

**Submission of the Written Testimony of**  
**ROBERT D. GARY**  
**Longboat Key, Florida**  
**BEFORE THE UNITED STATES SENATE**  
**Committee on Commerce, Science and Transportation**  
**Subcommittee on Consumer Protection, Product Safety and**  
**Insurance**

I want to thank the Committee for focusing its attention on the devastating problem that has been caused by the off-gassing of drywall which has forced people to abandon their homes, often with catastrophic financial and personal consequences.

My name is Robert D. Gary and my law firm, Gary Naegele & Theado, LLC, together with the undersigned attorneys, represent George & Brenda Brincku and others whose homes are uninhabitable because they contain not Chinese drywall but drywall domestically produced by American companies. I have represented the Brinckus since early 2009.

My concern is that innocent homeowners who have domestically produced defective drywall in their homes have been poorly served by the very federal agency whose sole purpose is to protect consumers from defective products. To some degree, and at the urging of Brenda Brincku, the Consumer Product Safety Commission undertook a much delayed study of "non-Chinese manufactured drywall". That study referred to domestically produced drywall with the curious ambiguous description of "often referred to as domestic drywall by consumers."

The critically important issue before the Consumer Products Safety Commission should be "is American-made drywall exhibiting corrosion problems?" It is beyond dispute that the now notorious Chinese drywall is destroying homes. Our American homeowners deserve a full study into whether domestically manufactured drywall has also experienced corrosion caused by the drywall in their homes. Rather than address this issue, the CPSC chose instead to side-step the question in its report issued on April 15, 2011.

For purposes of its report, the CPSC tested eleven homes which "the homeowners self-reported were constructed with domestically produced drywall." See Exhibit A, attached hereto, at page 2. The results of this study were anxiously awaited by those homeowners who clearly had corrosion but no evidence of Chinese drywall

in their homes. Nine of these eleven homes were confirmed to have "evidence of blackening of copper wiring or cooling coils. Water was eliminated as a possible source of the indoor corrosion.

Prior to the issuance of this report, I, along with my colleagues and Pamela Gilbert, a former Executive Director of the Consumer Product Safety Commission, met on April 5, 2011 with the Commission. We urged at that meeting that the Commission test for sulfur-reducing bacteria which could have established that the drywall, and not another source, was causing interior corrosion in the tested homes. The Commission declined to do this testing or to do the well-established chamber testing of the drywall. Presumably the issue was the cost of the testing.

The issue of whether American-manufactured drywall was causing interior corrosion was and remains a vitally important question to the American homeowner. Yet the CPSC failed to make the most basic determination in its testing of the eleven homes. The CPSC made no effort to confirm whether the drywall they were testing was in fact American-manufactured. Instead the CPSC relied on self-reporting from the occupants of the homes that the drywall was constructed solely with domestically-manufactured product. It would have been a simple procedure to confirm the identity of the manufacturer of the drywall the CPSC was testing. All domestic drywall has run codes printed on the back which would have identified the time, place and manufacturer. The failure to take this simple step rendered an expensive study all but useless because it never segregated out the origin of the drywall it was testing. As counsel for the Brinckus, I can state categorically that their home has no Chinese drywall, yet because of interior corrosion, it is uninhabitable.

Rather than providing protection for the consumer, the net result of the CPSC study instead provided cover to the drywall manufacturers who cite the studies of the CPSC in its press releases to confirm the safety of its drywall products. I have attached two such examples as Exhibits B and C. National Gypsum has repeatedly used the flawed study of the Consumer Product Commission to discredit any claims about their drywall and even specific victims including George and Brenda Brincku. For example, note the following from a National Gypsum press release:

*CPSC Report Determines National Gypsum Drywall in Brincku Home is Not Defective*: In April 2011, the Consumer Product Safety Commission (CPSC) released a report on testing of domestic drywall as part of a broader investigation into problems associated with defective Chinese

drywall. The report determined that the National Gypsum drywall in the Brincku home was not defective.

A critically flawed study by an agency whose mandate is to protect the consumer is being used to discredit the very consumers the CPSC is supposed to protect. The most casual visit to the Brincku home will quickly reveal that the home has been destroyed by something that is corroding copper in the home. The Brincku's attorneys have confirmed the presence of sulfur-reducing bacteria while the manufacturer of the drywall suggests the problem arises from the well water.

The CPSC has eliminated well water as a possible source of corrosion. If, in fact, as the domestic drywall manufacturers allege, the well water in Florida is so corrosive that it can destroy copper through air born transmission the problem for Florida and its real estate market extends far beyond the confined problem of defective drywall. It would mean not only has there been a catastrophic failure by those agencies that regulate Florida water quality but the real estate industry with equally devastating consequences would have to alert home owners to this menace emanating from the well water. Neither of these concerns will be realized because the attack on Florida's well water is a red herring.

In conclusion, a separate study of the potential problems with American drywall remains regrettably an open question despite the considerable costs of investigating drywall-related problems. The CPSC's explanation that it did not want to do extensive removal of drywall begs the question and could have been eliminated by testing for sulfur-reducing bacteria. This simple test would have established that hydrogen sulfide is being produced by drywall as a waste product of sulfur-reducing bacteria.

We, the undersigned, urge that the agencies of the Federal Government not close the door on problems created by domestically manufactured drywall before even the most basic questions have been answered. At the very least, we ask that the Consumer Product Safety Commission confirm the origin of the drywall from the eleven homes already tested.

Thank you for your consideration and please submit this testimony for inclusion in the Congressional Record.

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U.S. Consumer Product Safety Commission Staff  
Summary of Contractor's Evaluation of Homes Reported to be  
Constructed with Domestic Drywall<sup>1</sup>  
April 15, 2011

## **BACKGROUND**

The U.S. Consumer Product Safety Commission (CPSC) contracted with Environmental Health & Engineering, Inc. (EH&E) to conduct an investigation of a few homes where consumers have reported health and corrosion problems and where they also reported that the homes were built with what they identified as non-Chinese manufactured drywall (often referred to as “domestic drywall” by consumers). Although these reports alleging problems due to non-Chinese drywall represent a very small fraction of the total reported incidents, the CPSC investigated them as part of its overall investigation to gain a comprehensive understanding of the reported problems.

Earlier investigations conducted by EH&E under contract with the CPSC identified a link between problem drywall in a home and increased levels of hydrogen sulfide in indoor air and increased rates of copper and silver corrosion. They also found that orthorhombic sulfur (S<sub>8</sub>)<sup>2</sup> was a useful marker for identifying problematic drywall (EH&E, 2010a and 2010b). These findings, in part, formed the basis of the Federal Interagency Task Force on Drywall's Interim Guidance for Identification of Homes with Corrosion from Problem Drywall (CPSC/HUD, 2010).<sup>3</sup>

This guidance includes two steps: (1) a threshold inspection of the home to identify blackening of copper electrical wiring and/or air conditioning evaporator coils and the installation of drywall in the time period of concern; and (2) the verification of corroborating evidence. In accordance with the Identification Guidance, either two or four pieces of corroborating evidence are required to identify a home as one with corrosion from problem drywall. Homes built or renovated between 2001 and 2004 require at least four pieces of corroborating evidence, and homes built or renovated between 2005 and 2009 require at least two pieces of corroborating evidence.

Corroborating evidence can be: the detection of elevated S<sub>8</sub> levels in samples of drywall taken from the home; corrosive conditions; the formation of copper sulfide on copper coupons placed in the homes for 14 to 30 days; visual observation of markings, indicating the origin of the drywall; elevated levels of specific sulfide compounds from chamber testing of drywall samples; or corrosion of copper metal coupons to form copper sulfide when exposed in a chamber with drywall samples.

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<sup>1</sup> This document was prepared by CPSC staff and has not been reviewed or approved by, and may not necessarily reflect the views of, the Commission.

<sup>2</sup> Also referred to as “elemental sulfur.”

<sup>3</sup> Recent investigations indicate that the years should be expanded to include 2009. This has been reflected in an update of the Identification Guidance, March 18, 2011.

## STUDY DESIGN

CPSC staff contracted with EH&E to perform this study to assess whether the objective criteria reportedly associated with problem imported drywall and outlined in the field-based component of the Identification Guidance were present in complaint homes allegedly constructed of domestic drywall. CPSC staff also wanted to compare the data collected from these homes with results obtained in the initial, large-scale investigation of homes with problem drywall (referred to as the “51-Home Study”). This comparison is important because the 51-Home Study was the largest study, to date, conducted on problem drywall homes using consistent and rigorous testing parameters. Testing performed as a part of the present study was conducted with methods identical to the 51-Home Study to ensure comparability. In this way, the results of the present study on 11 homes could be placed in context with the results of the larger study. CPSC staff asked that EH&E:

- characterize the indoor environment in consumer complaint homes that were reported to the CPSC to be constructed with domestic drywall, and
- compare the drywall composition, indoor air quality, and corrosion conditions in these homes to corresponding parameters observed and measured in residences in the 51-Home Study.

This study, like the earlier 51-Home Study (EH&E, 2010a) was intentionally designed to identify source characteristics of drywall and characterize the indoor environment in the home where the complaint was reported. Thus, the study was conducted as a field study at the home, and chamber emissions testing and chamber-based corrosion testing were not performed as part of the suite of tests.

CPSC staff selected 11 homes for the study. Homeowners self-reported that their homes were constructed with domestically produced drywall; and before undertaking this study, CPSC staff performed in-depth investigations to remove homes from the study where Chinese markings were clearly present. CPSC staff selected the homes, located in Florida (n=9), North Carolina (n=1), and Pennsylvania (n=1), from drywall-related consumer incident reports that the CPSC received between December 2008 and April 2010. Staff developed a ranking system to guide the current study, which like the 51-Home Study, considered location, date of construction or restoration, severity and extent of reported health effects, and corrosion. Staff also considered consumer-reported manufacturer of drywall as a factor in the home selection, as well as consumer willingness to participate in the study.

Between September 20, 2010 and September 29, 2010, EH&E field teams visited the homes and scanned multiple locations on the walls in each home with an x-ray fluorescence (XRF) analyzer as a screening tool to aid in detecting possible markers of problem drywall; collected drywall samples to analyze for orthorhombic sulfur; inspected ground wires and air handling units for corrosion; conducted air exchange, temperature, and humidity measurements; deployed passive air samplers for measuring indoor air concentrations of hydrogen sulfide and formaldehyde; placed strips of copper and silver metal called corrosion classification coupons in the homes to

measure the rates and types of metal corrosion; and analyzed water samples to rule out alternate sources of sulfides in the homes. The full report can be found on [www.drywallresponse.gov](http://www.drywallresponse.gov). Key results are detailed below and presented in Table 6.2 of the full report, which is attached to this summary.

## KEY RESULTS

- Nine of the 11 homes (Homes A–E and H–K) had evidence of blackening of copper wiring or cooling coils and were constructed/renovated in the relevant date range (2001–2009). However, homes investigated to date, impacted by problem drywall, meet a common set of parameters, not all of which were observed in each of the nine homes.
- Five of the 11 homes (Homes A–E) met the criteria for identification of homes with problem drywall in accordance with the Identification Guidance, including elevated rates of corrosion and elevated concentrations of  $S_8$  in drywall samples. Hydrogen sulfide was detected in the air in only three of the five homes (Homes A, B, and D) at levels that were similar to those levels found in problem drywall homes in the 51-Home Study.
- In five homes (Homes A–E), indoor corrosion rates exceeded outdoor corrosion rates by as much as nine times. These results are consistent with the results found in the 51-Home Study.
- The presence and percentage of drywall samples with source markers ( $S_8$  and strontium/carbonate) in Homes A–E varied by room.
- Two of the 11 homes (Homes F and G) do not have the characteristics of homes with problem drywall consistent with the characteristics found in the 51-Home Study or in accordance with the guidance for identifying problem drywall homes.
- Four of the homes (Homes H–K) had a corrosive environment based on elevated rates of corrosion, as determined by the visual observation rating system and mixed findings of corrosion on the copper and silver coupons between and within each home. The  $S_8$  marker was not found in the drywall samples from any of these four homes.
- In four homes (Homes H–K), outdoor corrosion rates were sometimes similar to the indoor rates.
- All of the homes in this study had air exchange rates that are typical of North American residences.
- Formaldehyde levels in the 11 homes were consistent with levels found in recently constructed homes and results of the 51-Home Study and were not associated with the drywall.
- Sulfides were not detected in any water samples from any of the 11 homes and, therefore, were not likely a potential contributing factor to measured indoor corrosion rates.

- Average humidity and temperature conditions in the 11 homes were typically within the ranges recommended for summer months by the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE). The temperature and humidity levels were generally higher in homes in Florida in comparison to the two homes (Homes F and G) located in North Carolina and Pennsylvania.

## **OTHER ISSUES AND STUDY LIMITATIONS**

- Information that these homes were constructed solely with domestically manufactured drywall as opposed to Chinese drywall was obtained by self-report from the occupants. CPSC staff and EH&E were not able to confirm independently that all of the drywall in the homes was produced domestically. This would have required extensive removal of the drywall and destructive testing of the residences.
- An elevated rate of corrosion in homes is not sufficient, by itself, to conclude that the corrosion is associated with problem drywall in the home. Outdoor corrosion rates may be the source of indoor corrosion in some of these homes (Homes H–K). Or, the corrosion source might originate from something other than the drywall.
- In its report, EH&E suggested that additional chamber emissions and chamber-based corrosion studies may help identify whether the drywall is the source of corrosion versus some other factor or source inside or outside of five of the subject homes (Homes H–K). While CPSC staff understands the reasoning for the recommendation of additional study, the CPSC has determined that due to the relatively limited number of homes affected, the uncertainty concerning the drywall’s origins, agency resource constraints, and that any findings of problem drywall would not change the current Task Force recommendations, it cannot authorize further expenditure or study on this issue at this time.
- While a sufficient number of drywall samples from each home were analyzed for elemental sulfur ( $S_8$ ), and the selection of samples to analyze was based on the presence of a secondary marker (strontium) to increase the likelihood of selecting a sample with elevated elemental sulfur, it is possible that, even with the robust study design, problem drywall with elemental sulfur exists on a small number of boards in Homes H–K; however, it was not detected.
- There is a possibility that some problem drywall, including domestic drywall, may have different characteristics from the originally defined problem drywall. For example, there may be differing mechanisms of chemical off-gassing or compositions of source materials; or  $S_8$  might be a good marker for a particular type of problem drywall (for example, problematic Chinese drywall) but not all problem drywall. If that is the case, this study would not have been able to identify this drywall as problematic because it had materially different characteristics from the problem drywall studied to date.

## CONCLUSIONS

Based on the characterization of the drywall and indoor environments of the 11 homes tested, comparison of the results with existing data from homes classified as problem drywall homes (51-Home Study), evaluation of the test results in relation to the Identification Guidance, and EH&E's extensive experience in conducting investigations of problem drywall homes, EH&E reported that five of the homes in the study (Homes A–E) have drywall that is consistent with problem drywall. However, because EH&E was unable to confirm independently that all of the drywall in the homes was produced domestically, and without detailed documentation of the drywall's origin, or without damaging the homes through extensive removal of the homes' drywall, it is not possible to conclude that only domestic drywall is present throughout the homes.

Four of the homes (Homes H–K) had a corrosive indoor environment, but the test results were not consistent with previous findings related to the identification of problem drywall. It appears that the indoor corrosive environment might be influenced by outdoor corrosive conditions. Based on this study, other indoor sources, or the presence of a limited amount of problem drywall, cannot be ruled out as a source of the indoor corrosive environment. Conclusions regarding the potential of domestic drywall to be problematic cannot be confirmed at this time without further extensive investigation and detailed documentation of the origin of the drywall in these homes.

## REFERENCES

EH&E, 2010a. *Final Report on an Indoor Environmental Quality Assessment of Residences Containing Chinese Drywall.*

EH&E, 2010b. *Identification of Problematic Drywall: Source Markers and Detection Methods.*

Table 6.2 Environmental Test Results for Each Home, by Location												
Step	Criteria	Home A	Home B	Home C	Home D	Home E	Home F	Home G	Home H	Home I	Home J	Home K
1	(a) Blackening of copper? -- AND --											
	(b) Drywall installed 2001–2009?											
2	(a) S <sub>8</sub> Marker?											
	(b) Copper Sulfide on coupons?											
	(c) Markings of Chinese origin?	NF										
	(d) H <sub>2</sub> S, COS, CS <sub>2</sub> in chamber test?	NA										
	(e) Copper Sulfide in chamber test?	NA										
Other Factors	(a) Silver Sulfide on Coupons?											
	(b) Strontium/Carbonate Marker?											
	(c) H <sub>2</sub> S in Indoor Air?											
S <sub>8</sub>	elemental sulfur											
NF	not found in the limited areas accessible for visual inspection											
H <sub>2</sub> S	hydrogen sulfide											
COS	carbonyl sulfide											
CS <sub>2</sub>	carbon disulfide											
NA	not applicable											
	meets or exceeds the decision criteria											
	meets or exceeds the decision criteria; potentially impacted by outdoor sources											

From “Evaluation of Homes Reported to be Constructed with Domestic Drywall”, April 12, 2011, Environmental Health & Engineering.



## Science

### Clearing the Air About FGD Gypsum

Misinformation about FGD gypsum has swirled since the recent problems with defective Chinese drywall.

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### What Is FGD Gypsum?

FGD gypsum has the same characteristics as natural rock gypsum and has been used by the U.S. drywall industry and around the world for more than 30 years.

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### Gypsum Association Comments to the EPA

In comments filed with the U.S. Environmental Protection Agency, the Gypsum Association summarizes the numerous economic and environmental benefits of FGD gypsum.

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## Science Demonstrates the Quality and Safety of National Gypsum Drywall.

Independent studies by the nation's leading laboratories and engineering experts confirm the quality and safety of National Gypsum drywall. Every misperception and false claim has been rebutted by sound science. Read the reports below.

 **CPSC Report Determines National Gypsum Drywall in Brincku Home is Not Defective:** In April 2011, the Consumer Product Safety Commission (CPSC) released a report on testing of domestic drywall as part of a broader investigation into problems associated with defective Chinese drywall. The report determined that the National Gypsum drywall in the Brincku home was not defective.

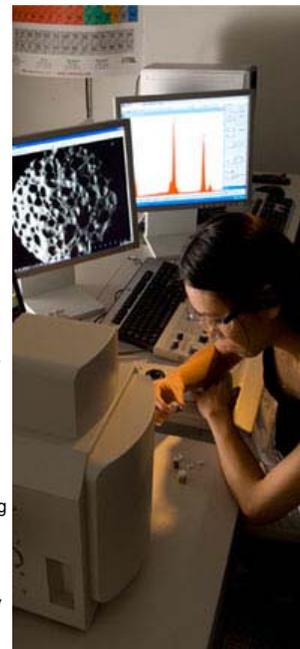
 **CPSC Ft. Bragg Drywall Assessment:** In February 2011, the Consumer Product Safety Commission (CPSC) announced the results of its extensive investigation into domestic drywall concerns at Ft. Bragg, NC. The report found the drywall used in Ft. Bragg housing to be 100 percent safe and free of any defects.

 **ENVIRON Ft. Bragg Drywall Assessment:** In response to concerns regarding drywall used in Ft. Bragg, NC military housing, Ft. Bragg launched an investigation. The independent laboratory, ENVIRON, conducted the drywall testing at Ft. Bragg's request and reported "no evidence of effects from defective drywall."

 **LBNL Report:** In January 2011, the federal government's Lawrence Berkeley National Laboratory published the final results of its tests of North American and Chinese drywall. This report confirms that there is a "clear distinction" between defective Chinese drywall and U.S. drywall.

 **CPSC Report:** A March 2010 Consumer Product Safety Commission investigation showed a "clear distinction" between U.S. and Chinese drywall, with concentrations of sulfur gas as much as 10 times higher in Chinese drywall.

 **EPA: Using Recycled Industrial Materials in Buildings:** The U.S. Environmental Protection Agency encourages the use of FGD gypsum drywall to conserve resources and reduce greenhouse gases. View page 3 of this brief document to see how builders use FGD gypsum drywall. (October 2008)




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April 21, 2011

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**News Archive****Media Contacts****Results Of New Federal Drywall Study Released**

On April 15, 2011, the U.S. Consumer Product Safety Commission (CPSC) released a report on testing of domestic drywall as part of a broader investigation into problems associated with defective Chinese drywall. The CPSC asked Environmental Health & Engineering (EH&E) to determine whether elemental sulfur (the marker for defective drywall), hydrogen sulfide (which produces the distinct "rotten egg" smell) and corrosion conditions that have been associated with defective Chinese drywall were also present in domestic drywall.

The full report can be read here:  
[Federal Drywall Study](#)

Among the key findings:

- **The Report Could Not Determine whether Drywall was Domestically Produced Or Which Manufacturer Produced Which Drywall:** The homes tested were those which the homeowners had told CPSC contained domestic drywall. However, "EH&E was not able to independently confirm that all of the drywall in the impacted homes was domestically produced...." "Therefore," the report continued, "conclusions regarding the potential for domestic drywall to be problematic cannot be confirmed at this time without further extensive investigation and detailed documentation of the origin of the drywall in the impacted homes."
- **Drywall in 5 of 11 Homes Tested Positive for Elemental Sulfur:** EH&E tested drywall in 11 homes. These homeowners had told the CPSC the houses contained domestic drywall and reported problems similar to those found in homes with defective Chinese drywall. Five of the 11 homes tested by EH&E had "drywall that is consistent with problem drywall," including the presence of elemental sulfur.

- **The Brincku Drywall Did Not Contain Elemental Sulfur:** A class action complaint against National Gypsum specifies that the lead plaintiffs, the Brinckus, "moved into their home on or about October 5, 2004." The Brincku home was one of the 11 homes tested by EH&E. Only two of the 11 homes tested by EH&E were built in 2004, Home H and Home I, meaning that one of those two homes is the Brincku home. Both homes H and I showed no elevated concentrations of elemental sulfur in the drywall samples and no hydrogen sulfide emissions. ***These results are 100% consistent with testing by two independent laboratories, including chamber testing, that National Gypsum has had performed on drywall throughout the Brincku home.***

- **External Sources Driving Corrosion in Brincku Home:** For Homes H, I, J, and K, "the outdoor corrosion rates were similar to indoor corrosion rates measured in the rooms. Therefore, based upon the fact that the outdoor corrosion rates seem to be driving the indoor rates, it is likely that there is some external source(s) that is impacting these homes."

- **Widespread Publicity Fueling Drywall Complaints:** EH&E noted that "an elevated rate of corrosion in a home is insufficient, by itself, to conclude that the corrosion is associated with problem drywall in the home." However, EH&E wrote that it is "not surprising, then, to understand homeowners' complaints regarding their homes, and their assumption, based upon widespread reporting of drywall issues, that they have problem drywall."

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