this award.

The Pittsburgh Chapter Board of Directors is requesting nominations for the 2012 recipient to be announced at the Awards Banquet in April. The candidate should demonstrate an exceptional commitment and achievement of service to the concrete industry. Please forward a letter with your candidate(s) name and reasons for nomination to:

Beth Rader - **bethaci@verizon.net**

or mail to:
ACI, Pittsburgh Area Chapter | PO Box 86 | Zelienople, PA 16063

Please be reminded to submit your nomination by March 1, 2012 for board review.

ACI Flatwork Finisher/Technician Certification Program

ACI Pittsburgh Chapter is tentatively scheduling an ACI Flatwork Finisher and Technician program for February 2012. In the past, our Chapter has offered the ACI Flatwork Technician program which consisted of a one day review and subsequent written exam.

In February 2012 our Chapter is planning on expanding the program to include the ACI Flatwork performance evaluation for those individuals who would like to be recognized as an ACI Flatwork Finisher and have between 1500 and 4500 hours of documented experience.

For more information please visit:
http://www.concrete.org/certification/cert_prog.asp

Requests for Durability Study Information

We would like to thank Wayne Miller and all those who attended the November dinner meeting. As mentioned, if you are interested in reviewing data from the "Surface Durability Study - 1981," please notify Beth Rader of your request (***bethaci@verizon.net***). A hard copy of the data will be sent to you due to the size of the electronic file.

Interview with former Thomas "Tink" Bryan Awardee

The Tink Bryan Award was created in honor of an outstanding individual who dedicated himself to his family, business and the concrete industry. George Wargo was the recipient of this award in 2000. When asked about his experience, George said that "it was a surprise to receive the award." He had the privilege of knowing Tink and Wayne Miller (1999 awardee) and was humbled by such regard. George said that "Tink was someone who was enjoyed immensely by all who knew him."

Today the award is proudly displayed in George's home. The photo with his family on the day he received the award is in his office. He feels just as honored today, perhaps even more, than on the day he won such merit. He is happily contributing to the concrete industry every day.

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offers five programs associated with concrete flatwork. Our Pittsburgh Chapter is offering **Concrete Flatwork Finisher and Technician** certification in February 2012. In addition, Mike Moore will be speaking about floor flatness and levelness at our February dinner meeting.

Sources

[1] *Concrete Construction*, October 2011, "Flatness and Levelness + Durability = Longevity" by Terry Fricks.
[2] *Concrete Construction*, February 2007, "F is for Flatness (or Face)" by William Palmer Jr.
[3] ASTM E1155-96 "Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers"
[4] ASCC Position Statement #6, www.ascconline.org, Technical Hotline (800) 331-0668
[5] Michael P. Moore is a Construction Services Coordinator with Civil & Environmental Consultants, Inc. located in Pittsburgh, PA.
[6] *Concrete Construction*, January 2011, "Evaluating Flatness and Levelness when Polishing Concrete" by Peter Wagner.

2012 Pittsburgh Area Chapter Upcoming Events

Member Dinner Meetings

January 11, 2012
February 8, 2012
March 14, 2012

Awards Banquet

April 6th, 2012

Social Night

May 19th, 2012

Concrete Flatwork Finisher/Technician Certification Class

Tentatively in February, 2012

Art Livingood Award Announcement

The ACI Pittsburgh Area Chapter established the Art Livingood Award in 1988 for undergraduate students, including seniors, who have an interest in the areas of cement technology, or concrete technology, design or construction. The student should be studying Civil or Materials Engineering/Technology, or Architecture/Architectural Engineering. The awards are offered in the amount of $2,500, $1,500 and $1,500.

At this time, we are accepting applications for the 2011/2012 academic year. The student is required to submit: an ACI application, a letter of transmittal, an official copy of their transcript of grades; and two letters of recommendation. **Applications must be received by January 31, 2012.**

*If you would like to obtain an application form or have any questions, log onto **www.acipgh.com**, then click on 'Scholarships and Awards.'*

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