



GREEN SCHOOLS GET GOOD GRADES



McKinley School in Fairfield benefits from daylighting

Each year, hundreds of millions of dollars are spent building new schools in Connecticut. They are the most important buildings we construct as nearly one out of five people in the state spend part of their day in a school building. Insuring that our schools are high performance, energy efficient, healthy places to learn needs to be a top priority as these buildings profoundly influence our next generation.

An ongoing initiative of the CT Green Building Council, in cooperation with the CT Department of Environmental Protection (DEP), is to promote the transformation of schools in the state to green, high-performance buildings. Launched in February, this initiative is operating on tracks that include a stakeholder process, an educational outreach effort, and an inventory of all public school buildings. Upon conclusion of the stakeholder process, a final report will be published this fall that identifies the obstacles to building high performance schools and suggested actions for overcoming these challenges.

Like all smartly designed high performance buildings, a high performance school offers significant benefits to the occupants and to local taxpayers. These benefits however, are amplified as the occupants in our schools, our children, are being shaped for the rest of their lives. Since children are not as tolerant as healthy adults to a variety of indoor pollutants, it is imperative that we provide a high quality indoor air environment. This presents a real challenge as schools high occupancy densities compound indoor environmental concerns.

(continued pg. 2)

What's Inside . . .	
• Green Schools Get Good Grades	2
• America Recycles Day	2
• Recycling Round-up	3
• From Roof To Road	3
• Solid Waste Management Plan Moving Forward	3
• As The Worms Churn	4
• Fueling The Future	5
• Growth Happens	6
• Ask Eartha	7
• What's New In P2? — from the Connecticut DEP	7
• P2 Calendar	8

Green Schools Get Good Grades (continued from pg. 1)

Some of the benefits of High Performance Schools include:

- Improved student performance
- Healthier and more comfortable indoor environmental quality
- Lower operating costs & increased durability
- Reduced liability exposure
- Enhanced staff satisfaction
- Lower water use and lower sewage disposal costs
- Safer more secure buildings
- A building that teaches ecological principles
- Lower environmental impacts

These benefits are compelling for both students and taxpayers. Several studies have shown that properly designed high performance schools, especially ones that aggressively use natural daylight, improve learning and test scores. Other demonstrated benefits include increased average attendance rates and increased staff satisfaction. High performance schools can also be a hands-on laboratory for ecological design and operation, helping to develop tomorrow's leaders.

Right here in Connecticut, we have seen the benefits of green schools at the McKinley School in Fairfield. The old McKinley School had been closed due to problems with mold and resulting health problems of its occupants. The old school

was razed to make way for the new McKinley School that opened in Fall, 2003. The new school incorporates features such as daylighting, energy efficiency, and improved indoor air quality. According to the Principal, Dr. Dale Bernardoni, "The daylight in the building enhances the environment for children and staff, and is now a very appropriate environment for learning."

These schools also save taxpayers money. On average, operating costs are 30% lower while the school's increased durability lowers maintenance expense and future renovation costs. Decreased water use and lower sewage disposal needs not only save money, but also may prolong the life of the municipal water and sewage systems. Green schools also have superior indoor air quality and decreased toxins.

While green schools lower the school's environmental impact through thoughtful design and smart building practices, the benefits to the students and the significant payback to the taxpayers are the compelling reasons that all schools in Connecticut should be built green.

Further Resources:

For updates on the CT Green Building Councils High Performance School Initiative - www.ctgbc.org

To download the daylighting and productivity studies done by the Hescong Mahone Group - www.h-m-g.com



America Recycles Day is Nov. 15

It's not too early to be thinking about organizing an event for America Recycles Day (ARD).

The annual celebration is sponsored by the national ARD organization whose goal is to encourage Americans to recycle and to buy recycled products.

You can learn more about ARD at - www.americarecyclesday.org/.

DEP has an Event Organizer's Guide with lots of ideas on how to plan events at schools, work or in your community - www.dep.state.ct.us/wst/recycle/ctard_2005_event_guide.pdf.

Recycling Rundup



From Roof To Road

As solid waste disposal costs in Connecticut continue to increase, one of DEP's priorities is to promote the "beneficial use" of certain materials (e.g., old asphalt roof shingles) that otherwise would be burned or landfilled. Beneficial use is defined as using a solid waste in a manufacturing process to make a product or as an effective substitute for a commercial product.

It is now possible that your old roof shingles could end up as part of a road you drive on. As a result of proposals from businesses in the state and public comment, DEP plans to issue the General Permit for Storage and/or Processing of Asphalt Roofing Shingle Waste, and/or for the Storage and Distribution of Ground Asphalt Aggregate for Beneficial Use. This permit allows residential asphalt roofing shingles to be stored, processed, beneficially used as ground asphalt aggregate (GAA) in sub-base, aggregate base and/or hot mix binder applications where it will be covered with a top course of asphalt pavement. Hot mix asphalt top course cannot be produced with GAA.

For more information on beneficial use or for a copy of the new general permit, contact Carey Hurlburt or Frank Gagliardo, DEP Waste Engineering and Enforcement Division, at (860) 424-3365 or visit DEP's website at: www.dep.state.ct.us/wst/beneficialuse/beneficialuseindex.htm

Solid Waste Management Plan Moving Forward

In May 2005, DEP's Bureau of Waste Management began the task of updating the State's Solid Waste Management Plan. DEP has contracted with R.W. Beck, one of the nation's leading consulting engineering firms, to assist in the effort.

In developing the plan, we will look for opportunities to reduce the amount of waste generated in the State and increase the amount of recycling and reuse in an environmentally protective manner.

There are several major tasks that have been completed or are well under way:

- A statewide Stakeholder Forum was held on

June 29th and approximately 200 people attended, representing non-profits, businesses, institutions and the public. All shared their vision and opinions about solid waste issues such as reducing municipal solid waste, disposal of electronics, and recycling.

- An External Stakeholder Working Group has been established and is currently meeting.
- The first phase of the project - data gathering, verification and validation - will be completed by September.
- DEP has created a website to keep the public informed about the process -

www.dep.state.ct.us/wst/solidw/swplan/index.htm.

For more information, contact DEP's Project Administrator, Tessa Gutowski at (860) 424-3096 or tessa.gutowski@po.state.ct.us

As The Worms Churn...

A "cast" of thousands has assembled in Middletown. No, it's not auditions for American Idol #5 or a new soap opera - just many, many red wiggler worms eating, excreting and doing their part for the environment. Since last summer the city has been nurturing a vermicomposting project -- vermicomposting is simply composting with worms, but not your common garden-variety earthworm. Called red wigglers (*Lumbricus rubellus*), they fill a special ecological niche living, eating and breeding near the soil surface where there are high concentrations of organic matter. As you can imagine, this trait makes them particularly suitable for recycling one of the most prevalent components of our waste stream...food scraps.

Armed with a grant from DEP, the City of Middletown's Recycling Coordinator, Kim O'Rourke, has spearheaded a collaborative effort to recycle food scraps generated at institutional buildings located on the Connecticut Valley Hospital's grounds. Starting with the Eddy Center, the project was designed as an innovative model that could be used to teach other institutions and businesses how to recycle and reduce their waste stream. "This is the first mid-sized vermicomposting project in Connecticut", O'Rourke said, "Not only does it reduce the Eddy Center's cafeteria waste, it reduces costs and is an excellent educational tool".

The worm bins are quite large measuring 4' wide x 8' long x 1' high and are elevated off the ground on pallet racks.



Spencer Elementary School students learn about worm composting

Additional bins can be added as more worms are bred and more food scraps are collected. Worm bedding is kept damp and is made of partially composted leaves that fill the bins about half way. Food scraps are buried in a different location in the bins each day providing a constant source of nourishment for the worms. Each worm eats the equivalent of it's own weight every day... and what goes in, must come out. The "casts" or worm poop, is a valued fertilizer containing 5 to 11 times more nitrogen, phosphorous and potassium than the surrounding soil, lots of beneficial soil microorganisms, humic acid (a soil conditioner) and a perfect pH balance. The casts don't contain any disease because pathogenic bacteria are killed in the worm's gut.

Kim has thought of several ways to spread the word about the project. She has enlisted

volunteers from the city's Recycling Advisory Council and Wesleyan University's Environmental Club to help feed the worms. The greenhouse was also host to a Project Learning Tree training session sponsored by the Connecticut Forest and Park Association. And on May 5th, the official public debut kicked off with a visit from the second grade class at Spencer Elementary School. With help from several Middletown High School Vo-Ag students, Russell Library and Middlesex AIC, 60 children participated in a day filled with hands-on activities involving worms and compost. They were able to feed the worms, use magnifying glasses and microscopes to find various insects, and plant flowers in compost. This event dovetailed nicely with the student's own school composting program that recycles food scraps from their cafeteria.

To learn more about the project and to view the photo gallery, visit the DEP website at www.dep.state.ct.us/wst/compost/wormpilot.htm. For more information, contact Kim O'Rourke at 860-344-3526 or K.C. Alexander at 860-424-3239.

Fueling The Future

Everybody's talking about biodiesel --
but what exactly is it and who's using it in Connecticut?

Biodiesel is an alternative fuel made from vegetable oils such as soy or canola, waste greases or even animal fats. You may have heard that biodiesel can be used to run cars and other vehicles, but many people don't know that it can also be used to heat buildings.

In order to make biodiesel, oil or grease goes through a process called transesterification, which separates out the glycerin and makes it chemically different than straight vegetable oil. Biodiesel contains no petroleum, but is typically blended with petroleum diesel to create a biodiesel blend. The most common blends used in New England range from 5% biodiesel (B5) to 20% biodiesel (B20). According to the U.S. EPA, biodiesel is linked with air quality benefits and lower greenhouse gas emissions. Because it can be made right here in the United States from renewable sources, it can reduce our dependence on imported oil.

Biodiesel is being used in Connecticut and throughout the region. It can be used in diesel engines with few or no modifications to the engine or fuel system. The Connecticut Department of Transportation uses biodiesel in

several vehicles. Some town school buses, private fleets and citizens are also using biodiesel blends. UCONN and the University of Hartford have also tried it in campus buses. In fact, an estimated 25 million gallons were used throughout the United States in 2003, and that amount is increasing. However, its use in our state is still somewhat limited since there are no public pumps located in Connecticut and fuel oil distributors are just beginning to carry the product.

Heating commercial buildings and residential homes is another use for biodiesel. Fuel oil distributors are just beginning to carry the product, giving individuals in some areas of the state the opportunity to purchase a biodiesel blend to fuel their oil furnaces.

Facilities with boilers that are permitted by DEP need to have the permit modified in order to use biodiesel. DEP is working with the Institute of Sustainable Energy at Eastern Connecticut State University on a project to test a 20% biodiesel blend for heating the South Campus. Data on fuel performance and efficiency, air emissions and equipment maintenance will be collected during the upcoming heating season.

- If you are interested in biodiesel and would like more information, visit the DEP website at www.dep.state.ct.us/wst/p2/energy/biodiesel.htm.
- For information on DEP Air Quality permitting requirements for boilers, call (860) 424-4152.

Other Biodiesel Resources:

- Submit questions on biodiesel to "Ben" at www.nbb.org/askben, a service of the Biodiesel Education Network.
- Biodiesel: A Cleaner, Greener Fuel for the 21st Century, excerpt from Environmental Building News - www.sustainablebusiness.com/features/feature_template.cfm?ID=915
- For a guide to buying biodiesel, visit the National Biodiesel Board's website at www.biodiesel.org

Thinking of burning wood to keep warm this winter?

Check out "Up in Smoke!" (P2View, Winter 2004-05) for information on cleaner and more efficient woodstoves - www.dep.state.ct.us/wst/p2/p2View/p2viewwinter04-05.pdf

Growth Happens . . .

How Can We Make It Livable?



The small rural town of Suffield and the Parkville neighborhood of Hartford have a surprising number of things in common. Both have participated in what are called “livable community” initiatives, often referred to as “smart growth”. These initiatives are designed to help communities determine how they want to grow and how to make policy choices consistent with their vision.

But how did Parkville and Suffield begin the process of planning for smart growth?

Both communities participated in the Capitol Region Council of Governments (CRCOG) Picture It Better Together (PIBT) project, a community visioning process. The goal of PIBT is to listen to the public’s perspective on what makes a livable community and to provide information on development, conservation, and preservation practices to achieve what the public wants.

The Town of Suffield has been working on smart growth with CRCOG since 2000. According to Phil Chester, the Suffield Town Planner, the CRCOG visioning process “helped bring the community together to combat sprawl.” Suffield has been successful in not only producing a plan that expressed the town’s vision but has implemented key items of the plan. In particular, the town rewrote its zoning regulations and adopted these changes in

2004. These zoning changes allow for a village district, exclusive agricultural zoning, and shared parking in village centers.

DEP has also been working with CRCOG and Hartford neighborhood organizations on a smart growth project. Funded by a grant from the U.S. Environmental Protection Agency, the project has trained over 100 Greater Hartford residents in smart growth principles, as well as how to read a site plan, understand zoning regulations, and design parking lots to reduce run-off. In addition, DEP contracted with CRCOG to provide technical assistance to Parkville because the neighborhood had already accomplished a number of smart growth-related studies through the PIBT project that they wanted to incorporate into a neighborhood strategic plan.

Part of the Parkville plan focused on a quarter mile area around New Park Avenue that was once a thriving industrial district. New Park Avenue is a fast moving thoroughfare with 3 lanes in both directions, which cuts through the neighborhood. CCROG worked with the residents on a plan to put the high-speed road on a “diet” by reducing the number of traffic lanes and allowing for bicycle lanes or on-street parking, which will result in calmer traffic through the area.

For more information, contact Mary Sherwin, DEP at 860-424-3246.

For resources on how to make your community livable, visit:

CRCOG, Picture It Better Together project, www.crcog.org/communitydev.htm

EPA, Encouraging Smart Growth, www.epa.gov/smartgrowth/

Center Edge Coalition, Metro Patterns Report, www.oua-adh.org/Connecticut_Jan29.pdf

1000 Friends Of Connecticut, www.1000friends-ct.org/default.htm



Note: This feature offers answers to select environmental questions. Send your question to the editor's address -- judith.prill@po.state.ct.us and watch future issues for an answer.

Dear Eartha:

The deck on my house is in bad shape. Since it is made out of pressure-treated lumber, I'm not sure if I should replace it or just try staining it. If I stain it, which type is best? — Patti S., Mansfield Center, CT

Since the 1970s, the majority of wood used to build outdoor structures (e.g., decks, picnic tables and play equipment) was treated with chromated copper arsenate (CCA). We now know that a toxic chemical - arsenic - continues to be released over time from the surface of CCA-treated wood and into the nearby soil. Young children are especially at risk since they tend to play directly on the surface and end up ingesting arsenic when they put their hands in their mouths.

You can minimize this risk by applying an oil or water-based penetrating stain or sealant. (Note in general, water-based products are better for your health and the environment since they emit lower levels of

chemical vapors). Paint and other types of coatings are not recommended because they can chip or flake, increasing your exposure to the arsenic. Ongoing research by the federal EPA indicates that penetrating stains will lock in most of the arsenic if reapplied yearly. This period of time may be less for surfaces receiving extensive foot traffic or hand contact, such as handrails and steps.

Since you mentioned that your deck is in bad shape, you might consider replacing it with the non-arsenic pressure-treated wood now available in stores. Or better yet, use plastic or composite lumber, which are made from 100% recycled plastic, or a mix of recycled plastic and other materials. This lumber is now being manufactured to look and perform very similar to wood. But best of all, you never have to stain it or worry about getting splinters in your bare feet!

- Eartha

Further Resources:

Answers to commonly asked questions about CCA-treated wood and sealants – U.S. EPA: www.epa.gov/oppad001/reregistration/cca/index.htm

Center for Environmental Health: www.safe2play.org

How to Properly Dispose of CCA-treated wood – DEP: www.dep.state.ct.us/wst/recycle/lumber.htm

Guide to Buying Plastic Lumber – Healthy Building Network: www.healthybuilding.net/pdf/gtpl/guide_to_plastic_lumber.pdf

WHAT'S NEW IN P2?

from the Connecticut DEP



Look under Your Sink

Ever wondered if the cleaning products under your sink are hazardous to your health and the environment? DEP has partnered with regional and local household hazardous waste coordinators on a project to inform the public about the potential dangers of these products and to help people choose environmentally preferable alternatives. Ten suitcase-size exhibits were produced which showcase empty containers listing toxic or hazardous ingredients against the backdrop of a sink and workbench. Alternative products, both store-bought and homemade, are also part of the display.

If you interested in having this exhibit at an event in your town, please contact Judy Prill at (860) 424-3694 or judith.prill@po.state.ct.us.



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P 2 C A L E N D A R

A S E L E C T I O N O F E N V I R O N M E N T A L E V E N T S

September 17-18, 2005
AltWheels
Brookline, MA

Come see, hear about and test drive the latest -- from hybrid, fuel cell and solar-powered cars to commuting bikes and Segway™ Human Transporters -- at New England's largest alternative transportation festival. For more information, visit www.altwheels.org.

October 1, 2005
Northeast Green Buildings Open House

(various locations throughout CT and the Northeast)

Come visit some of the homes and other buildings that use solar power, wind power, healthy building materials and other green building technologies open to the public on this date. For more information, contact the Northeast Sustainable Energy Association at www.nesea.org or (413) 774-6051.

September 20-21, 2005
Energy Solutions for Your Organization
Waterbury, CT

Two-day free workshop on clean energy, energy efficiency, and combined heat and power technologies for medium to large facilities. Hosted by the CT Clean Energy Fund in partnership with DEP and others. For more information, visit www.ctcleanenergy.com/news/index.php or call Heidi Bieber at (860) 563-0015 ext. 327.

September 26, 2005
Biodiesel for Heating
New Haven, CT

Free workshop for fuel oil distributors and users. Learn about the availability of biodiesel for heating in CT, what impacts it has on heating systems, and how to market it to customers. For more information, visit www.nrbp.org/workshops/CT_Biodiesel_Workshop.pdf or call Connie Mendolia at (860) 424-3243.

October 27, 2005
CT Green Building Council Dinner Event
Berlin, CT

Lecture on "Building a LEED-Certified Research Facility", Speaker: Deb Carling, Pfizer and/or Rick Warhall, Whiting-Turner. For more information, go to www.ctgbc.org or call Kim Trella at (860) 424-3234.