Porous Asphalt Pavement
Recharge Beds Used for Storm Water Management

Also In This Issue:
- Congress Appropriates Full Transportation Funding for ’08
- Environmental Issues of Interest
- OTEC Presentations Showcase Asphalt Pavement Technology
- The Ten Commandments of Construction Law

2008 Annual Meeting & Equipment Exhibition
SET FOR MARCH
Tight Spaces...
NO PROBLEM!

USING A SMALL MACHINE DOESN’T HAVE TO COMPROMISE PRODUCTIVITY OR PERFORMANCE.
The new W 120 F cold mill from Wirtgen, the Super 700 asphalt paver from Vögele America, and the HD 12 roller from Hamm Compaction Division are proving that small machines can provide big performance, convenience and profitability in tight spaces and on tight schedules.

Don’t let the compact size fool you; these small machines get BIG results.
An answer to the high-cost of detention basins is the use of porous asphalt pavement, which is constructed over a stone-filled reservoir to collect and store storm water before allowing it to percolate into the soil. See Page 14 to learn more about this technology.
New Year Resolutions

It may seem strange to speak of New Year resolutions this far into 2008, but not so for those of us involved in building and maintaining roads. Just around the corner is a new season of asphalt paving. The last of the snow has passed (we hope), training classes are over, and asphalt crews are busy preparing plants and pavers for a season of quality asphalt paving. What a great time for setting some New Asphalt Paving Year resolutions!

The “experts” tell us that part of goal setting is taking stock in your past performance to evaluate successes and how to continue that progress. Let’s consider that advice. In what have we done well, and how can we do even better? Topping my list are efficiency and innovation. In a year full of challenges — brought on by high energy prices, a shrinking housing market and construction materials inflation — efficiency and innovation were spurred. Contractors and agencies alike have looked to be more efficient and innovative.

Being productive without waste; that’s what efficiency means. That definition perfectly fits the asphalt paving industry and is one of the main reasons asphalt pavements have been so successful. What could be more efficient than a product that can in its entirety be reincorporated into new material? That means zero waste; 100 percent efficiency!

The recycling technology that has evolved is a direct result of the challenges imposed on the asphalt paving industry to be more efficient — and the asphalt industry has met that challenge. Not long ago a ripper was used to remove pavement and the material was placed in landfills. Modern practices return “millings” to the asphalt manufacturing facility for further processing of this highly valued “black rock.” Reincorporating this material into new mix mitigates soaring construction inflation, maintains our customers’ buying power and continues them on their way to being successful with asphalt.

In this New Asphalt Paving Year, let’s resolve to push efficiency even further. As a contractor, evaluate what in your operation hinders you from maxing out your opportunity to use recycled asphalt — and then I encourage you to do something about it! Are you sufficiently process- the material? Are you instilling your customers’ confidence in Recycled Asphalt Pavement (RAP) by the manner in which it is handled, incorporated and performs in new asphalt? As an agency, figure out how you can capitalize on the savings opportunity recycled asphalt presents — and similarly, I encourage you to do something about it! Have you investigated lately the care in which recycled asphalt is given at your local asphalt facility? Are you aware of the significant changes that have occurred in asphalt plants; changes specifically designed for the successful incorporation and performance of recycled asphalt mix? Full utilization of recycled asphalt equates to full efficiency, and full efficiency equates to savings.

It is said that necessity is the mother of invention. How true it is, and recently a very innovative approach to asphalt mix manufacturing has come on the scene. 2008 will mark a great experiment in a new Warm Mix Asphalt (WMA) technology. That “new” technology relies on something commonplace among your cappuccino connoisseurs — foaming. Why use foaming in asphalt production? Foaming is another answer to the question of how to economically manufacture quality asphalt mix. What’s the theory? Succinctly, injecting a bit of water into a hot stream of asphalt binder creates an expansion of the binder (foaming). The foamed asphalt has a much larger volume and a much lower viscosity. This allows greater mixing ability and better coating. The reduction in viscosity makes possible a reduction in mixing temperature, thereby reducing the fuel demand to heat the mix — and the result is a cost savings.

There are also several side benefits to foamed asphalt (aka Expanded Asphalt Technology). One such benefit is that it facilitates incorporation of recycled asphalt by ensuring the virgin aggregate and recycled asphalt are thoroughly coated — which is an important thing in good-performing mixtures. Another benefit is environmental; besides the increased recycling opportunity that foaming presents, there are indications that reduced emissions may be attained.

Encouraged by the potential to stem rising asphalt paving costs, coupled with a strategic initiative to improve environmental stewardship, the Ohio Department of Transportation (ODOT) is investigating the use of WMA using foaming. For this purpose, ODOT has slated at least six demonstration projects to be let around the state. The projects will include conventional and foamed asphalt mixtures. Through this experiment, ODOT will better ascertain how foamed asphalt can be part of a strategy to deliver a world-class highway system to Ohio’s motoring public — and do so economically.

There hangs on my wall a picture left by my predecessor Fred Frecker. It’s a picture of a fully outfitted, embattled football player who has been through a gridiron war. The inscription on that picture reads, “You’re either part of the steamroller or part of the pavement.” That pretty well describes the determination that is needed through challenging times such as these. Embracing efficiency and innovation are part of meeting those challenges. It sounds like a good thing to embrace, as we set our New Asphalt Paving Year resolutions.
The good news is that in December 2007, Congress enacted and the President signed an omnibus appropriations act (Consolidated Appropriations Act, HR 2764) that included federal highway funding for federal fiscal year (FFY) 2008 (October 2007 through September 2008 — better late than never).

The bill provides $40.2 billion in highway funding, which is $1.1 billion above the 2007 funding level and $631 million above the Administration’s original request. The funding level provided in the bill is the amount guaranteed by SAFETEA-LU. (Note: Federal-Aid Highway Funding provides approximately 44 percent of the nation’s highway construction funding.) As was expected, as a result of the Minnesota I-35W bridge collapse, an extra $1 billion is provided above the $40.2 billion guaranteed amount, to address deteriorated bridges throughout the nation.

$3.5 billion was provided for airfield pavement and airport construction, the same funding level provided in 2007. The Administration originally proposed a $765 million cut in this area.

The transportation section of the bill includes more than 2,000 earmarks (aka pork barrel projects) valued at $1.6 billion. Highway earmarks ranged from $250,000 to $3 million and included many interchange projects as well as a few streetscapes, biking trails and welcome centers.

The bad news is this legislation does not address the shortfall in revenues anticipated in the Highway Trust Fund for 2009. The Administration has projected a $5-billion shortfall in revenues as compared to highway funding guaranteed by SAFETEA-LU for 2009.

Congress must deal with this issue in 2008, or the highway program will face a substantial reduction in 2009. To offset the cash shortfall in the Highway Trust Fund, the highway program would have to be reduced from $43 billion to $26 billion in FY 2009, which begins in October of this year.

The congressionally appointed National Surface Transportation Policy and Revenue Study Commission issued its final report Jan. 15, 2008. The immediate word out of Washington, D.C., was that nine of the 12 commissioners advocated a sizeable federal gas tax increase of up to 40-cents/gallon over five years to fund transportation, indexed to inflation in construction costs, as well as other innovative funding sources. Chairperson and Department of Transportation Secretary Mary Peters, and two other commissioners are reported to oppose any tax increase. One of her objections to a tax increase was reported to be that any additional money sent to the federal government will be “squandered on earmarks and special-interest projects.” You can view the complete final report at http://www.transportationfortomorrow.org/final_report/.

The recent action, and signing of the appropriations act, means that attendance at the Transportation Construction Coalition (TCC) Legislative Fly-in, and advocacy work, is critical in garnering support to increase federal transportation funding. The fly-in is scheduled to be held May 20-21, 2008, in Washington, D.C. The TCC is a group of 27 national associations and labor unions with a direct interest in the federal transportation programs. For additional information, go to the TCC Web site at http://artba.org/government/tcc/tcc.htm and plan now to attend. Your business and your job may depend on it.
ODOT has completed its revision of the Construction and Materials Specifications (CMS) for 2008. The final version, dated Jan. 1, 2008, is available on the ODOT Web site at:

A version with the changes and edits highlighted can be found at:
http://www.dot.state.oh.us/construction/OCA/Specs/Rewrite2008/Specdistribution.htm

The printed version of the 920-page CMS should be available in mid-to-late February, and will be available for purchase through the office of Contracts. Unfortunately, we understand that the cover colors of the new book will be maize and blue.

The 2008 CMS has many changes in the 100 Section that governs contract administration, including incorporation of the new change-order procedures. Supplemental Specs (SS), Proposal notes and Supplements are also undergoing revisions and are due to be complete by April 18, 2008. Once these are finalized, the new specs will be available for use on contracts. Thus, the first projects to be let under the 2008 specs will appear about June, and by September all projects should be let under the 2008 CMS.

The 2008 specs also incorporate many changes to the hot mix asphalt specifications. All sections have at least minor revisions and some major changes are included for the first time. The 2008 CMS will include all of the spec changes approved through early 2007, and will incorporate many of the supplemental specs under which we have been working on since the 2005 CMS was published. Some un-used or seldom-used specs have been removed and some were made Supplemental Specifications.

Here is a look at a few of the revisions that can be found in the 2008 CMS:

- Items 306, 307 and 308 (free draining bases) have been deleted, while Item 306 becomes SS 850 and Item 308 (asphalt treated free draining base) becomes SS 851.
- Item 401 and 441 have been revised to incorporate language to require uniformity of placed mix, provisions for processing recycled asphalt pavement (RAP), allowing a greater percentage of RAP in intermediate courses, sampling requirements for binder, special illumination requirements for night work, sealing of cold joints and numerous editorial changes.
- Item 403 has the moving accumulative range (MAR) requirements added.
- Item 448 has been revised to incorporate the density quality control requirements previously found in SS 800. The current (2005 specs) version of SS 800 will be superseded with SS 800-2008 in April when the Supplemental updates are issued.
ACPA’s Marketing Claim of
“Equivalent” Asphalt and Concrete
Design Sections Within Their
New Thickness Design Software
Program Is False. StreetPave
Inappropriately Reduces the
Single Subgrade Modulus
Value That Is Input by the
User Prior to Running
The Asphalt Design
Calculation.
No Similar Reduction Is
Performed with the
Concrete Design.

To Further Understand How
This Manipulation of the AI
Thickness Design Method
Within StreetPave Takes Place,
Go to www.asphaltinstitute.org
And Download a Comprehensive
Paper Titled “Debunking StreetPave.”
Why would you use a concrete thickness program to design an asphalt pavement?

The Asphalt Institute and many other well-established asphalt pavement industry associations have invested significant amounts of capital, time and effort in bringing the transportation industry credible, high value engineering tools, technology and information regarding asphalt pavement. Design professionals should use these sources exclusively for their asphalt pavement design needs.

Likewise, the concrete pavement industry promotes their product by developing tools for using concrete in pavement applications. One such tool, a thickness design program called StreetPave that is sold by the American Concrete Pavement Association (ACPA), goes beyond the scope of designing concrete pavement and attempts to replicate the Asphalt Institute's thickness design methods. A critical flaw in this replication of the Institute's method needs to be exposed.

The ACPA website describes StreetPave as follows:

"StreetPave is the latest in thickness design technology for streets and local road pavements. This software utilizes new engineering analyses to produce optimized concrete pavement thicknesses for city, municipal, county, and state roadways. It includes an asphalt cross-section design process (based on the Asphalt Institute method) to create an equivalent asphalt design for the load carrying capacity requirement. A "Life Cycle Cost Analysis" module allows you to perform a detailed cost/benefit analysis and make informed decisions on your pavement design project. With one pavement design tool, you can design equivalent concrete and asphalt sections and evaluate the best possible solution(s) for your pavement needs."

The problem with this description is that the claim of equivalent asphalt and concrete sections is false. StreetPave takes the single subgrade strength value input by the user (only one value is allowed) and inappropriately reduces it prior to running the asphalt thickness design calculation. No similar reduction is performed with the concrete design. Thus, the asphalt section is based on a subgrade strength that is significantly less than the user input value and is different from the subgrade strength used in the concrete design. The result is an asphalt section that is thicker than necessary, and more costly than the equivalent concrete section.

Resilient Modulus Input

The Asphalt Institute methods allow the pavement designer to use one of two practices to determine a single Design Subgrade Modulus (Mg) value that is used in conjunction with the thickness design curves. One practice evaluates a group of individual subgrade modulus tests, and based on the test method's variability and a desired level of reliability, determines an appropriate Design Subgrade Mg value. This procedure is based on normal statistical variation and is clearly described in our MS-1 manual, SW-1 software and Research Report 82-2. The second practice simply allows the pavement designer to assess all known subgrade condition information and then apply conservative engineering judgment to assign a single Design Subgrade Mg value to be used with the design curves.

ACPA's StreetPave, however, queries the user for a single Subgrade Mg value, presumed by the user to be the design value, and then in a "black box" manner further reduces it with a statistical calculation using default variability and reliability values. This forced reduction is unseen and does not occur as a separate, noticeable step, but only as a hidden part of calculating the asphalt pavement thickness. If the user does not access a secondary help screen, he will not be aware that the single Mg design value was reduced. StreetPave covertly applies an additional and inappropriate factor of safety unknown to the user, which results in excessive asphalt thickness.

SW-1 versus StreetPave Comparison

Perhaps the best way to illustrate the problem with StreetPave is to apply it to one of ACPA's own examples. In a recent ACPA marketing brochure, StreetPave is used to design equivalent concrete and asphalt pavement sections for a residential street. Figure 1 shows how the Institute's actual design procedure (using our SW-1 software) compares

User Beware

By Mark Buncher, PhD, PE; Mark Blow, PE; and Dwight Walker, PE
to StreetPave’s incorrect replication of the Institute’s method.

One can see the differences are not trivial, with 37 percent additional asphalt thickness. For readers interested in more detail, an in-depth paper concerning this subject has been posted on the Asphalt Institute’s website at www.asphaltinstitute.org.

**Life Cycle Cost Analysis Module**

StreetPave also has a life cycle cost analysis (LCCA) module that takes the so-called *equivalent* concrete and asphalt design sections and provides “a detailed cost/benefit analysis” on the two sections. The ACPA promotional literature provides a snapshot of the results for a lightly traveled residential street as shown in Figure 2 below.

<table>
<thead>
<tr>
<th>Input $M_J$</th>
<th>HMA Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al’s SW-1</td>
<td>3,000 psi</td>
</tr>
<tr>
<td>ACPA’s StreetPave</td>
<td>3000 psi reduced to 1,818.5 psi</td>
</tr>
<tr>
<td>% Difference</td>
<td>39</td>
</tr>
</tbody>
</table>

The LCCA chart infers that a 6.5 inch thick asphalt residential street will need major rehabilitation after 11 and again 9 years later. If the numbers shown in this LCCA chart are accurate, a 6.5 inch asphalt street constructed in 1985 should be nearly a foot thick by now. Common sense and experience with pavement performance for many similar lightly traveled residential streets makes such a thick pavement highly unlikely and over-designed.

To design an asphalt pavement, we strongly suggest you use one of the many well-respected and credible asphalt thickness design procedures that are available in our industry. We do not recommend using ACPA’s StreetPave for asphalt pavement design or LCCA. User beware!

_Buncher, Blow and Walker are engineers with the Asphalt Institute._

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**FIGURE 1**

**FIGURE 2: ACPA’S FALSE STREETPAVE LIFECYCLE COST ANALYSIS MODULE**

Residential (ADTT 3 trucks/day, 11,500 ESALs, 2-lane with curbs) initial costs

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Ohio HMA Producers Earn Commendations

The National Asphalt Pavement Association’s (NAPA’s) Diamond Achievement Commendation for Excellence in Hot Mix Asphalt (HMA) Plant/Site Operations is awarded to HMA facilities that exemplify the spirit of quality and excellence in all aspects of their operations. They strive to be integral, valuable and respected neighbors within their communities.

The process of earning the commendation is a self-assessment of six separate categories of plant/site operations: appearance, operations, environmental, safety, permitting and compliance, and community relations.

For 2007, 33 Ohio HMA production facilities – which is an increase from the 24 plants recognized in 2006 – earned the Diamond Commendation in recognition of their efforts to be good neighbors and good stewards of the environment.

**Barrett Paving Materials, Inc.**
Carthage Plant #1051, Cincinnati
Cleves Plant #1001
Fairfield Plant #1121
Mason Plant #1031
Middleton Asphalt Plant #1561
Moraine Plant #1541
Newtown Drum Plant #1011
Reading Plant #1111
River Road Plant #1571, Cincinnati
Sidney Plant #1511
Spring Valley Plant #1181

**Kokosing Materials, Inc.**
Fredericktown Plant
Mansfield Plant

**Shelly Company (An Oldcastle Materials Company)**
Belle Center Plant #80
Cleveland Downtown Plant #76 (Allied Corp.)
Columbus Plant #90
Columbus Plant #91
Kent Plant #75 (Twinsburg Div. Allied Corp.)
Newark Plant #63
Reynoldsburg Plant #94

**Valley Asphalt Corporation**
Newtown Plant #14
Cincinnati Plant #19
Cleves Plant #17
Dayton Plant #6
Morrow Plant #5
Sharonville Plant #9
Sharonville Plant #23
Troy Plant #25

**Mar-Zane, Inc. (A Subsidiary of Shelly & Sands, Inc.)**
Bethesda Plant #29
Byesville Plant #13
Mansfield Plant #21
Mantua Plant #2
Zanesville Plant #6

FPO congratulates the owners and operators of these facilities for their leadership in demonstrating the best management of their facilities.
Last fall I was pleased to join the Flexible Pavements of Ohio team to provide counseling on environmental issues of interest and concern to the organization. I hope to be proactive in my approach when dealing with environmental issues for Flexible Pavements and its member companies. By getting in front of issues, I will work with the companies to engage the Ohio Environmental Protection Agency (EPA) early in the regulatory process. By engaging in the process early, we will attempt to shape regulations which impact the asphalt industry in a manner which allows the industry to meet its obligations to its customers in a timely, efficient and environmentally compliant manner. As Ohio EPA and the U.S. EPA continue to impose more restrictive regulations on the asphalt industry, it will be critical to the industry to have a voice in the rulemaking process.

Recycled/Used Oil

Recently, Cliff Ursich and I met with Ohio EPA Director Chris Korleski to discuss the issue of recycled/used oil. As many of you know, Ohio EPA has begun taking enforcement actions against asphalt plants which could well have the impact of making it difficult, if not impossible, to use recycled/used oil to produce asphalt. We met with the director to express the industry’s concern that the standard for determining whether a “significant” concentration of hazardous substances was present in the fuel for purposes of determining whether the fuel overcame the presumption that it was hazardous. Both Ohio EPA and U.S. EPA have consistently stated previously that a concentration below 100 parts-per-million (ppm) was not a significant concentration of hazardous substances. In recent enforcement actions, Ohio EPA has moved from this bright line approach, making it very difficult for companies to know whether they meet the standard. In a positive move, Director Korleski expressed his continued support for the use of used oil as a fuel source for asphalt plants. However, he indicated that U.S. EPA and Ohio EPA were concerned that the suppliers were not providing enough documentation of the concentrations to satisfy the regulatory agencies. This may result in additional sampling and analysis, and record keeping requirements on the part of the asphalt industry. We will continue to work with the Ohio EPA to try to reach a solution that is workable for the industry and provides the documentation that the regulatory agencies need.

NOx RACT Rules

On Dec. 22, 2007, Ohio EPA finalized the nitrogen oxide (NOx) reasonably available control technique (RACT) rules applicable to “boilers, gas turbines or internal combustion engines.” The primary purpose of these rules is to meet the eight-hour ozone standard in Northeast Ohio. However, the rules have a statewide applicability. The rules apply to any “stationary source” in Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina, Portage and Summit counties with a potential to emit more than 100 tons per year of NOx, and any new or modified “stationary source” anywhere else in the state with the potential to emit more than 100 tons per year. Your facility is exempt from the regulations if its potential to emit is less than 25 tons per year; or it is operating under a valid permit which limits NOx emissions to less than 25 tons per year; or it is subject to Best Achievable Control Technology (BACT) or Lowest Achievable Emission Rate (LAER) standards. Plants subject to the new standards must certify compliance by April 20, 2008, unless you plan to complete RACT study.

Chris Jones is Senior Counsel in the Columbus office of Calfee Halter & Griswold LLP, counseling clients on environmental compliance issues, brownfield redevelopment and environmental enforcement matters. He provides clients with practical solutions to their environmental compliance problems. Chris served as director of the Ohio Environmental Protection Agency from January 1999 to January 2005, and prior to that was Chief of the Environmental Enforcement Section of the Ohio Attorney General’s Office.
Member Spotlight: 
Mohican Valley Equipment, Inc.

Mohican Valley Equipment, Inc. is a new and growing equipment dealer with offices, showroom and shops located in Jeromesville, Ohio. (Between Ashland and Wooster.) Mohican Valley Equipment is the full-service dealer for Terex/Cedarapids lines of asphalt pavers and roadmix equipment, Carlson Screeds and paving products, Calder Brothers Corporation, manufacturer of Mauldin paving products and its newest addition of PSI Products. Mohican Valley Equipment offers solutions and results in all aspects of asphalt paving, supported with a large inventory of parts and service experience.

Mohican Valley Equipment was founded in 2004 by Tom Butler and his partner, Bob Poynter. They both had worked in the equipment business for more than 25 years — Butler as a top service technician and Poynter as a plant and operations manager — before deciding to start their own business. They are joined in the business by key individuals: Kris Shank, with 15 years experience in parts, inventory, shipping and receiving; Judy Butler, who provides the accounting services; and two full-time service technicians with more than 40 years combined experience in construction.

The Mohican Valley Equipment staff emphasizes and knows the importance of maintenance. Their motto is “Good maintenance programs extend the life and return on asphalt Pavers/Equipment.” To this end, Mohican Valley Equipment’s primary focus is on asphalt equipment and improvements, and offering service, repair and maintenance on all types of equipment.

Visit the crew from Mohican Valley Equipment at their equipment display during the Flexible Pavements of Ohio’s Annual Meeting, March 18 and 19 at the Hilton Columbus Hotel at Easton.

For more information, contact Mohican Valley Equipment, Inc., at 2349 Twp. Rd. 257, Jeromesville, Ohio 44840, by phone at 419-368-7020 or 419-368-5313, by fax at 419-368-3937, or by e-mailing Tom Butler at tgb2005@earthlink.net or Bob Poynter at bpoynter@earthlink.net.
Porous Asphalt Pavement/Recharge Beds Used for Storm Water Management

In this demonstration of porous asphalt, a water tank is emptied to show how the pavement allows water to infiltrate rather than stand or run off the parking lot’s surface.

Porous asphalt pavement/recharge beds are being used to reduce or eliminate storm water runoff from parking lots and other facilities. A porous asphalt pavement is constructed over a stone-filled reservoir to collect and store storm water and to allow it to percolate into the soil between rainfalls. These designs can reduce pollution and replace expensive detention and treatment facilities.

Porous pavement systems are rapidly gaining favor with designers and regulators as an economical approach to storm water management for sustainable or low-impact development. As the National Pollutant Discharge Elimination System (NPDES) Phase II permit requirements have become more widely applicable, it has become necessary for developers to find more innovative means of compliance. Porous pavement systems are used as part of a strategy to obtain Leadership for Energy and Environmental Design (LEED®) certification for green building projects.

While detention basins are often used to collect and slow the rate of runoff from the impervious surfaces of roofs and pavements, and are effective, they require additional land. Especially on redevelopment sites, additional land may not be available or may be prohibitively expensive. The porous pavement/recharge bed design may be the solution to the problem.

The “Porous Pavement” concept was conceived in the Franklin Institute Research Laboratories in 1968, and was developed there under the aegis of the U.S. Environmental Protection Agency (EPA) during 1970 and 1971. After the final report on the project was issued, interest in the concept prompted Edmund Thelen and Leslie Fielding Howe to prepare a book about its development and included a design guide. The publication, Porous Pavement, was published by the Franklin Institute Press in 1978. While the book has been out of print for some time, it is still available in some technical libraries (ISBN Number 0-89168-010-1).

In considering a porous pavement/recharge bed, designers must consider several key factors:
- Soil percolation characteristics
- Local topography and climate
- Proposed uses of the site
- Traffic loading factor
- Government storm water regulations
• Site runoff and storm water quality requirements
• Frost penetration depth – a factor in determining reservoir course thickness

A typical porous asphalt pavement/recharge bed design consists of one or more porous asphalt courses; a top filter course; a reservoir course; filter fabric; and existing soil or sub-grade material. The porous asphalt courses consist of 2- to 4-inch-thick open-graded asphalt layers. Next, is a 2-inch-thick top filter course using 1/2-inch crushed stone (#57) aggregate. The filter course provides a firm paving platform. Without this layer, the single-size, open-graded aggregate may be unstable under the paver. The filter course also protects the reservoir course during placement of the asphalt mix.

The depth of the reservoir is determined by the storage volume, structural capacity, or frost depth, whichever requires the greater thickness. The minimum depth of stone within the reservoir is usually 9 inches. Aggregates between 1.5 and 3 inches in size are recommended (#2); this size stone typically yields approximately 40 percent voids, which provides the runoff storage.

A design guide, Porous Asphalt Pavements, Design, Construction & Maintenance Guide (IS-131), is available from the National Asphalt Pavement Association. Sample specifications for the porous asphalt materials have been developed by Flexible Pavements of Ohio. To find links to these documents and more information and articles regarding porous asphalt pavements, visit: www.flexiblepavements.org/sustainable_pav.cfm.
At the 2007 Ohio Transportation Engineering Conference (OTEC), held October 23-24, 2007, Flexible Pavements of Ohio (FPO) exhibited in the trade show and presented two technical sessions devoted to asphalt pavement technology.

FPO Executive Director Clifford Ursich moderated the first of two asphalt pavement sessions on October 24. The first session was devoted to the recycling of tire rubber into hot mix asphalt pavement, and included the following presentations:

**ODNR/DRLP Scrap Tire Grant Program**

**Presenter:** S. Matthew Dummitt, market development coordinator for the Ohio Department of Natural Resources Division of Recycling and Litter Prevention

**Description:** Among other purposes, the Scrap Tire Grant program provides financial assistance to Ohio’s local governments to utilize scrap tire material in civil engineering projects. This presentation covered the particulars of the grant program.

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**Grant Money Funds Franklin County Resurfacing Project**

**Presenter:** Dean C. Ringle, PE, PS, Franklin County Engineer

**Description:** The Franklin County Engineer’s Office was awarded $91,698 by the ODNR/DRLP for its Frank Road project that will utilize a new technology called “Terminal Blended Ground Tire Rubber.” Ringle discussed the county’s experience with the grant process, the Ground Tire Rubber technology and the construction of Frank Road.
FPO Vice President for Governmental Affairs Jerry Wray moderated the day’s second session, which included the following topics and speakers:

**Do You Really Plan to Resurface this Same Road Again in Seven Years?**
Presenter: **Brian S. Driscoll**, chief highway design engineer, Cuyahoga County Engineer’s Office
Description: This presentation focused on resurfacing existing pavements, from two-lane full-depth flexible ditched rural roads to five-lane concrete curbed urban roads, examining the current practices and experiences of the Cuyahoga County Engineer’s Office.

**Mitigating Rising Costs of Asphalt Pavements**
Presenter: **David E. Newcomb**, PE, PhD, vice president of Research & Technology for the National Asphalt Pavement Association
Description: This session explored ways of mitigating the rising cost of asphalt paving, and discussed cost-reducing alternative mixes, recyclable materials, asphalt binder selection and thickness design.

**Warm Mix Asphalt European Scan Tour**
Presenter: **Wayne Jones**, PE, field engineer for the Asphalt Institute
Description: The findings of a summer 2007 scanning tour of Europe’s Warm Mix Asphalt (WMA) technology were presented. WMA has the promise of aiding compaction at reduced mix temperatures, thus allowing for energy conservation and potential fume reduction.

For more information on the OTEC 2007 asphalt tech sessions, go to its Web site at: [http://www.otecohio.org/2007%20Files/Wednesday2007presentations.htm](http://www.otecohio.org/2007%20Files/Wednesday2007presentations.htm).
A construction project can be a problem in progress. What separates successful owners, contractors and subcontractors from the others is their ability to effectively manage those problems.

Practitioners advising the construction industry frequently consult the relevant contract documents when dealing with these problems, but there are several key statutes that trump the contract that counselors should be familiar with.

Many of these statutes have been enacted in recent years and have changed the landscape of construction law.

Here are the top 10 “commandments” of construction law, which will assist in avoiding problems of biblical proportion.

1. Thou shall pay promptly. ORC §4113.61

Ohio requires contractors to pay their subs within 10 calendar days after receipt of the payment from the owner for that work, or face 18-percent interest per annum and attorney’s fees. The effectiveness of this statute was recently underscored by the Ohio Supreme Court in Construction One v. Masiongale (2004), 102 Ohio St.3d 1. The Ohio Supreme Court’s decision will go a long way in implementing the purpose of the statute, which is to promote prompt payment to subcontractors and material suppliers when the general contractor receives payment from the owner.

2. Thou shall not hide behind “no damages for delay.” ORC §4113.62(C) (1) & (2)

A “no damages for delay” clause is unenforceable if the cause of the delay is the owner’s “actions or inactions.” This provision is a part of the Fairness in Construction Contracting Act passed in 1998, representing the most dramatic change to Ohio construction law since the Prompt Payment Act and the Mechanic’s Lien Law changes in 1992. It recognizes that a time extension without additional compensation is often inadequate to make a contractor or subcontractor whole.

3. Thou shall not hide behind final payment. ORC §4113.62(B)

The Fairness in Construction Contract Act also prohibits owners and contractors from inserting clauses in their contract documents stating that all pending claims are waived by the receipt of final payment. Accordingly, Ohio does not recognize final payment as a defense when the construction claimant has provided prior written notice of a claim before final payment is received.

4. Thou shall be responsible for one’s own negligence in whole or in part. ORC §2305.31

Ohio’s anti-indemnity law makes unenforceable any indemnity provision in a construction contract that attempts to shift responsibility to another contractor or subcontractor for one’s own negligence for personal injury or property damage.

5. Thou shall be permitted to utilize a “pay if paid” provision in a contract (but liens still may be filed). ORC §4113.62(E)

Unambiguous “pay if paid” clauses are enforceable, but do not bar the timely filing of mechanic’s liens.

6. Thou shall go forth to arbitration … and an order that denies this stay is a final appealable order. ORC §2711.01 and ORC §2711.02

Ohio’s public policy favors arbitration, and compels arbitration when there is a written agreement to arbitrate. Because Ohio wants to encourage arbitration, only an order that denies a stay pending arbitration is appealable. An order compelling arbitration is not appealable.

7. Thou shall sue in Ohio (on Ohio projects). ORC §4113.62(D) (2)

Disputes concerning Ohio construction projects are only supposed to be litigated in Ohio courts. Many construction contracts contain forum selection clauses requiring litigation to be commenced in a state far from the construction project. Like Ohio, many states have recently enacted similar statutes that require construction-related litigation to be conducted in the state where the project is located.
8. Thou shall apply Ohio law. ORC §4113.62(D) (1)

Contracts often state that a certain state law applies. This statute requires that Ohio law applies when the project is located in Ohio.

9. Thou shall not waive bond rights. ORC §4113.62(A)

In Ohio, a subcontractor cannot waive bond rights upfront in a contract. The deadline for filing a claim against a bond is 90 days after the public project is completed and accepted by the public authority. It is important to note that the timeline for a bond claim is not tied to the last date of work. Additionally, a claim against a payment bond lawsuit cannot be initiated until 60 days from the date of service of the claim on the surety and must be filed within a year from the date of acceptance of the public improvement.

10. Thou shall record a notice of commencement (owner) ORC §1311.04 or serve a notice of furnishing (subcontractor). ORC §1311.05

In Ohio, an owner should record a notice of commencement with the County Recorder prior to the start of construction in order to minimize its risk of mechanic’s liens on the project. Anyone not in direct contact with the owner should file a notice of furnishing within 21 days of his first date of work based on the notice of commencement to preserve lien rights. Finally, the mechanic’s lien must be filed within 60 days from the last date of work for residential work; within 75 days from the last date of work for commercial work; and 120 days from the last date of work on public projects.

These statutes demonstrate that Ohio has adopted much law-restricting “freedom of contract” in the construction industry in an effort to avoid inequitable contracting practices.

(Editor’s note: We would like to acknowledge the recent accomplishments of Donald W. Gregory, Esq., a regular contributor to Ohio Asphalt. Gregory, who practices in the area of Construction/Surety law for the firm of Kegler Brown Hill & Ritter, was recently recognized among the “Best Lawyers in America” for 2008 by Best Lawyers, and among “Ohio Super Lawyers” for 2008 by Law & Politics Magazine.)

By Donald W. Gregory, Esq.
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Rosphalt Waterproofing
Wearing Surface System
Applications in Ohio

By John Tortorete, Chase Construction Products/Royston

Ohio has used Rosphalt-50, a waterproofing wearing surface system, on bridges throughout the region, such as in Steubenville with Lane Industries; in Green County with Barrett Paving; in Sidney with Freisthler Paving on the Emerson loading dock; in Summit County with Mar-Zane Asphalt; and in Urbana with Valley Asphalt. In 2008, Rosphalt is scheduled to be used on a bridge in Toledo with Gerken Paving.

The reason Rosphalt is used for these jobs was to provide a waterproofing system as well as a long-life wearing surface without degradation. These bridges received both the required waterproofing and a long-life wearing surface in a “One-Step” operation, saving in both mobilization and traffic control.

Rosphalt is useful for much more than just bridge decks. In Sidney, Emerson Company was looking for a fast repair using a long-lasting flexible paving surface to rehabilitate its loading dock area. Use of concrete was too time consuming – and the docks could not be out of service for more than one day – and too expensive. Regular asphalt was not ideal since it could not hold up under heavy-load conditions with the trucks moving and utilizing sharp turning radius. Another advantage using Rosphalt is the docks could be in service as soon as one hour after paving.

Rosphalt is not considered in the same category as other asphalt designs since it is a “dry mix” additive that modifies hot mix asphalt or Superpave designs. Using a Rosphalt solution designed to 2 percent air voids or less enables the design as a waterproofing system that has proven to be better at waterproofing than most other systems. The second reason it is chosen is its performance primarily with advantages in less rutting and shoving. The owners choose Rosphalt where corrosion, traffic loading, pavement life and expedient repair are necessary.

Most of the bridge projects were one-day installations with Rosphalt. The Steubenville project is the largest structure using Rosphalt at this time, while the State Route 36 project in Urbana consisted of three two-lane bridges. For the Urbana area project it was necessary to pave on one side of the bridge at a time, and allow traffic on the other. In Green and Summit counties, Rosphalt was placed over new Fiber Reinforced Plastic (FRP) decks.

Rosphalt can be produced in either drum or batch plants. In drum plants, Rosphalt is delivered in bulk tankers and is introduced through a mineral filler silo. In a batch plant, Rosphalt is supplied in bags that melt in the mixing process when it enters the pug mill via conveyor or by manual feeding.

Paving with Rosphalt is similar to conventional paving. It is delivered in well-covered asphalt trucks; applied with a typical paver; and rolled with smaller compaction equipment compared to Superpave or stone matrix asphalt (SMA) mixes. Typically, in about an hour after paving the surface can be opened to traffic.

For more information on Rosphalt, contact Mike Freisthler, the area representative, by e-mail at Mike@asi-roads.com, or by phone at (cell) 937-726-0861 or (office) 937-498-4802. You can also contact John Tortorete at jtortorete@chasecorp.com for technical assistance.
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ODOT Appoints New Pavement Specialist

Julie Miller, PE, has been named Pavements Specialist in the Ohio Department of Transportation’s Office of Construction Administration, filling the function previously performed by Faour Alfaour, PE.

Previously, Miller worked in ODOT District 5 (Jacksonport). Flexible Pavements of Ohio is pleased to see her return to ODOT and look forward to working with her again in the area of pavement construction.

If you are an FPO member and have news about your business or company regarding in-state staff changes or honors, and would like it to appear in Ohio Asphalt magazine, you can send the information by fax at 614-846-8763; e-mail at editorial@triad-inc.com; or by calling 800-288-7423.
The 2008 Flexible Pavements of Ohio Annual Meeting returns to The Columbus Hilton located in the Easton Town Center at I-270 and Easton Way on
**Tuesday, March 18** and **Wednesday, March 19**.

The theme for this year’s meeting is **MEETING TODAY’S CHALLENGES HEAD-ON**. To explore these issues an excellent program has been planned, including:

**GENERAL SESSION 1, 1:30 to 5 p.m., March 18**
Presentations:
- **GREEN ASPHALT COMING TO YOUR DOOR SOON!**
  Speaker: Richard Schreck, Virginia Asphalt Association
- **EXPANDED ASPHALT AND MAXIMIZING RECYCLING**
  Speaker: Don Brock, Astec Industries, Inc.
- **GROWING INVESTMENT IN HIGHWAY AND AIRPORT INFRASTRUCTURE MARKETS**
  Speaker: Jay Hansen, National Asphalt Pavement Association
- **ASPHALT BINDER SUPPLY TRENDS**
  Speaker: Bill Haverland, Conoco Phillips Co.
- **ODOT SPECIFICATION UPDATE**
  Speaker: David Powers, Ohio Department of Transportation

**GENERAL SESSION 2, 9:30 to 11:45 a.m. March 19**
Presentations:
- **EFFECTIVE RISK AND CRISIS COMMUNICATION FOR THE ASPHALT INDUSTRY**
  Speaker: Vincent Covello, Ph.D., Center for Risk Communication
- **OHIO’S FAIRNESS IN CONSTRUCTION CONTRACTING ACT**
  Speaker: Mike Madigan, Esq., Kegler, Brown, Hill & Ritter

Awards and scholarships will be presented at the breakfast and luncheon banquets on Wednesday, March 19.

Registration and additional information is available on-line at [www.flexiblepavements.org](http://www.flexiblepavements.org).

The meeting will again feature an **outdoor asphalt equipment exhibition** and an **indoor trade show**, both of which are **FREE for any and all to attend**.
FPO New Office Open House

We’ve moved and we’re having an open house on April 1, 2008 (no foolin’) to introduce our new office location to our members, friends and customers.

Please mark your calendar and join us between 1 p.m. and 6 p.m. on April 1, at our new offices located at 525 Metro Place North, Suite 101, Dublin, OH 43017-5504.

While our toll-free phone number remains the same, 888-4HOTMIX(446-8649), our new local phone numbers have changed. Our office phone number is 614-791-3600, and our new fax number is 614-791-4800.

Metro Place North is located west off Frantz Road just south of US 33/SR 161 (West Bridge St.) and east of I-270. Access is easy as there is ample, free, surface lot parking just outside our first floor location.

We’ll have beverages and snacks, and the staff will look forward to greeting our visitors and showing off the new office.