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News & Updates

US Forest Service Wildfire Battle

Assessments in southern California show that the number of homes destroyed by the Powerhouse fire this week were significantly more than originally estimated. Officials said Thursday 24 homes were lost, more than double the previous estimate, according to the *Los Angeles Times* Friday.

By Thursday, aided by cooler temperatures and calmer winds, firefighters had contained 83 per cent of the wildfire. They expected to be able to fully surround the fire by Monday.

Meanwhile, the US Forest Service will soon be helping California firefighters with a specifically equipped helicopter, for the first time in nearly 40 years, to combat wildfires at night, the agency announced this week. On Thursday, the USFS also announced it has three next-generation air tankers, one of which will be fighting wildfire in California Saturday morning. [READ MORE](#)

Canada Building Permits

Canadian municipalities issued building permits worth \$7 billion dollars in April, up 10.5 per cent from March, said Statistics Canada Wednesday. The advance in April was the fourth consecutive monthly increase. The recent upswing came after a downward trend in the total value of building permits that began in the fall of 2012.

The advance in April came largely from higher construction intentions for multi-family dwellings in Ontario, British Columbia and Quebec. [READ MORE](#)

Rental Market, Architectural Billings, US

The most recent data from the Survey of Market Absorption of Apartments showed that completions of privately financed, nonsubsidized, unfurnished, rental apartments continued to climb in 4Q 2012, said the US National Association of Home Builders Thursday. The reported 31,600 completions in buildings with 5+ units were slightly above the 3Q level and has more than doubled since 4Q 2011. [READ MORE](#)

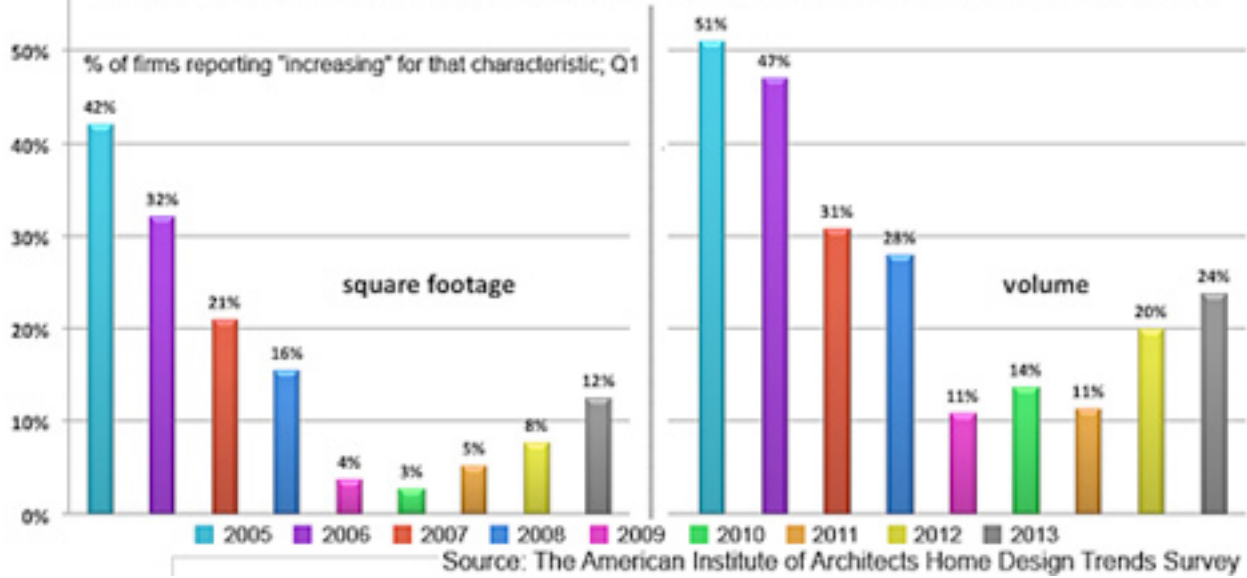
Gribbles, Fungi, Sugars to Produce Fuel from Wood

An insect with a name reminiscent of the original Star Trek series, the gribble, is responsible for one of the latest breakthroughs in making fuel out of wood. Using advanced biochemical analysis and x-ray imaging, researchers in Portsmouth, UK, and at the National Renewable Energy Laboratory in the US, have identified the enzyme that allows gribbles to digest enormous quantities of wood. In January 2009, British scientists discovered that the wood-boring crustacean, which spends much of its time munching through pilings that hold up piers, uses enzymes in its gut to break down wood and scientists want to employ it to produce climate-friendly biofuels.

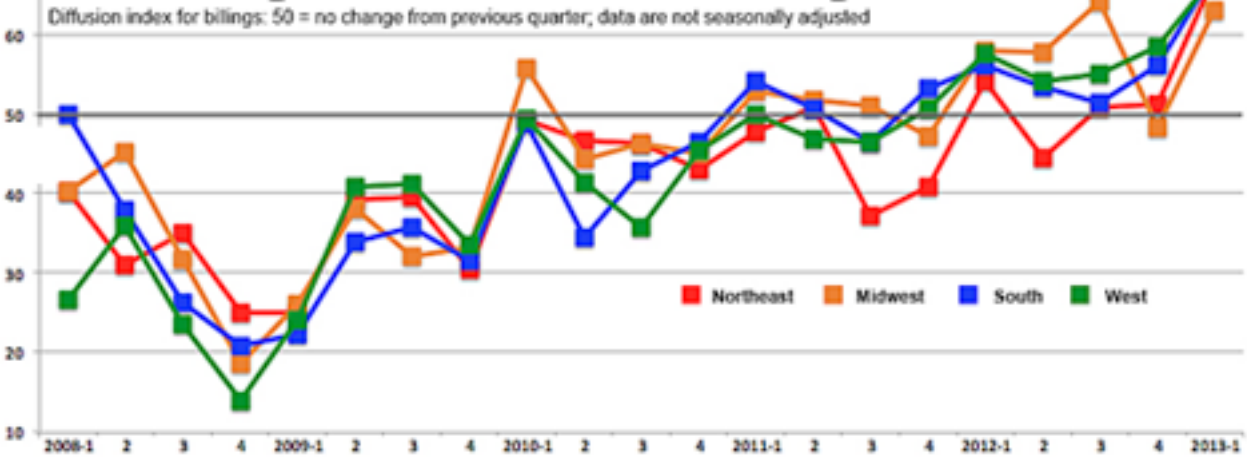
The work has formed part of a £27 million project to make second-generation biofuels a commercial reality within 10 years. The new biofuels would not lead to a net release of carbon dioxide but also won't compete with land for edible crops. [READ MORE](#)



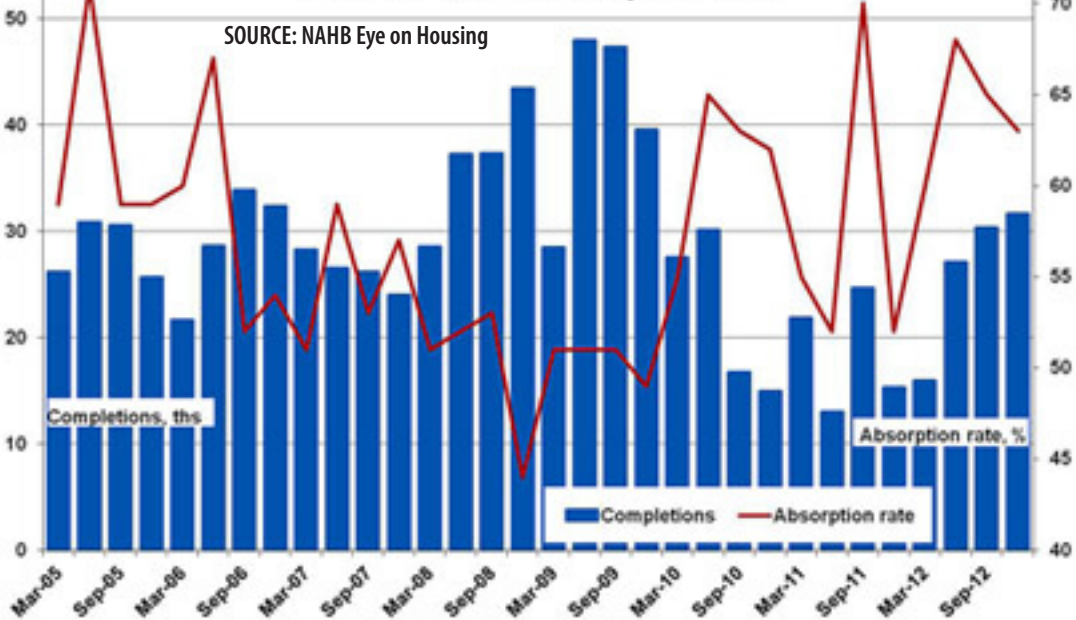
Share of Respondents Reporting Home Size Increases Continues to Trend Up



Billings Accelerate at Firms in All Regions



Unfurnished Rental Apartments



Key Prices

	This Week	Last Week	Change	Month Ago	Change	Year Ago	Change
WSPF KD R/L 2x4	312	312	0	340	-28	308	+4
WSPF KD R/L 2x6	304	304	0	340	-36	294	+10
WSPF KD R/L 2x8	295	295	0	326	-31	324	-29
WSPF KD R/L 2x10	324	324	0	355	-31	378	-54
WSPF KD PET 2x4 Stud	318	325	-7	340	-22	365	-47
WSPF KD PET 2x6 Stud	315	325	-10	360	-45	365	-50
Douglas Fir Green R/L 2x4	295	305	-10	330	-35	243	+52
Douglas Fir Green R/L 2x10	370	370	0	380	-10	295	+75
ESPF KD 2x4 8ft Stud	410	420	-10	465	-55	415	-5
OSB Ontario 7/16" (CDN\$)	317	355	-38	363	-46	260	+57
CSplywood Toronto 3/8" (CDN\$)	317	343	-26	359	-42	401	-84

Weekly News

US Wildfire Settlement

CONTINUED Elsewhere, PG&E and its contractors have agreed to pay US\$50.5 million to settle Department of Justice allegations that the utility was responsible for two wildfires that scorched 18,000 acres of national forest land in Northern California, the US Attorney's office in Sacramento announced Thursday.

DOJ alleged in a lawsuit that a dropped cigarette lit by a work crew hired by a PG&E contractor ignited a 2004 fire that burned 13,000 acres of the El Dorado National Forest for 17 days in 2004. The utility and VCS Sub Inc denied responsibility in settling.

PG&E also settled a second lawsuit alleging the utility's transmission lines were too close to a pine tree and ignited a 2008 blaze that torched 5,000 acres in Mendocino National Forest.

VCS Sub, a subsidiary of Houston-based Quanta Services, doing business as Provo located in Yuba City, will pay US\$45 million to settle the lawsuit.

There was no one available at the three businesses to comment on the settlement, according to several US media sources.

Building Permits, Canada

CONTINUED Construction intentions for residential dwellings rose 21 per cent to \$4.4 billion, said Stats Can Wednesday. It was the second straight monthly increase and the highest level in 10 months. All provinces posted gains except Alberta and Nova Scotia. These two provinces had posted large increases in March.

In the non-residential sector, the value of permits fell 3.6 per cent to \$2.6 billion, following two consecutive monthly gains. Declines were recorded in five provinces, with Alberta and Ontario posting the larg-

est decreases. New Brunswick registered the largest increase, followed by Quebec and British Columbia.

US Architectural Billings

CONTINUED Households continue to show more confidence in the recovering housing market, investing in more outdoor amenities and larger homes despite strained lot sizes, according to the American Institute of Architects Friday. Residential architects report that home sizes have bottomed out and have begun to bounce back.

Residential architects reported a dramatic shift in home sizes during the housing downturn. In 2005, after several years of growth, 42 per cent of residential architects reported home sizes to be increasing, while only 13 per cent reported them to be declining. The share of respondents reporting size increases steadily declined during the downturn. By 2010, less than 3 per cent were reporting increased sizes, and almost 57 per cent were reporting decreasing home sizes.

Since then, the share reporting increases in home sizes has been slowly but steadily increasing. In the current survey, more than 12 per cent are reporting increases. Double this share are reporting that home volumes (e.g., ceiling heights, two-story entryways) are increasing, with less than 10 per cent reporting declines. Related to the increased use of space in the home, 38 per cent of respondents report that finishing attics or basements into living space is increasing in popularity.

While residential architecture firms have faced a bumpy recovery, recent numbers indicate that improvement is accelerating. The billings index for residential architects during the first quarter was

almost 67, indicating the strongest growth for these firms since 2005.

Maryland Sawmill Fire

Officials say a two-alarm fire caused more than US\$1 million in damages to a Charles County, MD, sawmill Thursday afternoon.

According to Deputy State Fire Marshal Bruce Bouch, the accidental blaze started just after 1 pm near an electric motor attached to the mill. Employees were working at the time, and workers tried to put out the fire, but it spread and the building was evacuated.

More than 100 firefighters from Charles, Calvery, St. Mary's and Prince George's Counties responded to the fire, which was extinguished within two hours.

Bouch said the sawmill was heavily damaged, as were three trailers on the property at the time of the fire.

No injuries were reported.

Calendar

June 2013

Alberta Registered Professional Foresters' AGM

June 20 – Edmonton, AB

<http://www.capf.ca>

September 2013

Who Will Own the Forest? 9

September 17 to 19 – Portland, OR

<http://wwotf.worldforestry.org/wwotf9/>

Biomass Fuel

New Technology, Developments

CONTINUED The research money came from the UK government-backed Biotechnology and Biological Sciences Research Council and a coalition of 15 industrial partners, including BP and Ceres.

One of the major challenges for biologists is to find chemical enzymes that can efficiently break down cell walls which contain cellulose and lignin. The gribble, a tiny shrimp-like crustacean, seems particularly good at this task. Unlike creatures such as termites, however, gribbles have no helpful microbes in their digestive system to aid in digesting wood - they themselves possess the enzymes necessary for converting it to sugar. The isopods' digestive tracts are dominated by enzymes that attack polymers that make up wood. The enzymes attach to a long chain of complex sugars and reduce it to easily fermented sugars.

That enzyme could be manufactured using the same methods that produce the enzymes in washing detergents, which would reduce the cost of development.

Enzymes are proteins that serve as catalysts, in this case one that degrades cellulose. Their function is determined by their three-dimensional shape, but these tiny entities cannot be seen with high-powered microscopes. Instead, researchers made crystals of the proteins, where millions of copies of the protein are arrayed in the same orientation. This information will help the researchers to design more robust enzymes for industrial applications. While similar cellulases have been found in wood-degrading fungi, the gribble-enzyme shows some important differences. In particular, the gribble cellulase is extremely resistant to aggressive chemical environments and can work in conditions seven times saltier than sea water. Being robust in difficult environments means that the enzymes can last much longer when working under industrial conditions and so less enzyme will be needed.

"[Gribbles are] single-handedly responsible for gnawing away at several piers on our south coast and, within its intestinal tract, are enzymes that can unlock some of the polymers [in wood-based materials]," said Professor Katherine Smart, a plant scientist at University of Nottingham and one of the leaders of the project, to *The Guardian* in January 2009.

The findings, published in Proceedings of the National Academy of Sciences, will help researchers reproduce the enzyme's effects on an industrial scale which is likely to lead to the generation of liquid biofuels from sustainable resources.

Dr. McGeehan, of Portsmouth, said to the *University of Portsmouth News* Tuesday, "This is a truly collaborative and exciting breakthrough. To create liquid fuel from wood and straw, the polysaccharides - sugar polymers - that make up the bulk of these materials have to be broken down into simple sugars. These are then fermented to produce liquid biofuels, but it [has been] a difficult and expensive process."

Researchers have transferred the genetic blueprint of this enzyme to an industrial microbe that can produce it in large quantities, in the same way that enzymes for biological washing detergents are made. By doing this they hope to cut the costs of turning woody materials into biofuels.

Meanwhile, the US Environmental Protection Agency issued May 21 a Notice of Proposed Rulemaking for a series of potentially beneficial modifications to the federal Renewable Fuels Standard program, requiring that a minimum annual volume of biofuels be used in the national transportation fuel supply. The proposed rule, if finalized, could have myriad effects on the economics of biofuel and biogas projects and the volume of qualifying advanced fuels brought to market in coming years. The EPA's proposal is also to permit electricity, used to charge electric vehicles, generated from certain kinds of biogas to create saleable Renewable Identification Numbers.

According to research published in a recent *Forest Products Journal* special issue, two processes that turn woody biomass into transportation fuels have the potential to exceed current Environmental Protection Agency requirements for renewable fuels. One is a gasification process using trees thinned from forests, and the other is a fermentation process using plantation-grown willows which reduces greenhouse gas emissions by 70 per cent or better compared with gasoline. In contrast, producing and using corn ethanol reduces greenhouse gas emissions 24 per cent compared to gasoline, says *Forest Products Journal*.

Elsewhere, engineers at Iowa State University are using high-frequency sound waves to break down plant materials in order to cook up a better batch of biofuel. Research by David Grewell, associate professor of agricultural and biosystems engineering, and his colleagues Melissa Montalbo-Lombay and Priyanka Chand, has shown that "pretreating" a wide variety of feedstocks - including switch grass, corn stover, and softwood - with ultrasound consistently enhances the chemical reactions necessary to convert the biomass into high-value fuels and chemicals, according to *Phys.org* Friday.

The team will present its findings at the 21st International Congress on Acoustics, held June 2 to 7 in Montreal, QC.

In one example of ultrasound's positive impact on biofuel production, the Iowa State researchers found that they could significantly increase the efficiency of removing lignin from biomass in solution. Lignin is the chemical compound that binds cellulose and hemicellulose together in plant cell walls. Commonly, enzymes or chemicals are used to remove it from biomass and allow the freed sugars to be dissolved for further processing into biofuel. Grewell and his colleagues found that pretreating instead with ultrasound makes lignin removal so efficient that sugar dissolution occurs in minutes rather than the hours needed with traditional mixing systems.

The potential cost savings for this method, says Grewell, are very encouraging.

"Economic models," he explains, "have shown that once implemented, this technology could have a payback period of less than one year."

Grewell and his colleagues report another application for ultrasound in biofuel production, showing that they can accelerate transesterification, the main chemical reaction for converting oil to biodiesel. In one case, the researchers found that subjecting soybean oil to ultrasound transformed it into biodiesel in less than a minute, rather than the 45 minutes it normally takes. Similarly, Grewell's team found that yeast populated with sugar and starved with glycerin, a co-product of biodiesel production, could produce high yields of oil that could be extracted and simultaneously converted to biodiesel with ultrasonics in less than a minute. This is a dramatically faster and less complicated method than traditional techniques requiring multiple steps and relatively long cycle times, says *Phys.org*.

In yet another announcement, genetic engineers at the Vienna University of Technology have found a method of producing biofuels from lignocellulosic materials, such as wood waste and straw, using fungi. Currently lignocellulosic waste such as sawdust can only be used to produce biofuel if the long cellulose and xylan chains can be successfully broken down into smaller sugar molecules. To do this, the researchers said that fungi, which by means of a specific chemical signal can be made to produce the necessary enzymes, are used. However, because this is very expensive, the university said that it has been investigating the molecular switch that regulates enzyme production in the fungus.

As a result, the institution claimed this week that it is now possible to manufacture genetically modified fungi which produce the necessary enzymes fully independently, thus making biofuel production significantly cheaper.