

NEWS

Chinese Drywall: What About It?

04.30.09

On April 3, 2009, it was reported that Florida Governor Charlie Crist sent requests to the Environmental Protection Agency and Centers for Disease Control and Prevention requesting assistance with problems attributed to tainted Chinese drywall. Governor Crist requested that the federal agencies help Florida develop chemical testing strategies for homes that are experiencing severe copper corrosion. The request came a day after Rep. Robert Wexler, D-Fla., asked the governor to declare a state of emergency over the problem.

Two U.S. senators, Sen. Bill Nelson, D-Fla., and Sen. Mary Landrieu, D-La., have introduced legislation to recall the Chinese drywall believed to be emitting "rotten egg" odors and causing unusual air conditioner problems in homes in Florida, Louisiana, Mississippi, Texas and Virginia.

How Big is the Problem?

It is estimated that 30,000 Florida homes and as many as 100,000 homes nationwide could contain the sulfur-emitting Chinese drywall that gives off an odor of rotten eggs, and may corrode residential wiring and appliances.

When Hurricane Katrina and Hurricane Wilma laid waste to large swaths of the Louisiana and Florida gulf coasts in 2005, combined with the surge of construction during the real estate boom, suppliers of American-made drywall were hard pressed to keep up with demand. As a result of this pending demand and lack of supply available from American manufacturers, many distributors, suppliers and contractors turned to Chinese drywall to make up the shortfall.

Based on investigations of the shipping manifests in ports of the United States and data collected from the U.S. Commerce Department's International Trade Administration, Chinese drywall entered the U.S. through ports in Alabama, California, Florida, Georgia, Louisiana, Mississippi, Missouri, New York, North Carolina, Pennsylvania, Texas, Virginia, Washington, and Hawaii. It is estimated that somewhere between 300 and 550 million pounds of Chinese drywall entered the United States during a sixteen month period between 2006 to 2007. Much of the Chinese drywall came into the ports of Miami and Tampa. Florida was not alone, however, as it is estimated that at least 60 million pounds of Chinese drywall came directly into Katrina ravaged Louisiana and Mississippi.

While the 300 to 500 million pounds of Chinese drywall is a small fraction of the 15 million *tons* of drywall produced domestically every year, it is estimated that the Chinese drywall has been incorporated into homes in at least a dozen states.

What is the Problem?

Many homeowners have complained that the drywall in their homes is emitting smelly, corrosive gases. It is believed that the problem drywall is the release of volatile sulfur based compounds, which has reportedly caused corrosion to

copper and other metals. The odor has been described as rotten eggs.

A few years ago, producers began to receive complaints about drywall made from gypsum out of a particular location in Tianjin, China.

Homeowners have complained about premature failure of the HVAC system, apparently due to the corrosion of the copper coils. Corrosion has also been noted on electrical wiring, causing the failure of household appliances, televisions, stereo equipment, remote controls, washers, and microwaves. However, the paramount concern of the governmental agencies investigating the issue is the potential adverse health consequences of exposure to the sulfur gases.

What is Gypsum?

Gypsum is an industrially important mineral. It is one of the most widely used minerals in the world, and literally surrounds us every day. Most gypsum in the United States is used to make wallboard for homes, offices, and commercial buildings. A typical new American home contains more than 7 metric tons of gypsum.

Gypsum is a very soft mineral composed of calcium sulfate dihydrate, with the chemical formula $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$. The word gypsum is derived from the Greek word ?????, meaning "chalk" or "plaster". The quarries of the Montmartre district of Paris have long furnished gypsum used for various purposes. Consequently, this material has been called plaster of Paris, which is composed of finely ground gypsum.

What is Drywall?

Gypsum is the main component of drywall. The gypsum is mixed with water and other additives into a plaster of Paris paste or "slurry." Plaster of Paris is made by heating gypsum to about 300 degrees Fahrenheit, then driving 75% of the water out of the mineral. (This reaction absorbs energy, enabling a sheet of drywall to resist fire for a while). The slurry is spread onto a sheet of paper on a production line, which becomes the front of the drywall. The back face paper is then fed from above and applied to make the desired board thickness. Once formed, the slurry is given time to set, or harden, after which the boards are cut and passed through a dryer. The excess water, which was used initially to create the slurry mix, is evaporated out in the drying process.

The Initial Investigation

One of the major players in this unfolding Chinese drywall issue is Knauf Gips, a large German construction materials producer. Knauf Gips has three Chinese drywall divisions, Knauf Plasterboard Wuhu Co. LTD, Knauf Plasterboard Tianjin Co. LTD, and Knauf Plasterboard (Dongguan) Co. LTD.

After receiving homeowner complaints, one of the Knauf Gips divisions, Knauf Plasterboard Tianjin, which obtained its gypsum in the suspect mine or mines, retained the services of The Center for Toxicology and Environmental Health (CTEH). CTEH generated a report, dated November 29, 2006, "in response to reports of sulfur-like odors potentially associated with the use of Knauf Tianjin gypsum plasterboard."

According to the report, CTEH conducted air quality testing in the Miami/Fort Lauderdale area between November 18 and November 20, 2006. The sampling was conducted on a total of five homes known to contain Chinese drywall, one of which did not contain the Knauf Tianjin product, and another home in which the origin of the drywall was not clearly identified. Bulk samples of the Knauf Tianjin product, both before and after installation, were obtained along with samples from two plasterboard products from other Chinese manufacturers, and one product that was manufactured in the U.S.

The CTEH testing detected *carbon disulfide* and *carbonyl sulfide* in all samples associated with the Knauf Tianjin product. The highest level of these chemicals was 14 parts per billion (ppb) for carbon disulfide and 16 ppb for carbonyl sulfide.

CTEH also noted the presence of hydrogen sulfide in all samples it collected. However, the detected levels were between 2.3 – 4.1 ppb. Sampling of the outside area around the test homes demonstrated air levels of hydrogen sulfide at 3.2 ppb, which caused CTEH to opine that the affected homes did not have an elevated level of hydrogen sulfide present. The highest detected level came from the air inside the packaging of the unused Knauf Tianjin plasterboard (4.1 ppb), which was only slightly higher than the 3.9 ppb detected in the U.S. manufactured product. Therefore, CTEH reported, the data indicated the homes built with the Knauf Tianjin product did not have elevated levels of hydrogen sulfide, when compared with domestically manufactured drywall.

Based on the levels found, CTEH opined that the level of exposure it found was significantly below levels that would present a health concern.

Two years later, in late 2008, the Lennar Corporation, a nationwide homebuilder, retained the services of Environ International (Environ) in connection with Lennar's investigation into unusually high rates of air conditioning system evaporator coil failures in Southwest Florida.

In the course of its investigation, Environ took samples from 79 homes affected by the Chinese drywall problem. Carbon disulfide was detected in 20 of the 79 homes. The maximum level detected was 13 ppb, with a mean detected value of 7.1 ppb. Carbonyl sulfide was detected in 7 of the 79 residences. The maximum level detected was 23 ppb, with a mean of detected value of 8.6 ppb. Based on these findings, Environ, in a report to the Florida Department of Health, opined that the levels of carbon disulfide and carbonyl sulfide did not present the potential for adverse health outcomes.

The Florida DOH has retained Unified Engineering, Inc., (UE) to analyze five samples taken by state investigators from affected homes. UE was given five samples, three pieces of Chinese drywall, one piece of domestically manufactured drywall, and a corroded piece of copper pipe. In its initial report dated March 17, 2009, UE confirmed that there were three volatile sulfur compounds that caused the odor of rotten eggs smell in the affected homes, hydrogen sulfide, carbonyl sulfide, and carbon disulfide. UE further confirmed that the Chinese drywall samples gave off a sulfur odor when exposed to extreme heat and moisture, and that high temperatures and heat causes the release of the volatile sulfur compounds. It was also confirmed that the copper corrosion was caused by the volatile sulfur compounds in the presence of moisture. However, UE commented that the samples were delivered in one plastic bag, suggesting the strong possibility of cross contamination. Therefore, UE recommended that retesting needed to be performed under stricter control standards.

No Recognized Health Problem

Carbonyl sulfide

Carbonyl sulfide is a colorless gas with an unpleasant odor. Carbonyl sulfide can be considered to be a compound of carbon dioxide and carbon disulfide, and is normally produced as a by-product of the production of carbon disulfide. Carbonyl sulfide is the major sulfur compound naturally present in the atmosphere because it is emitted from volcanoes and deep sea vents. The greatest natural source of carbonyl sulfide is ocean water.

There are currently no federal regulatory or guideline levels recommended for workplace exposures to carbonyl sulfide. The State of Louisiana has an 8 hour average outdoor air exposure for this chemical at 23 ppb. However, carbonyl sulfide has been detected in human breath at an average concentration of 92 ppb. The highest levels

detected in the Chinese drywall tests were 14 ppb by CTEH and 13 ppb by Environ.

Carbon disulfide

Pure carbon disulfide is a colorless liquid with a pleasant odor that smells sweet. The impure carbon disulfide that is usually used in most industrial processes, however, is a yellowish liquid with an unpleasant odor like that of rotting radishes. Carbon disulfide evaporates at room temperature, and the vapor is more than twice as heavy as air. Carbon disulfide easily explodes in air and is highly flammable.

In nature, small amounts of carbon disulfide are found in gases released to the earth's surface, for example, in volcanic eruptions or over marshes, with the greatest natural source also being ocean water.

The U.S. Environmental Protection Agency (USEPA) has established a threshold exposure for the general population at 220 ppb. Their recommended occupational exposure level for this chemical is 1,000 ppb. Carbon disulfide has been detected in human breath at an average of 24 ppb. The highest level detected by CTEH was 14 ppb and 13 ppb by Environ.

The Florida Department of Health's (FLDOH) current position is that available data has not identified levels of corrosive gasses that exceed those recognized as posing a risk to health. It will continue to seek data from all parties regarding occupant exposures to chemicals and secondary hazards resulting from corroded building materials. It has stated that if data arises that identifies health or safety hazards resulting from conditions in homes experiencing this phenomenon, it will work to communicate them to the public.

In its continuing effort to gather information, the FLDOH has established its definition of a Chinese drywall case. To meet the current case definition, homes that are constructed after 2003 (2004 to present) must meet two or more conditions; and those built between 2000 and 2003 must meet three or more of the following conditions:

There is presence of sulfur-like or other unusual odors
Confirmed presence of Chinese manufactured drywall in the home
Observed copper corrosion, indicated by black, sooty coating of un-insulated copper pipe leading to the air handling unit present in the garage or mechanical closet of home
Documented failure of air conditioner evaporator coil (located inside the air handling unit)
Confirmation by an outside expert or professional for the presence of premature copper corrosion on un-insulated copper wires and/or air conditioner evaporator coils (inside the air handling unit)

The Lawsuits

Lawsuits related to Chinese drywall, including numerous class actions, have been filed in Florida, Louisiana, Alabama and Ohio (involving a Florida house). More lawsuits are being filed every day, with lawyers in South Florida hosting meetings with homeowners and homeowner associations to discuss options – and ultimately, litigation.

Several homeowners have filed class actions. These class action plaintiffs will attempt to represent themselves and “others similarly situated who own homes in the United States that contain defective drywall that was designed, tested, manufactured, marketed, wholesales, supplied and/or sold” by the defendant manufacturers and suppliers.

Many homeowners are bringing lawsuits solely on their own behalf. These lawsuits have been filed against developers, general contractors, drywall installers, supply houses, distributors, and even the Chinese manufacturers.

Lennar, one of several large homebuilders impacted by the Chinese drywall problem, has initiated its own lawsuits, naming the Chinese manufacturers, distributors, supply houses, and drywall contractors.

The lawsuits include claims for breach of contract, negligence, breach of warranty, unjust enrichment, and private

nuisance. Some suits request equitable relief seeking medical monitoring of the effects of exposure to the defective drywall on homeowners. All of the lawsuits have been filed recently, and more are filed every week.

What is the Resolution?

Although several entities have been aware of the problem since 2006, the Chinese drywall problem is now mushrooming into a major issue, as can be seen by recent comments from politicians in the affected areas. No easy solution has been identified. The only option on the table is to remove all of the problem drywall, repair everything it has damaged, reinstall new drywall, and refinish the home. This solution is time consuming and *extremely* expensive. Experts are analyzing alternate means to render the problem drywall harmless without requiring a complete teardown and removal. It does not appear that there is any consensus, other than total renovation, at present. Lennar apparently intends to replace all the drywall and seek to recover from others. The general contractors and subcontractor are looking at huge potential claims, as are all of the suppliers in the chain.

Everyone is reviewing their contracts, invoices, and job records. It is difficult to assess how much drywall any of the entities actually installed or what projects, or even units, have Chinese drywall in them.

It appears many home builders and general contractors are performing audits of the potentially effected units. Once it is determined which and how many units are affected, difficult decisions will have to be made about how to resolve the problem.

No Clear Answer in Sight

The resolution of the problem will develop over the next months, and clarification of the legal consequences to the involved parties may take years. One thing we know, the lawyers will be busy sorting out the rights and liabilities of the affected parties.

Stay tuned...

###

Bob Fitzsimmons is Board Certified by the Florida Bar in the area of Construction Law and has vast experience in complicated construction, transfer of risk and coverage litigation. He is co-chairing HarrisMartin's Chinese Drywall Litigation Conference in Orlando, Florida on June 4 and 5, 2009.

Rumberger, Kirk & Caldwell provides litigation and counseling services in a wide range of civil practice areas including products liability, commercial litigation, construction, intellectual property litigation, environmental, labor and employment, insurance coverage and bad faith, professional liability, health care and administrative law. Offices are located in Orlando, Tampa, Miami, Tallahassee and Birmingham, Alabama. For more information, please visit our website at www.rumberger.com.