Above Ground Concrete Walls Enjoy Increasing Awareness

It has been many years since the above ground concrete/ICF concept was first introduced and, to borrow a phrase, they’ve come a long way. ICF form manufacturers have responded to the needs and suggestions of distributors and installers, and more distributors are stocking forms so that customers can be satisfied rapidly instead of forced to wait for factory orders. Distributors are educating greater numbers of installers to supply the growing market demand. ICF installers today can be a concrete crew, the homebuilder, carpenters, block/masonry people, or just about anyone who has the need and desire to learn. Residential concrete form contractors are also showing increased interest in the possibilities afforded by above ground forms. The result of progress in this relatively new market is a visible increase in the number of concrete homes and commercial buildings being built all across the country. And in Illinois!

After many months of careful research and deliberation, the Davis family started construction on their ICF home in Huntley, Illinois.

Pekin UTW Project a First For Peoria Area
By Dick Plimpton, P.E.
Director of Marketing & Promotion

In early July, a casual conversation after church between restaurant owner Al Phipps and Randy Swenson of C&G Concrete Construction Co., Inc. has led to the first UTW of a commercial parking lot in the Peoria area.

Phipps was in the process of remodeling his Long John Silver restaurant in Pekin to include an A & W Root Beer franchise, and the increase in dining room size had caused a potential drainage problem. He was also tired of the ‘five-year quick fix’ program for his asphalt parking lot. So, Curt Slusher, also of C&G Concrete, explained that, in this case, a thin concrete overlay would provide a solution to the drainage problem, a longer pavement.

Flowable fill is used to fill voids in the current pavement of the Long John Silver parking lot in Pekin, IL.

One Illinois ICF project that caught IRMCA interest is a new home being built in the Huntley area. Homeowner Jennifer Davis spent many months prior to breaking ground learning about concrete home construction—concentrating both on the advantages of concrete...
Member Input Needed

“5 Requirements of Residential Driveaway Construction” and “Do’s & DON’ts of Concrete Care” Will Soon Be Available

IRMCA has recently revised and revamped the popular “5 Requirements of Residential Driveway Construction.” The format remains the same in that it specifies the proper steps for exterior concrete placement, finishing, and curing and it retains the perforated tear-off reminder to leave with the homeowner.

We have also developed a “Do’s & DON’ts” sticker that a contractor can inconspicuously post near a new driveway to remind the homeowner how to care for his/her new concrete.

HELP! These items are somewhat costly to produce and before we commit to all of our current contractor members as well as our home owner members, we need feedback from our producer and producer members to see if these items are of interest to you.

We feel these two items can be valuable to producers, concrete contractors, homeowners - everyone! However, it’s more important to know how you feel.

As of August 10, 2003, six ready-mix producers have designated a concrete contractor they wish to work with on the promotion of UTW for commercial parking lots. This has resulted in identifying six projects that have strong potential. If the promotion effort is successful, the potential cubic yardage will vary from 200 to 1000.

If you think this has to be a long process, consider the Long John Silver project in Pekin, Illinois. Initial conversation between Curt Shuler of C & G Concrete Construction and the restaurant owner began in early July and construction of the concrete repair began August 11. The contractor emphasized that relatively little effort resulted in 22,000 square feet of concrete paving, which represented 200+ cubic yards of concrete for producer member United Ready Mix, Inc.

How are your activities progressing?

A Great Opportunity for Producers

IRMCA just received permission to reproduce 100 sets of the Susan Harwood Safety Training materials and distribute them to 100 contractors in Illinois. We will be sending a complete set, along with instructions on how to best use them, to all of our current contractor members as soon as we have them available. In addition, we are inviting our producer members to send us the names and mailing addresses of two or three contractors that the producer feels would use these materials in their safety training. This is an important, industry-relevant, OSHA-approved training program which would be gratefully received by any contractor. We have a limited quantity and will honor requests on a first come, first serve basis.
Eagle Ridge Resort in Galena, Illinois, once again hosted the Illinois Ready Mixed Concrete Association Summer Meeting, held this year on June 13th & 14th. The weather was perfect, the fellowship delightful, and the golf, well...interesting. Members and their families and guests gathered on the outdoor tented patio that overlooks breathtaking "Territory" scenery for a Friday night reception that preceded dinner at various Galena area restaurants.

The Saturday morning business session was both well attended and well received. Speakers included Roger Marquardt of ACPA, who gave an insightful, if not scary talk about the "Springfield Situation"; Randy Riley of ACPA/IRMCA, who reviewed his efforts with IDOT and its mechanistic design; Jim Amundsen of W. R. Grace, who reviewed specification concerns and predictions; and Paul Flynn of the Flynn Group and Jimie Wheeler of ACPA who reviewed progress in downtown Galena. Dick Plimpton and Bruce Grohne talked very

Why talk about cold weather when many of you are still enjoying good concrete weather? Like it or not, cold weather is approaching and now is the time to prepare.

Is your hot water system ready for operation? Or, do you need to get the boiler inspected? What about chemicals for boiler water treatment? Is your supply adequate to start cold weather operations? What is the condition of the chemicals? If you heat your aggregates, is that system ready for operation?

Having been a ready-mix producer, I can strongly suggest that before you answer the above questions, you make a physical inspection to determine if you are ready or if you need to schedule inspections and/or order materials. It is much easier to schedule early than to panic later this fall.

- Slow strength gain-concrete

Cool weather is defined as day to day temperatures that are up and down but not down far enough to start heating water or aggregates.

A cold snap is a sudden drop in temperature when no one is prepared. Cold weather, as defined by ACI 306, is a period when the average daily temperature falls below 40°F for more than three successive days, the average daily air temperature is less than 40°F, and the air temperature is not greater than 30°F for more than one-half day of any 24-hours.

Whatever the temperature, each situation affects concrete cylinders cured at 40°F will have about 20% less strength than concrete maintained at 73°F. • Concrete should gain 300 psi of compressive strength before being subjected to its first freeze thaw cycle, i.e. the first night.

- One day of low temperature curing can lower cylinder strengths enough to cause a dispute.
- Increased time of set of thumb, a 10°F drop in concrete temperature will increase set time about a third. A 20°F drop will approximately double the setting time.
- Variable slump/air contents-Now is a good time to be checking air contents a little more often. As the concrete temperature drops your air content will change even at the same rate of addition. It will help to know where you are now so adjustments can be made in the future. Normally, you will need less air entrainment in cooler weather to maintain constant air content.
- Delayed finishing time & increased bleeding: retarded set times will prolong the duration of bleeding. Initiating finishing operations with free water on the surface will lead to a weak surface, and potential dusting, blisters and surface delaminations.
- Excessive or premature finishing may contribute to bleeding, reduces the air content at the surface and reduces the surface durability.
- It is not too early to do some planning and checking of your plant operation. As you make calls on your customers, discuss the upcoming weather. This may be a good
Eliminating “Expansion” Joints
Joints in Concrete Pavements: Part II of III
By Randell C. Riley, P.E.

Back in the June 2003 issue of IRMCA News I went into considerable grueling detail explaining the phenomenon of pavement expansion. To paraphrase, I told you, “Assuming durable materials are used, a concrete pavement is never any longer than the day it is built.” Now, let’s talk about the proper use of “expansion” joints and why you should avoid them whenever possible.

In 1940, the U.S. Bureau of Public Roads, (predecessor to Federal Highway Administration) conducted extensive tests of “expansion” joints. These tests found that “expansion” joints progressively close over the years causing greater opening at panels with adjacent contraction joints. This leads to spalling, loss of aggregate interlock and sealant failure. The conclusion of that study was that expansion joints are only needed when:

1. the pavement is divided into long panels (60-feet or more) without contraction joints in between.
2. the pavement is constructed while ambient conditions are below 40 degrees F.
3. the contraction joints are allowed to be infiltrated by large incompressible materials.
4. the pavement is constructed of materials that in the past have shown high expansion characteristics. (Ref: Proper Use of Isolation and Expansion Joints in Concrete Pavements, American Concrete Pavement Association, Skokie, Illinois, 1992, IS 400.01P)

In parking lots and city streets in particular, our goal is to use aggregate interlock as much as possible, thereby eliminating the use and associated expense of dowels and other embedded steel. To do so, we clearly do not want to include expansion joints.

But there are places in concrete pavement where a joint should be constructed that resembles the classic expansion joint, i.e., it utilizes an expansion material and may or may not include dowels. Those locations are where it is necessary to isolate the pavement from fixed structures, light standards, manholes and other items which stick up through the pavement. In this case, the keyword is “isolate.” (hence they are referred to by pavement engineers as “isolation joints.”)

Isolating the pavement from these structures is necessary due to the fact that the structures usually penetrate below the frost line. The pavement is built above the frost line, and as the ground freezes in our sometimes bitter Illinois’ winter the pavement is raised from the expansion of frozen ground. The fixed structures, with foundations below the frost line, do not move.

For those of you with concrete driveways (you all have them don’t you?) you can see this phenomenon every winter as your driveway slab moves up and down relative to your garage entrance, particularly if you don’t have a granular layer under the concrete. Were the slabs not isolated from the fixed structures, cracking and possible failure of the pavement slab would occur.

More information on joints and jointing can be found in the publication shown above from American Concrete Pavement Association.

About Randell C. Riley, P.E.
Randell Riley is an Engineering Consultant for the Illinois Chapter – ACPA, Illinois Ready Mixed Concrete Association and the Great Lakes Cement Promotion Association. He is actively involved in the day to day promotion of long-life quality concrete pavements. He can be reached at 217-793-4933 or on the internet at pccman@InsightBB.com.

Start - stop - squish. Start - stop - squish. The constant pounding of a couple of hundred buses a day combined with the hot Illinois’ summers can take its toll on asphalt bus stops, and nowhere is the traffic any worse than Western Avenue in the City of Chicago! Rutting, shoving and pushing of the existing asphalt caused by the buses was a significant problem to the Cook County Highway Department, responsible for the design of repairs along this busy roadway section.

Though the Department’s current practice is to replace the sections full-depth with concrete, the cost of replacement was becoming disproportionate to the surface area affected by the repair. To overcome the problem the Department asked the industry to propose some new solutions. The solution proposed was “Ultra-Thin Whitetopping,” but with a twist.

The [Cook county Highway Department] asked the industry to propose some new solutions. The solution proposed was Ultra-Thin Whitetopping, but with a twist.

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The repairs along Western Avenue create some unusual demands compared to normal UTW projects. You see, not everything below the existing surface is asphalt. Substantial sections of the roadway consist of asphalt over the top of thick interlocked granite pavers. In addition, concrete patches are scattered...
The Legislative Report

Commercial Distribution Fee & Rolling Stock Exemption

One of the problems the new budget has created for the Secretary of State’s Office (SOS), is “How are we going to collect all these new fees?” I was told at the meeting of the ‘Truckers Advisory Board to the Secretary of State on August 7th, that we would be receiving a “Back Billing” for the new “Commercial Distribution Fee” (CDF) in the next 30 to 60 days. May I remind you that the funds from this 36% increase to our license fees will not go to the depleted road fund, but to the depleted General Fund? I questioned if this fee could possibly be paid in installments either bi-annually or quarterly. That request did not get a favorable response, but I hope will get consideration.

Some of us are impacted directly and some indirectly by the new Rolling Stock Exemption Ruling, or at least our transporters are. I have heard of freight increases of up to 3%-5% are to be expected from those who have had Rolling Stock Exemption. I have been receiving a lot of feedback from our members from the IRMCA office and in some cases Endloaders. The same is true for Ready mix plants and components in and in some cases Endloaders. The criteria for these exemptions are under the Illinois Administrative Code, Section 130,330. Form ST-387 IDOR Equipment Exemption Certificate, is what you can provide to your vendors to receive this exemption. This form can be found on the IDOR Web site or the IRMCA office can send you copies.

Packets of Forms & Rules

A packet of forms, rules, and information was mailed to each of our members from the IRMCA office on July 26th. If you did not receive this packet, or have questions about its content please contact the IRMCA office. Please note the new “Hours of Service Rules for Ready Mixed Concrete Drivers” insert included with this newsletter.

Sales Tax Exemption on Ready Mix Concrete Trucks Revisited

The best news is that we did not lose the Sales Tax Exemption on the purchase of Ready Mix Trucks or the components or replacement parts purchased for them. The same is true for Ready mix plants and components in and in some cases Endloaders. The criteria for these exemptions are under the Illinois Administrative Code, Section 130,330. Form ST-387 IDOR Equipment Exemption Certificate, is what you can provide to your vendors to receive this exemption. This form can be found on the IDOR Web site or the IRMCA office can send you copies.

Quality Concrete, OSHA

This manual deals with Customer Relations, Quality Concrete, OSHA concerns and many other common sense topics such as Cement Burns, Slips and Falls and Mixer Rollovers. It takes the drivers from the Start of the Day, through the Loading and Unloading process, to the End of the Day. It spends time on Truck Mixer Clipping and Concrete Testing and it gives you a solid Disciplinary Program with the ability to revise it and make it your own. All in all, this material is an eye opener for the people being introduced to the ready mix industry and a constant reminder to the veteran driver. It identifies responsibilities and asks for accountability. In many instances, producers may find very little “new” information, but it may offer documentation for the training that you have done and the information you have shared with your people, that you have not previously had.

Think about using this manual with your employees and understand that the material was developed as a “rough draft” for your business. The CD that the program comes to you on allows revisions that is limited only by your imagination. When you review the material, note its segmented format, I suggest that you consider delivering it to your people in small doses over a period of time. This may tend to allow them better understanding of the material as it comes to them and will keep good information in front of them on a regular basis over a longer period of time. This may bring increased comprehension, a better willingness to accept and use the material, and it will be a constant reminder of your company’s commitment to a safe work place.

As Rita Mosley would say, “Have plans for tomorrow? Work safely today!” Whether your company’s experiences with this material are positive or negative, please communicate those experiences to the IRMCA Office or a member of the IRMCA Safety Committee. “Your” direction allows or a member of the IRMCA Safety Committee. “Your” direction allows
Welcome to September from your IRMCA Environmental Committee! Allow us to update you on several active topics.

**NPDES Storm Water Permits**

The Illinois EPA’s “General NPDES Permit for Storm Water Discharges from Industrial Activities” has been renewed effective June 1, 2003, according to the IEPA. If you were covered by the previous permit, you are automatically covered by the renewed permit. However, unlike previous versions of this permit, you will not receive written confirmation from IEPA that you are covered by the renewal. Therefore, if you would like a copy of the new permit you may download it from IEPA’s Web site:

http://www.epa.state.il.us/water/permits/storm-water/general-permits.html

These permits are effective June 1, 2003, and will expire May 31, 2008. Significant changes were made as a result of comments received during the public notice period. The changes, summarized below, will be addressed in detail in the next newsletter:

- **Section B.8. was added,** which prohibits coverage of industrial activities to biologically significant waters pursuant to 35 Ill. Adm. Code 829.105 (b)(6).
- **Individual permits must cover these activities,**
  - Section C.4. was added to explicitly prohibit violations of applicable water quality standards.
  - Section D.9. was added to require submission of a Notice of Intent to continue coverage after expiration of this permit.
  - Section E.1. was modified to include a design storm event to be incorporated in the Storm Water Pollution Prevention Plan (SWPPP).
- **Section E.10. was modified to clarify that SWPPPs are to be available to the public at any reasonable time upon request.
  - Section H.1. was modified to clarify what conditions may be considered when determining if an individual permit is required.
  - Section I.3. was added to advise permittees that this permit may be reopened due to various circumstances.

Permit fees of $500 have been increased for this permit. You may find additional information on permit fees at the IEPA Web site:

http://www.epa.state.il.us/fees/

**Tech Notes**

A Specifications Committee Update

By Terry Murphy

Specifications Committee Chair

1. There is a new spec for IDOT handicapped ramps & sidewalks.

2. There is a new gradation spec for bridge deck pumping with min 45% passing 1/2. (This one may require two sizes of aggregate to comply, but should aid in pumping, especially with limestone mixes where the AGCS system has allowed the producers to scalp out the -1/2” material for chips.

3. This fall in District One, there is still talk of PCC Level III Classes to do our own Mix designs for IDOT (more when I hear).

4. In a meeting with IAAP’s (Illinois Association of Aggregate Producers) Tech Committee, the subject of gradation disputes between R/M, Hot Mix Producers and IDOT has been brought up. It appears some Hot Mix producers are using nonstandard stockpiling and sampling procedures and getting failing gradations at the plants. This causes disputes, and IDOT sometimes gets in the middle and rejects stockpiles. This is not supposed to happen. If there is a dispute, it is in our best interest to settle it with our supplier and keep IDOT out of the picture. We need to review our sampling and stockpiling procedures to avoid problems. A little attention here could save a lot of problems.

5. If you have anything you would like the specifications group to address, please let me know.
ICF concepts and contractors. They are Bill Marcordes (CEMEX), Ed McLean (SI Concrete Systems), Paul Rider (Lone Star Industries), and Allen Anderson (Lone Star Industries). If you need contact information for these members, just check your IRMCA directory or get in touch with the Association office.

The primary goal of the Illinois Ready Mixed Concrete Association is promoting the increased use of quality ready mixed concrete in Illinois. We encourage you to be aware of the possibilities of above ground concrete walls, both residential and commercial, and to consider this growing market as part of your promotion plan. We are also interested in hearing from you about success stories and/or marketing possibilities; let us know - we're here to help.

To deal with this unusual set of circumstances, unique new fiber-reinforcement technologies have been employed along with a "belts and suspenders" design approach. First, analysis of the likely stresses to be induced by bus and truck traffic was accomplished using the program ISLAB 2000 with the assistance of the engineers of ERES Division of Applied Research Associates, Champaign, Illinois. Materials parameters were based on rough estimates of the materials properties provided by Illinois Chapter, Inc. - American Concrete Pavement Association.

The ISLAB 2000 program is a "finite-element" analysis program geared specifically to concrete pavement. It allows the engineer to estimate stresses under unusual loading conditions.

Joint spacing, axle configuration and load, thickness of the pavement and bond or lack thereof to the underlying layer can all be considered in the analysis.

Based on the stress analysis the Illinois Ready Mixed Concrete Association recommendation to Cook County Highway Department was for a four-inch concrete pavement section built with a four-foot transverse by 40-inch longitudinal joint spacing. The unusual 40-inch longitudinal joint spacing was chosen to control slab size while fitting within an unusual 10-foot lane width. The dimensions of the bus pads are 10 feet wide by 100 feet long.

Though the slabs have been sized to control stresses, Cook County wanted added assurance that the solution would have a long life and be unlikely to exhibit problems. To achieve this objective while dealing with the uncertainty of the supporting platform, the decision was made to incorporate a new generation of synthetic structural fibers into the concrete mixture. These fibers, manufactured and marketed by W.R. Grace as Strux 90/40, are specifically designed to replace mesh reinforcement. They have yielded impressive results in testing performed under the direction of Jeff Rooser, Ph.D., P.E., Department of Civil Engineering, University of Illinois at Urbana.

The fibers were added at the addition rate of 7.5 lbs. of fibers per cubic yard, a quantity significantly above that of conventional practice in the use of fibers in UTW of 3 lbs. per cubic yard. To both the contractor, E. A. Cox, Chicago, and the producer, Aztec Material Service Corp., Chicago, the addition rate of the fibers raised unusual questions as to the ability to produce, place and finish the concrete. As it turns out, none of these items became a major issue. Part of the reason for this was the use of a new fiber-insertion system provided by W.R. Grace that ensures that the large quantity of fibers are well distributed within the concrete mixture.

The insertion system works by "refluffing" the prepackaged bagged product and blowing them into the ready-mix truck prior to charging of the drum. This ensures adequate distribution and minimizes the likelihood of "balling" of the fibers, a common problem when large quantities of fibers are used in a mixture.

Potentially this concept has widespread application throughout the paving market served by IRMCA's producer members and Illinois Chapter - ACPA's contractor members. Many city streets, county roads and parking lots have the potential to be resurfaced using these techniques and materials. In Cook County alone the potential is for 1,000 such bus pad replacements. And the square yard cost is just slightly above one-shard of that of the full-depth concrete replacement option!
January 2004 Illinois Concrete Conference Will Kickoff 100th Year of ACI

ACI-Illinois Chapter has developed an exciting 2004 Illinois Concrete Conference, set for January 22-23, which will be a great kick off to the 100-year anniversary of ACI.

The Westin Hotel River North in downtown Chicago (across from the House of Blues) will be the site of the conference, which will be held over a span of two days. Technical sessions will be offered in two concurrent tracks. The first track will be related to concrete materials & techniques and troubleshooting. The second track will be related to concrete repair. The topics will range from the basics up to more advanced subjects of interest. A schedule of this event will be available shortly.

Attendees will also be given the opportunity to meet with material suppliers, manufacturers, and other concrete-related companies exhibiting at the conference.

If you would be interested in attending or exhibiting at the conference, please contact Jim Clarke (jimclarke@ozinga.com or 708-479-3080) or Paul Gaudette (paulaudette@wje.com or 312-372-0553).

IRMCA Family News

Our condolences to the family and friends of Josephine Raspolich (mother of Ray and Joyce Raspolich, Raspolich Material) and Stan Metz (brother of Steve Metz, Acordia Insurance).

Raymond and Joyce Raspolich wish to thank their IRMCA friends for the kind thoughts.

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Submission deadline for next issue: November 7, 2003

life with lower maintenance costs, and, as an important added benefit, would provide a lighter, brighter pavement surface. Phipps remarked, “The concrete option was more expensive, but in my final analysis it was a better investment. Since we already had the lighting standards, the lighter, more reflective surface was especially attractive for us and our customers.”

But since remodeling of the facility was already underway, could a concrete overlay meet his opening date? Jon Vrabel, General Manager of United Ready Mix in Peoria, assured Phipps that a concrete mix could be designed to meet his time frame.

On August 11, construction started with excavation for added parking, removal of existing asphalt surface to correct the drainage problem, and filling remaining trenches with flowable fill. On August 12, forms were set, grades established, and pavement cleaned for the first placement. A week later, the fourth and final placement was made on the 22,000 sq. ft. project.

As Slusher stated, “This may be a small lot, but it is only the beginning in this new market. We plan to do many more. We had attended several UTW seminars, understood what was required, and so were ready when presented with an opportunity.”
briefly about IRMCA promotion plans and upcoming events.

Following the morning session, golfers headed for the South Course, sunbathers found lawn chairs, shoppers headed downtown, riders hit the horse trails, ballooners got high, and a certain executive director and a certain past IRMCA president... well, would you believe they worked? (Don’t.)

Saturday night, sunburned and happy IRMCA members and guests assembled in the Lodge for a reception and excellent buffet dinner. Golf prizes were awarded as were a few for non-golfers. The meeting officially adjourned following dinner and while some decided the night was still young, most seemed to think that a good night’s sleep was in order. A big thank you is due the committee who made this meeting a success and also to Eagle Ridge for their superior accommodations and arrangements. The Summer Meeting Committee and the Board of Directors will soon make decisions concerning arrangements for the 2004 gathering. If you want to have input, just contact the office.