E-SERVICES, Inc. Building Inspection and Consulting Services

Exterior Building Analysis Expert Building Inspection & Consulting Environmental Services Education

Drywall Remediation Report

Submitted On:
8/15/2016

Property:
2014 Springhill Court
Birmingham AL 35242

Client:
Chad Eiler

Drywall Remediation Summary

(CDW)

Inspector: Richard J. Laframboise
ICC Building Inspector 5136833-BI
Inspection date: 8/15/2016
Client: Chad Eiler

Project Information:

The subject property is a single family residence located at 2014 Springhill Court, Birmingham AL. The inspection is verity the remediation of Contaminated Drywall from the property. The presence of contaminated drywall was confirmed in January 2016.

The remediation started in almost immediately and the project was completed 8/15/2016. The remediation was in accordance with the Remediation Guidance for Homes with Corrosion from Problem Drywall as of March 15, 2013 by the U.S. Consumer Product Safety Commission and the U.S. Department of Housing and Urban Development. See Attached.

This report is based on a visual inspection. Observations are listed below, but not limited to:

- Drywall was identified as CDW
- The drywall was removed from the entire home.
- All appliances were removed
- The HVAC interior units were removed, including mechanical equipment with corrosion, ducts, piping, wiring, registers
- All Plumbing systems with corrosion were cleaned or removed per CPSC Guidelines
- All Plumbing fixtures were removed
- All corroded electrical system wiring was replaced or cleaned per CPSC Guidelines
- All electrical breakers, switches, receptacles, fixtures and smoke alarms were replaced per CPSC Guidelines
- The interior was Hepa vacuumed and a complete wipe down
- A Hydroxyl Generator was used to remove all remaining odors
- An inspection of structure after demolition and all cleanup was completed and E-Services and determined that the home was cleared of any corrosion and odors and reconstruction began 3/20/2016
- The home has been completely renovated and is free of any corrosion or odors and no Contaminated Drywall is installed in the home.
- All work was Permitted and approved
- Documents attached: Hydroxyl Generator receipt, Photo album, letters from Electrical contractor, Plumbing Contractor, HVAC Contractor, CPSC Remediation Guidance

Conclusion:

Remediation Guidance for Homes with Corrosion from Problem Drywall as of March 15, 2013 by the U.S. Consumer Product Safety Commission and the U.S. Department of Housing and Urban Development. These guidelines were used to renovate the subject property. E-Services Incorporated Certifies that all work was completed in accordance with CPSC Guidelines.

Richard Laframboise
ICC Building Inspector 5136833-BI
Alabama Inspector 0409

This inspection company, its employees and any divisions shall not be liable for non-visual defects, unseen defects, unspecified defects or hidden damage and conditions existing on the subject property and hereby disclaims any liability or responsibility thereof. All parties concerned agree to hold harmless and indemnify this inspection company involving any liabilities that may result including reasonable attorney fees. Failure of payment may result in reasonable attorney fees and other court costs. By execution of this Engagement Authorization, client agrees to this limitation of liability.

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Photo Album

2014 Springhill Court

Birmingham AL 35242

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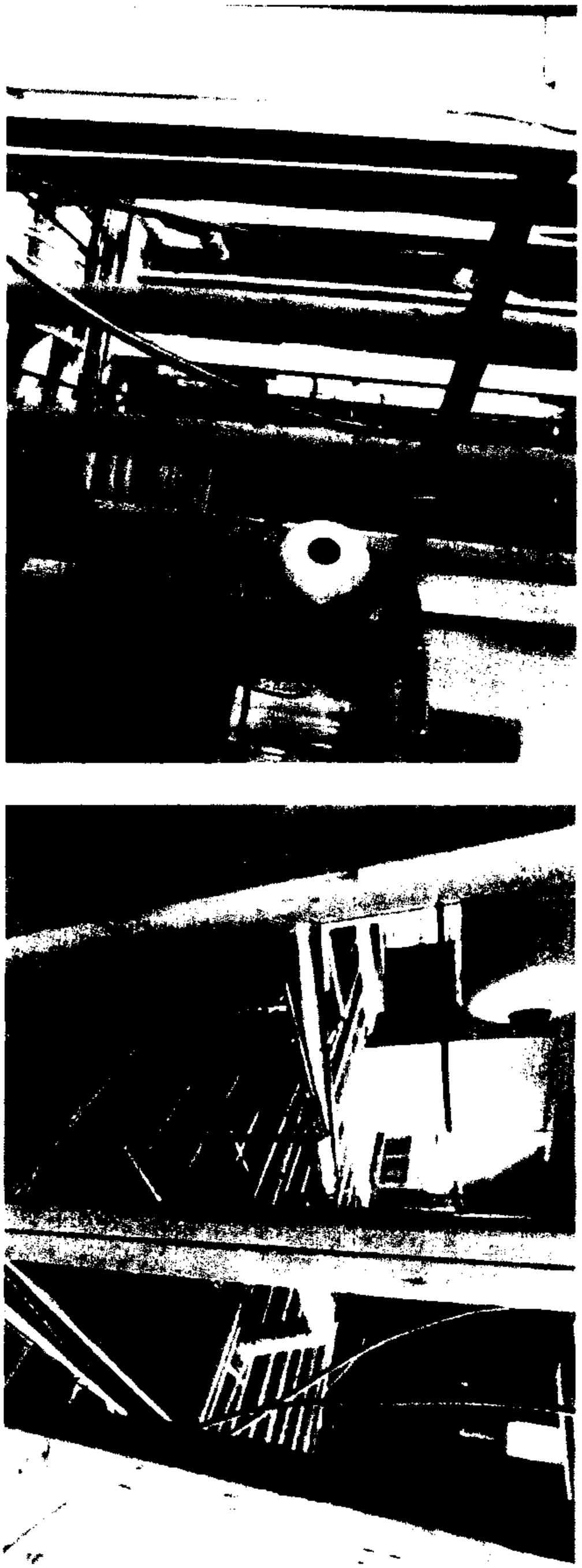

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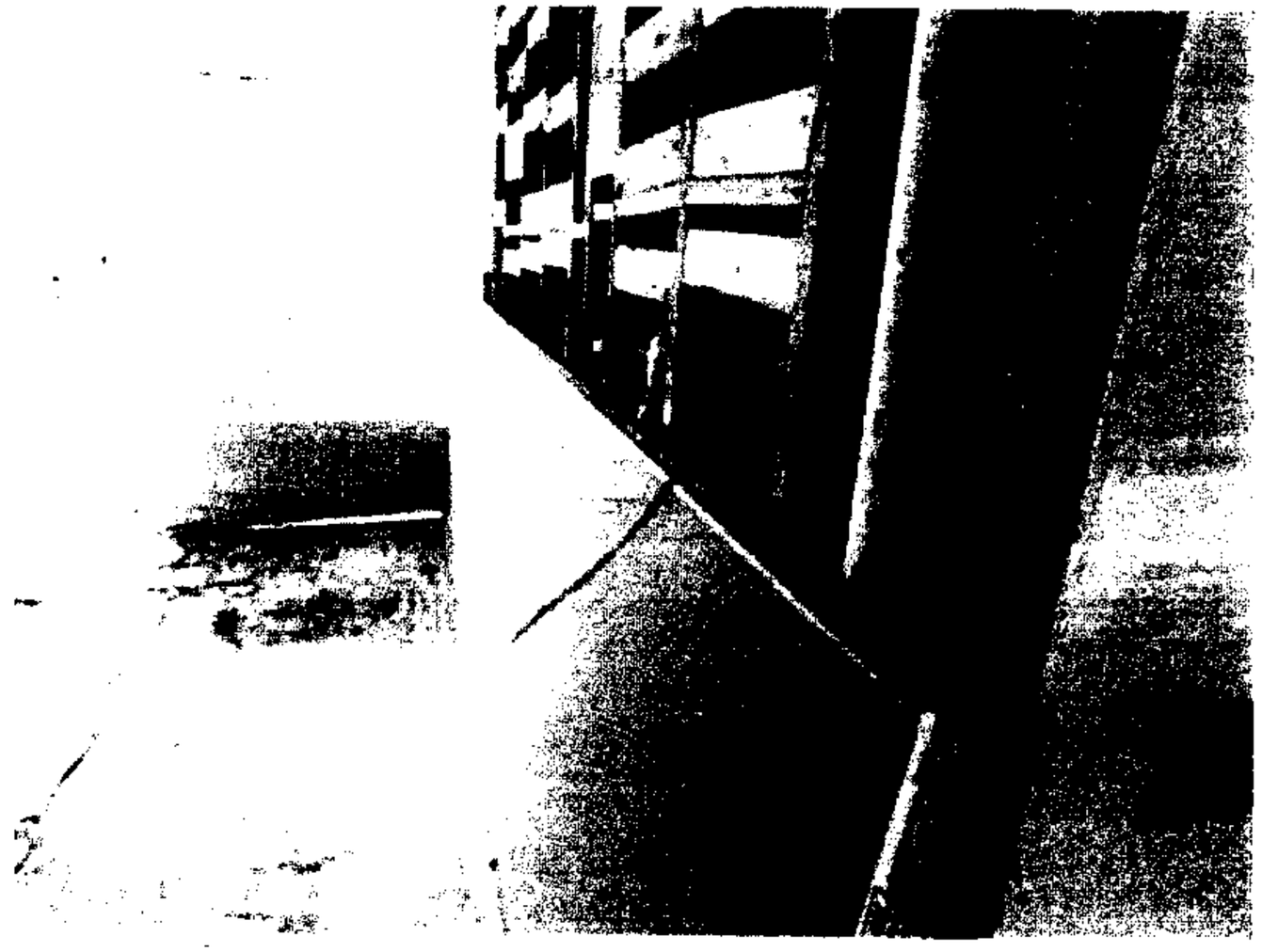

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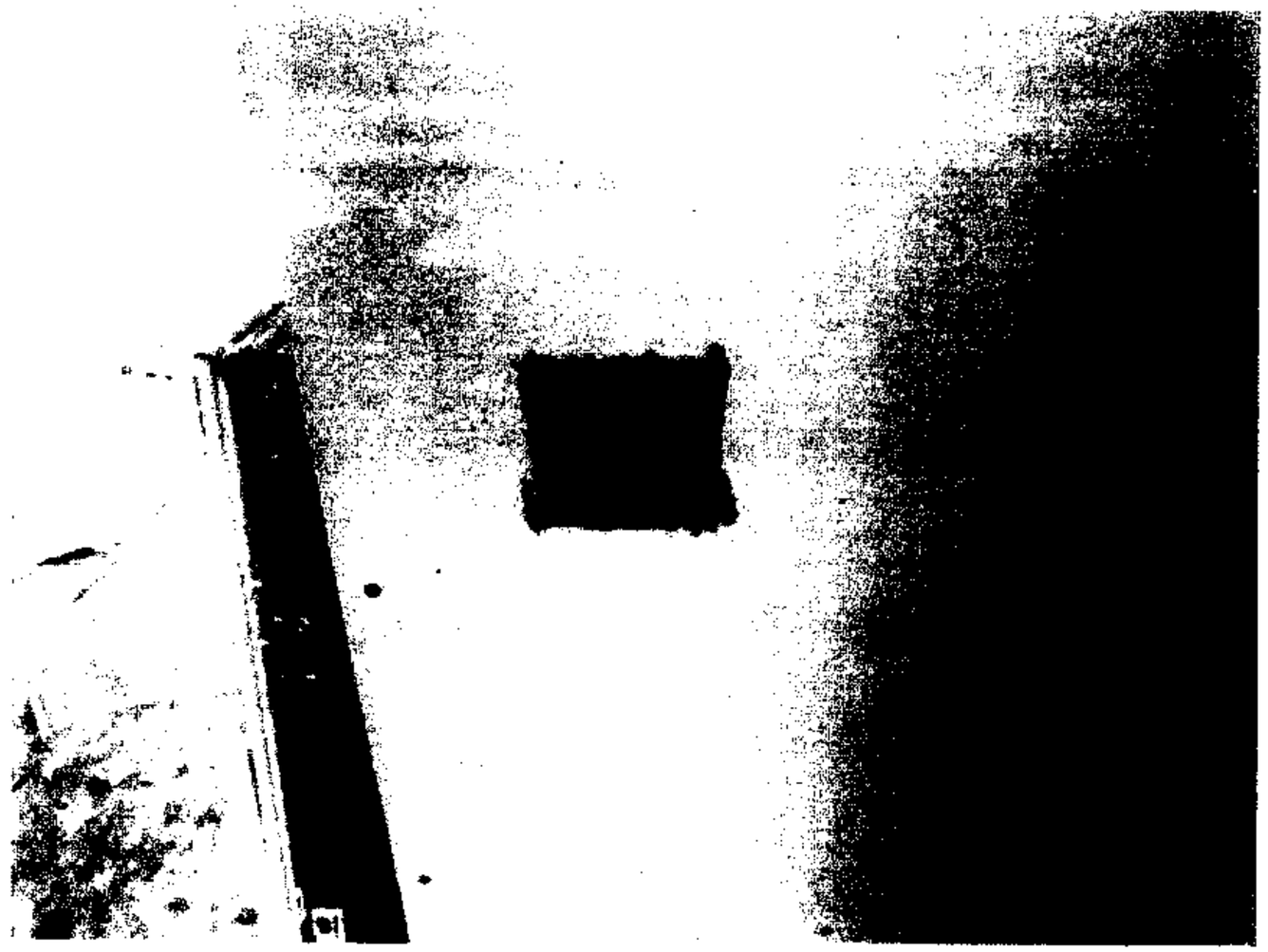

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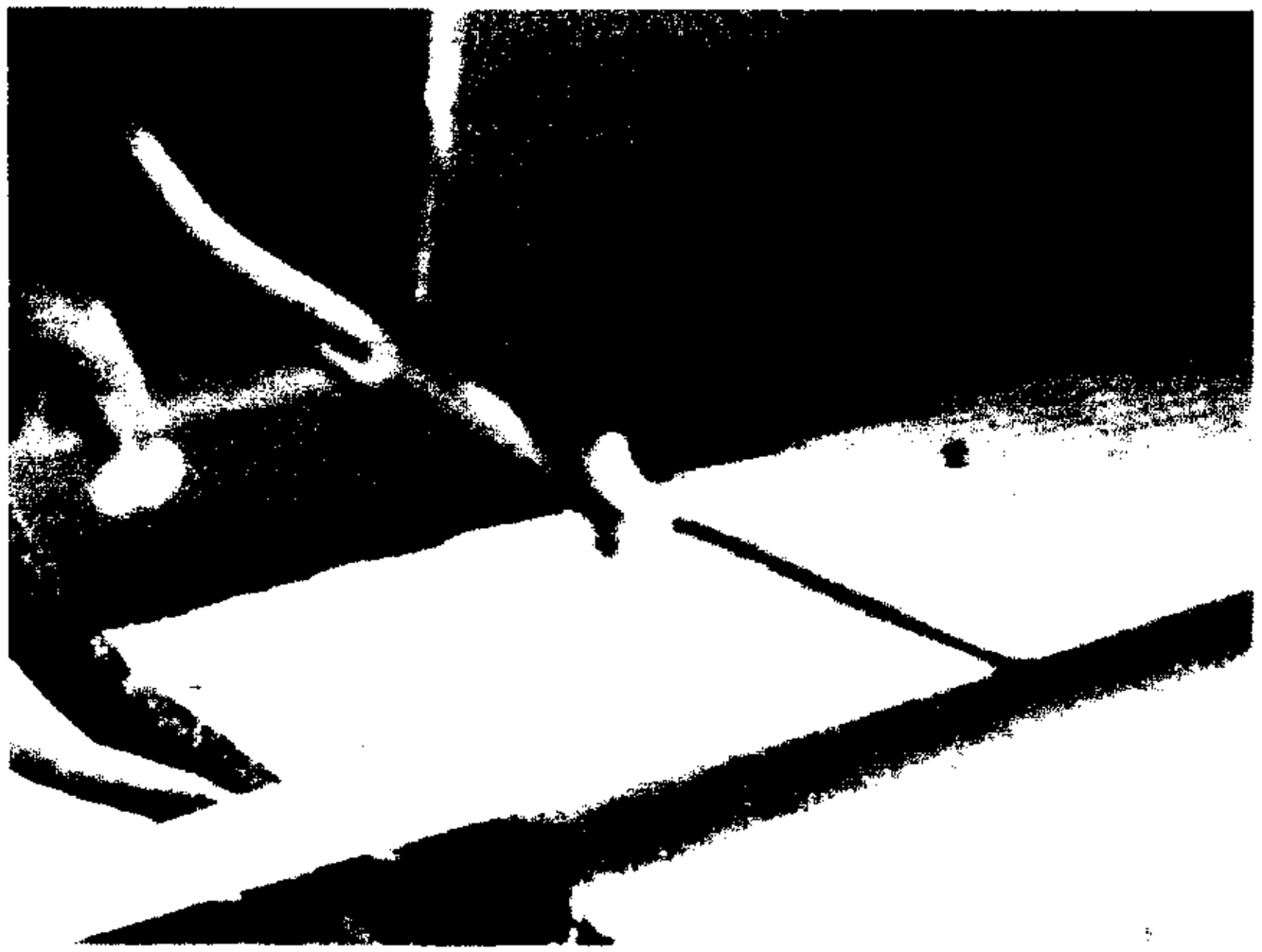

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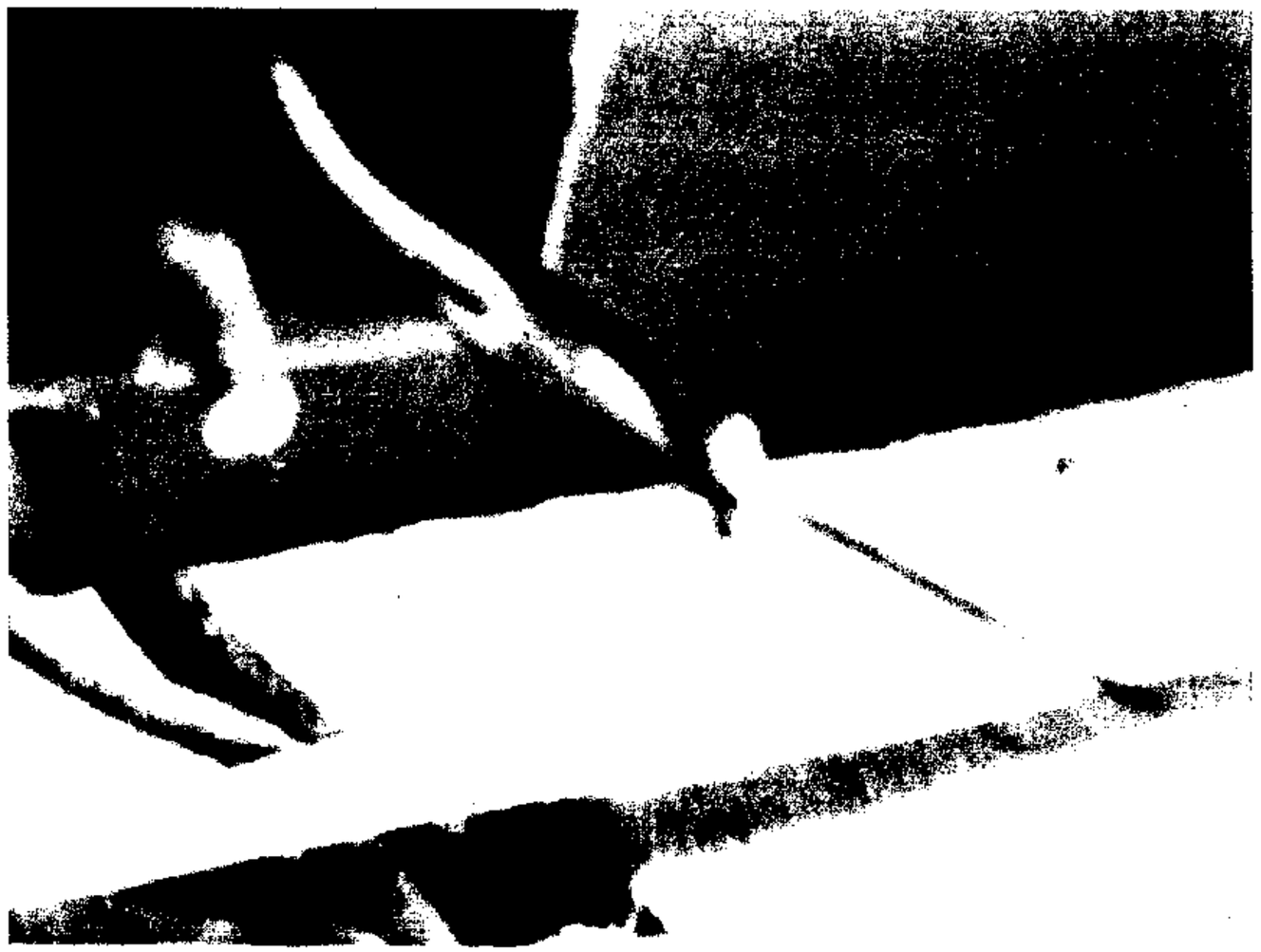

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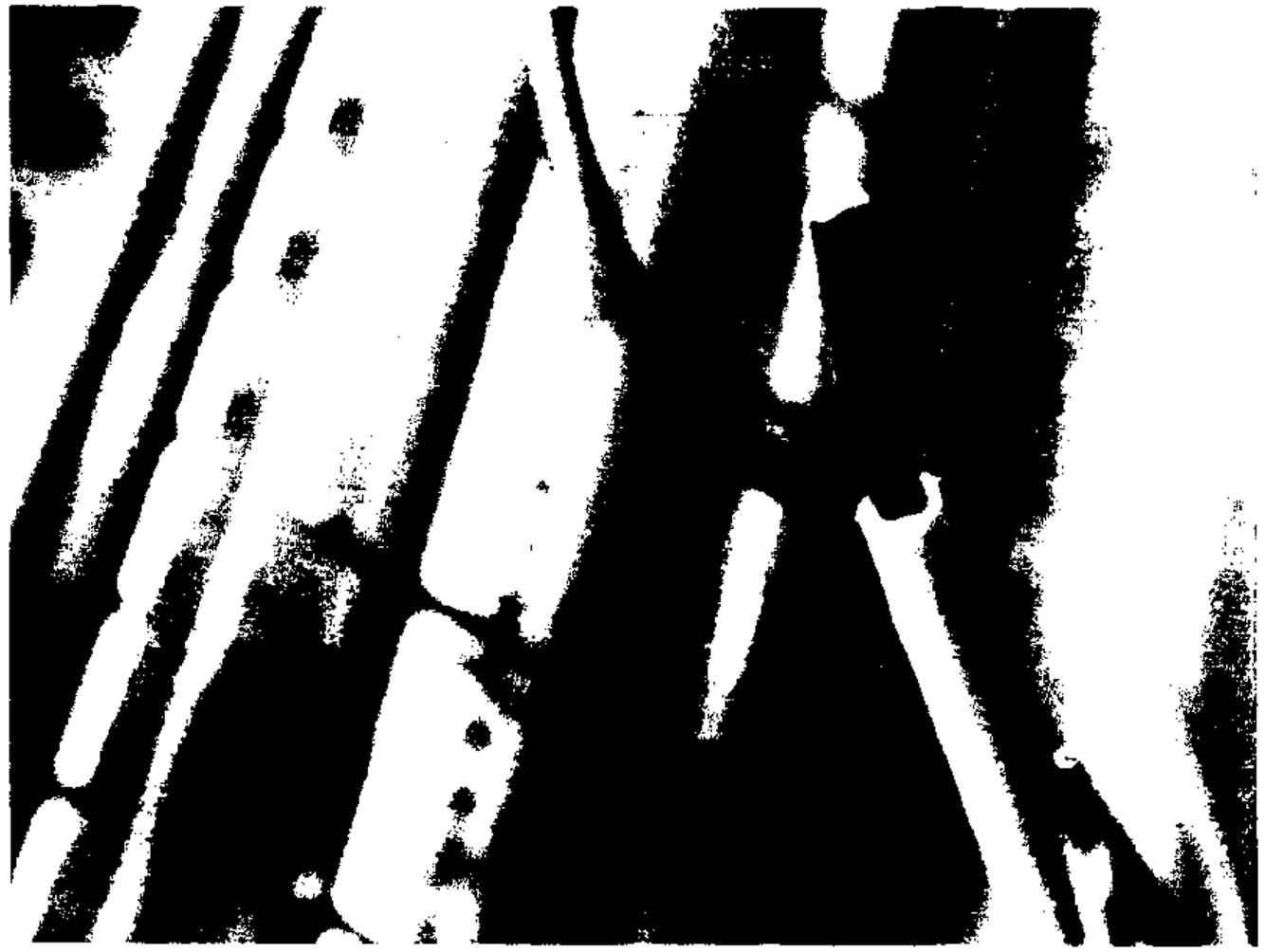

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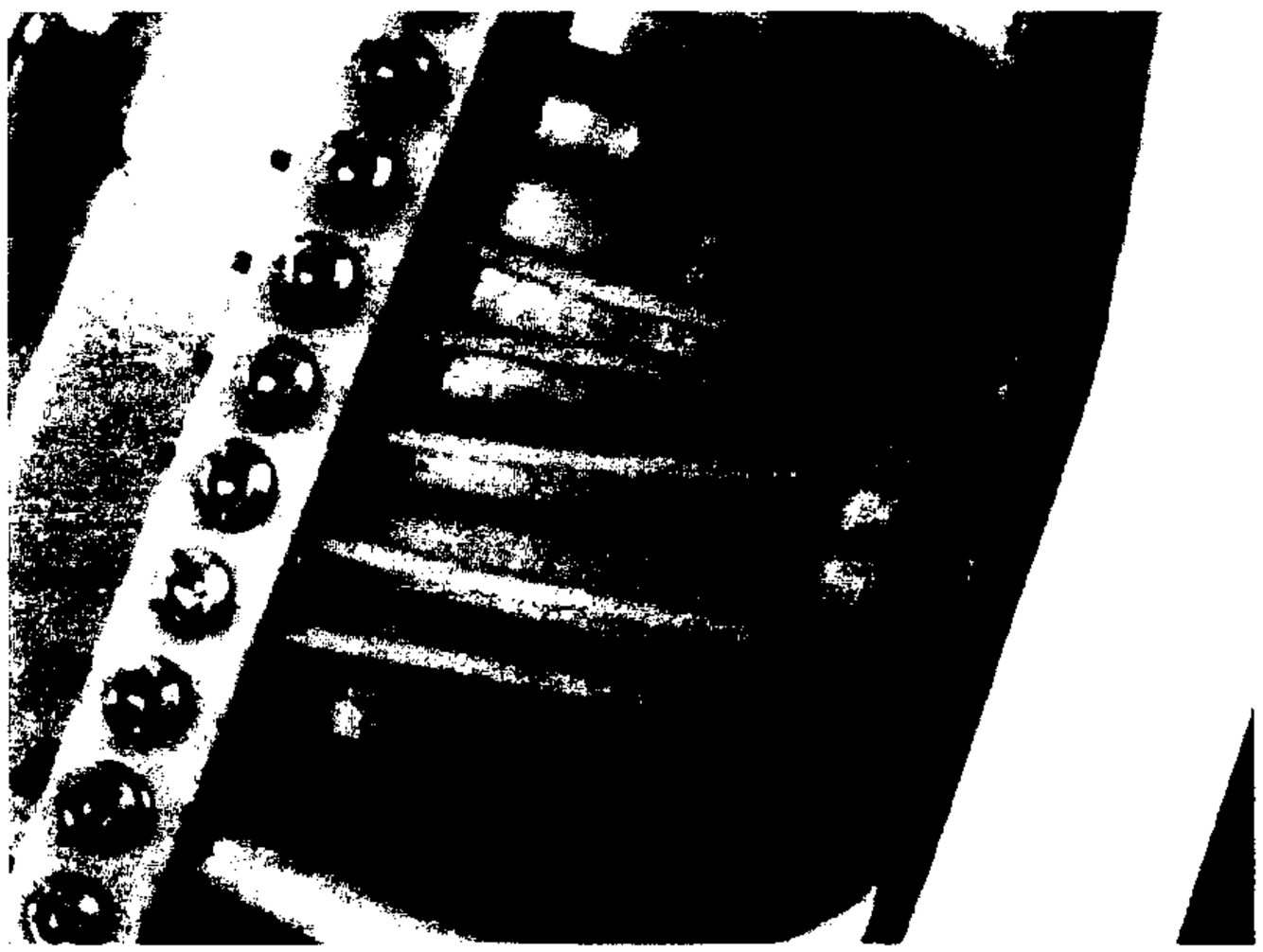

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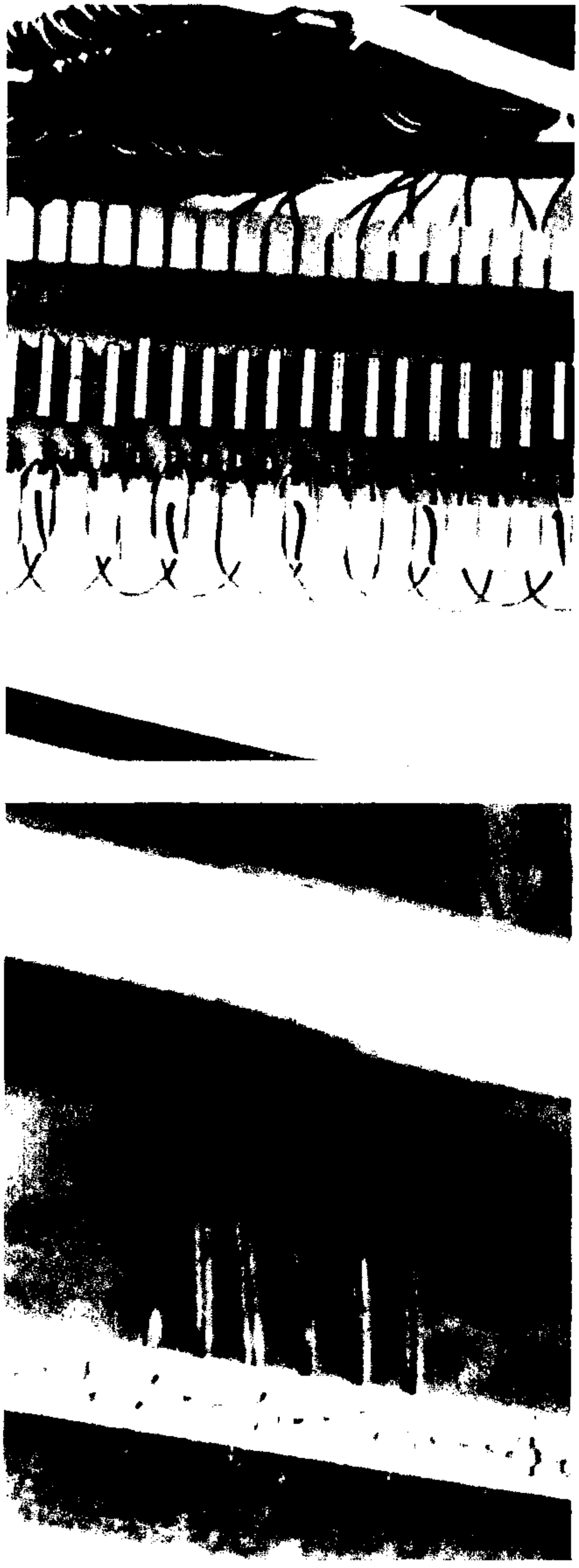

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Remediation Guidance
for Homes with Corrosion from Problem Drywall as of March 15, 2013[1]

by the U.S. Consumer Product Safety Commission
and the U.S. Department of Housing and Urban Development

Introduction

This Remediation Guidance summarizes what the staffs of the U.S. Consumer Product Safety Commission (CPSC) and the U.S. Department of Housing and Urban Development (HUD) believe is an effective approach to addressing potential health and safety issues to remediate houses affected by problem drywall, given the information now available.[2] Initial studies found a strong association between the presence of problem drywall and corrosion of metal in homes. Based upon those findings, the CPSC and HUD have developed this Guidance, which focuses on the replacement of problem drywall and building components for which drywall-induced corrosion might cause a health or safety problem. This version supersedes prior versions of the Guidance.

The CPSC and HUD recognize that many homeowners want to begin the process of repairing their homes. This revised Guidance is designed to be a conservative, commonsense approach to assist homeowners in making some of the challenging decisions they face remediating their homes. Should additional scientific information become available that suggests less extensive or less costly remediation methods would work, the CPSC and HUD will consider the evidence, and we will update our guidance, as appropriate.

Remediation Guidance

This Remediation Guidance for homes with problem drywall calls for the replacement of all:

1. possible problem drywall (as identified in the CPSC and HUD Identification Guidance[3]);
2. smoke alarms and carbon monoxide alarms;
3. electrical distribution components (including receptacles, switches, and circuit breakers, but not necessarily wiring); and
4. fusible-type fire sprinkler heads.[4]

All testing and remediation work should be conducted in compliance with applicable building codes, occupational safety and health standards, and environmental regulations. Gas service piping should be inspected and pressure-tested to ensure that the materials comply with the relevant building code(s), in

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[1] This staff document has not been reviewed or approved by, and it may not necessarily reflect the views of, the Consumer Product Safety Commission. It has been cleared by the Department of Housing and Urban Development in accordance with the HUD Directives System Handbook.

[2] This Remediation Guidance is not intended to address any non-health and safety remediation requirements; nor does it address what, if any, additional elements of a home may require remediation in order to accomplish the principles set forth here. The Task Force recognizes that additional considerations for repair of economic damages have been included in both court-ordered remediation plans and voluntary remediation plans agreed upon by various parties, including homeowners and those in the supply chain. This Remediation Guidance does not address such economic considerations that lie outside the scope of health and safety but that are nonetheless of great importance to all parties involved.

[3] www.cpsc.gov/PageFiles/114210/IDguidance031811.pdf, March 18, 2011.

[4] Glass bulb sprinkler heads should be tested or replaced in accordance with National Fire Protection Association (NFPA) Standard 25, *Standard for Testing and Inspection of Water-Based Fire Protection Systems.* For corrosive environments (which should be assumed for the purpose of the remediation), NFPA Standard 25 calls for testing at 5-year intervals. When remediation is completed, the environment should no longer be treated as corrosive, and the expected life span of the fire sprinkler heads—normally 20 years—should apply.

accordance with the International Fuel Gas Code and National Fire Protection Association (NFPA) Standard 54, *National Fuel Gas Code*. Problematic drywall removed from homes pursuant to the guidance should not be reused or used as a component in production of new drywall.

Discussion

This Remediation Guidance addresses the emission of corrosive sulfur gases by problem drywall and the safety systems in the homes possibly affected by a corrosive environment by: (1) eliminating the source of the corrosion—the problem drywall, and (2) replacing certain building components for safety systems for which drywall-induced corrosion may affect performance, such as smoke and carbon monoxide alarms, electrical components, and fusible-type fire sprinkler heads, in addition to inspecting and testing gas service piping and glass bulb fire sprinkler heads. Furthermore, in accordance with the Drywall Safety Act of 2012 (Public Law 112-266), problematic drywall removed from homes pursuant to the guidance should not be reused or used as a component in production of new drywall.

As a threshold matter, before remediation, care should be taken to determine whether the home contains problem drywall. CPSC staff and HUD staff issued guidance[3] to assist in the identification of problem drywall.

Where a home has been identified as having problem drywall, the scientific and practical challenges of finding individual problem sheets of drywall remain. Until such challenges are overcome, this Remediation Guidance calls for the general replacement of all drywall in an identified home. If some of the drywall in a home can be identified reasonably not to be problem drywall—because it is known to have been installed prior to the relevant time period (*i.e.*, before 2001)—and if there are no other corroborating conditions (as provided in the CPSC and HUD guidance on identification) to indicate that the drywall is problem drywall, then one option would be to leave that drywall in place.

This Guidance includes replacement of the home safety systems at greatest risk of being affected by drywall-induced corrosion that may affect their performance: smoke alarms and carbon monoxide alarms; electrical components (but not necessarily the wiring); and fusible-type fire sprinkler heads. In addition, glass bulb fire sprinkler heads should be tested or replaced in accordance to NFPA Standard 25, and gas distribution piping should be inspected and pressure tested, in accordance with NFPA Standard 54.

CPSC staff's assessment of the effect of problem drywall-related corrosion on electrical distribution components, gas service piping, fire sprinkler heads, and smoke alarms has not revealed any safety-related failures.[5,6,7,8,9]

Corrosion of exposed electrical contact surfaces was observed on electrical devices harvested from affected homes, as well as on new devices subjected to an accelerated corrosion regimen at Sandia National Laboratories to simulate 40 years of exposure. However, although no significant degradation of the electrical connections to the devices was noted, extensive corrosion was present and replacement of receptacles, switches, ground-fault circuit interrupters, and circuit breakers is recommended, out of an abundance of caution.

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[5] www.cpsc.gov/PageFiles/96074/electrical031811.pdf, March 18, 2011.
[6] www.cpsc.gov/PageFiles/114477/NISTsmoke.pdf, September 15, 2011.
[7] www.cpsc.gov/PageFiles/114480/NISTsprinkler.pdf, September 15, 2011.
[8] www.cpsc.gov/PageFiles/114485/NISTgas.pdf, September 15, 2011.
[9] One fusible-type sprinkler head out of the set of 18 tested failed to operate after being subjected to an accelerated corrosion regimen at Sandia National Laboratories to simulate 20 years of exposure to problem drywall. NIST analyzed but could not identify a definitive cause for the functional test failure of this sprinkler. Irrespective of this event, the Task Force recommends replacement of this type of sprinkler head, based on the changes that were observed.

CPSC staff's assessment of the effect of problem drywall-related corrosion on electrical distribution wiring indicated that exposed copper wires were corroded.[5] However, the corrosion was superficial, and it did not reduce the overall cross-section of copper significantly. Thus, the corrosion did not decrease the wire's ability to carry its rated current. Removal or cleaning of the exposed ends of the wiring to reveal a clean/uncorroded surface is recommended. Removal/replacement of cable runs is not necessary, unless the remaining cable has been damaged during drywall removal. However, all repairs must comply with local codes, and final approval of the installation is at the discretion of the authority having jurisdiction.

The corrosion seen on gas service piping materials was found to be superficial and uniform without pin holing. No meaningful loss of thickness was observed, and there was no evidence that the ability to carry gas and hold pressure was compromised. Out of an abundance of caution, and considering the wide variety of environmental conditions that might exist in different homes, this guidance recommends inspecting and pressure-testing gas service piping according to all applicable standards. Any changes to gas service piping should be done in strict accordance with locally applicable codes and standards.

A small but significant difference in performance for certain types of fusible-type sprinkler heads was found after accelerated corrosion, although these sprinklers continued to meet the appropriate performance standards. This Guidance recommends the replacement of all fusible-type sprinkler heads and either testing or replacement of glass bulb sprinkler heads out of an abundance of caution, based on the finding of a small difference in performance for certain sprinkler heads after accelerated corrosion, as well as recognition of NFPA Standard 25, requiring either testing or replacement of sprinkler heads in corrosive environments (which may be present prior to remediation) every 5 years.[9]

In the case of smoke alarms, there were small but significant changes to performance in some cases, although the alarms continued to meet applicable safety standards. The CPSC recommends replacement of smoke alarms every 10 years and carbon monoxide alarms after their limited lifespan, typically every 5–7 years. Therefore, as part of this Remediation Guidance, it is recommended that all smoke alarms and carbon monoxide alarms be replaced.

Staffs of the CPSC and HUD are aware that some remediation efforts have included the replacement of electrical wiring, water service plumbing, HVAC (heating, ventilation and air conditioning) evaporator coils, furnishings, and carpeting. Homeowners may seek to replace such items, but their replacement is not included in this Guidance because of the absence of a direct connection to safety.

Staffs of the CPSC and HUD continue to recognize that other remediation approaches ultimately could prove more cost-effective and/or less invasive; however, this Guidance is believed to be a conservative, commonsense approach and represents all applicable CPSC staff studies on corrosion effects from problem drywall.

Homeowners should recognize that homes can suffer from corrosion unrelated to drywall, and that such other corrosion problems may not be resolved by addressing the drywall.

Other Building Materials and Contents:

Underlying the CPSC and HUD staff's recommendations is the view that removal of the source material (*i.e.*, the problem drywall), will eliminate the cause of the corrosive environment. Staffs of CPSC and HUD do not have a scientific basis to believe that emissions from the problem drywall require replacement of non-problem drywall, wood studs, flooring, cabinetry, insulation, or other household components and fixtures that may have been exposed to the drywall emissions.

Staffs of the CPSC and HUD understand, however, that certain other building materials and contents could be affected or require replacement in the course of the practical construction or engineering steps required to

undertake the remediation described in this Guidance. Staffs of the CPSC and HUD do not offer any view on the replacement of other affected metals, home electronics, or personal property.

Drywall Dust Clean-Up:

During the remediation, it is important to ensure that the home is cleaned to remove any visible drywall dust and debris that was created during the removal of problem drywall, including material that is on and around framing material, prior to commencing reconstruction.

Staffs of the CPSC and HUD are aware that some parties who are remediating homes with problem drywall use HEPA (high efficiency particulate air) vacuums and wipe surfaces to remove drywall dust, and ventilate the home for a period between removal and replacement of drywall to ensure that all reactive sulfur gases have dissipated. We do not have a scientific basis for recommending such steps, but homeowners may consider these options as they seek to make an informed decision in their particular situation.

Additional Issues:

Staffs of the CPSC and HUD are aware that some parties offer remediation approaches other than the replacement of problem drywall and affected metal components. We do not have a scientific basis to provide an opinion of such approaches, and urge property owners to use caution in making decisions about them.

Consumers should exercise caution in contracting for testing and remediation and should be diligent in confirming the references, qualifications, and backgrounds of individuals and firms that offer such services.[10] Consumers should request that individuals and firms that offer remediation strategies that differ significantly from this Guidance explain those strategies and their benefits to the consumer's satisfaction before the consumer's purchase of those services or products.

Conclusion

The scientific work completed by the Federal Interagency Task Force has been essential to building the foundation for decisions by homeowners and local, state, and federal authorities.[11] The results of the Task Force studies conducted to date are sufficient to provide this Remediation Guidance for homes with corrosion from problem drywall.

More information on problem drywall is available at the Federal Drywall Information Center website, http://cpsc.gov/en/Safety-Education/Safety-Education-Centers/Drywall/.

* * *

[10] FTC Consumer Alert, "Defective Imported Drywall: Don't Get Nailed by Bogus Tests and Treatments," www.ftc.gov/bcp/edu/pubs/consumer/alerts/alt164.pdf, December 2009.
[11] Reports and information regarding problem drywall can be found at http://cpsc.gov/en/Safety-Education/Safety-Education-Centers/Drywall/.

Darrin Gardner Plumbing

Darrin Gardner Plumbing
1211 New Countyline Road
Sylacauga, AL 35151

Re: 2014 Spring Hill Court Renovation

August 9, 2016

To: Innovative Building Services, LLC and whom it may concern:

Darrin Gardner Plumbing has completed the plumbing renovation requirements to pass inspections per Shelby County Inspection Services per permit # 2016-00335 for the home located at 2014 Spring Hill Court, Birmingham, AL 35242. This home is noted to have been restored from Chinese Drywall issues. It has been restored in accordance with Shelby County and the Shelby County Plumbing Inspector has approved the work performed by Darren Gardner Plumbing.

Sincerely,

Darren Gardner

Darren Gardner Plumbing

Phillips Electric, Inc.
411 Horton Cove Road
Calera, AL 35040
205-368-2776

July 26. 2016

Re: Renovation of Home: 2014 Spring Hill Court. Birmingham. AL 35242

To: Innovative Building Services, LLC and whom it may concern:

Phillips Electric, Inc. has completed the electrical renovation requirements to pass the inspections per Shelby County Inspection Services per permit # 2016-00335 for the home located at 2014 Spring Hill Court (Highland Lakes), Birmingham, AL 35242. This home is noted to have been restored from Chinese Drywall issues. Wire ends were cleaned, new wire nuts installed. Shelby County Electrical Inspector Bernard Sadler approved work performed by Phillips Electric Inc.

Sincerely,

Michael "Butch" Phillips
Phillips Electric, Inc.
Master State Electrician

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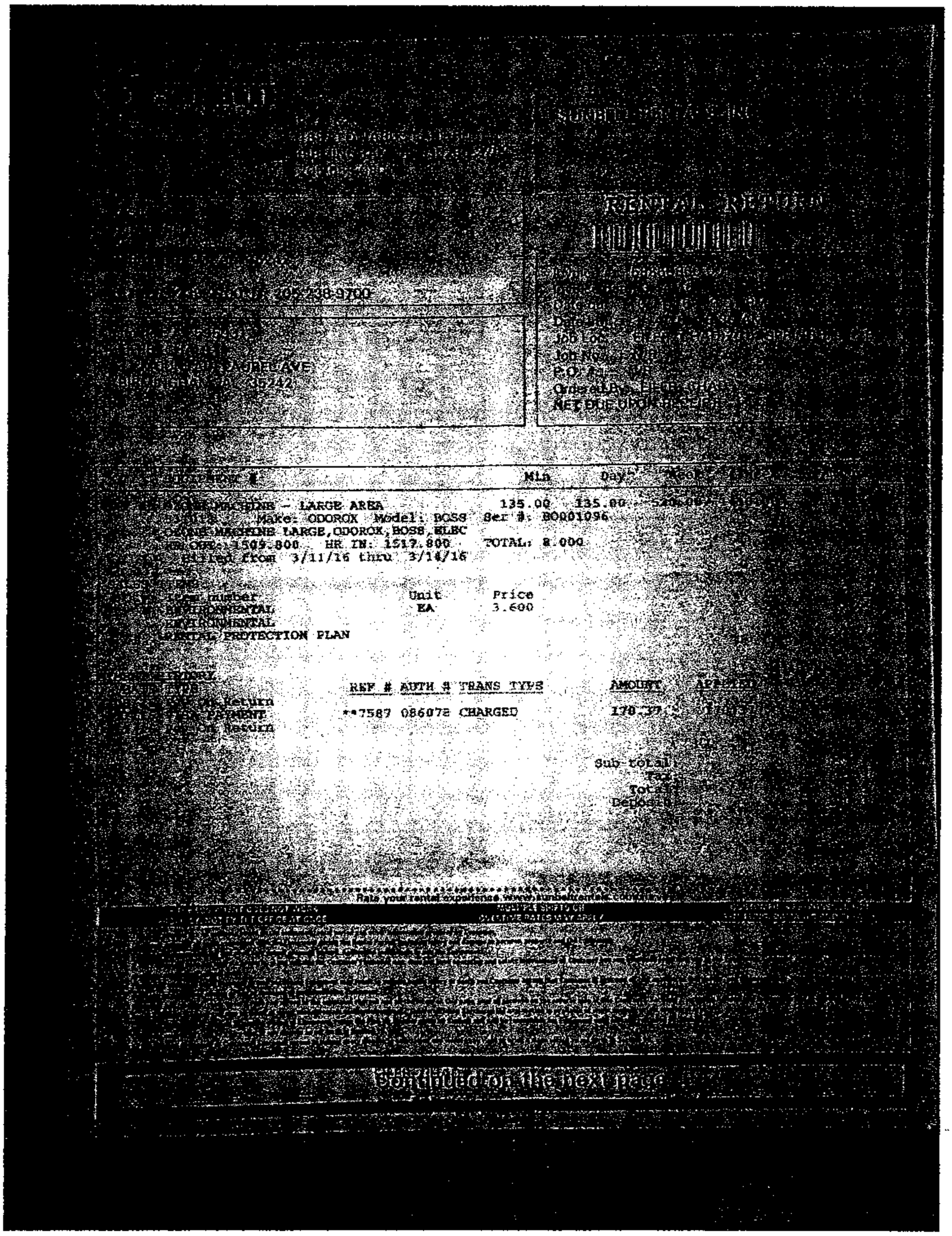
Shelby Cnty Judge of Probate, AL
04/21/2017 08:03:01 AM FILED/CERT



911 AIR
What's your emergency?

August 4,2016

Innovative Building Services, LLC.
Tom Werk
225 Salisbury Circle
Birmingham, AL 35242

911 Air has replaced all ductwork, HVAC equipment, and refrigeration line sets for both HVAC systems with all new equipment and materials. This work was preformed at the property listed below:
2014 Springhill Court
Birmingham, AL 35244

Warm Regards,

Danny Wynn

911 AIR LLC
205-800-5816
205-637-7011
whatsyouremergency4@gmail.com

SHELBY COUNTY ALABAMA
DEPARTMENT OF DEVELOPMENT SERVICES
WWW.SHELBYAL.COM
1123 COUNTY SERVICES DRIVE
PELHAM, AL 35124

TEL. 205-620-6650

Date: 10/19/2016

TO: EILER CHAD C & ASHLEY H
2014 SPRINGHILL COURT
BIRMINGHAM, AL 35242

SUBJECT: CERTIFICATE OF COMPLETION

EILER CHAD C & ASHLEY H

THIS CERTIFICATE IS ISSUED PURSUANT TO THE REQUIREMENTS OF THE ADOPTED CONSTRUCTION CODES. THE WORK AUTHORIZED BY THE PERMIT LISTED BELOW WAS INSPECTED FOR COMPLIANCE WITH THE JURISDICTION'S ORDINANCES REGULATING BUILDING CONSTRUCTION AND ALL INSPECTIONS ARE COMPLETED EXCEPT THE FOLLOWING:

NONE

THIS CERTIFICATE APPLIES ONLY TO THE CONSTRUCTION AUTHORIZED BY THE PERMIT LISTED BELOW. ISSUANCE OF THIS CERTIFICATE SHALL NOT BE CONSTRUED AS AN APPROVAL OF A VIOLATION OF THE PROVISIONS OF THE JURISDICTION'S ORDINANCES AND ADOPTED CODES.

PARCEL ID:	09 2 09 0 016 005.000		
PROJECT NAME:	EILER RESIDENTIAL RENOVATION	PERMIT #:	2016-00335
CONST TYPE:	V-B	OCCU TYPE:	R-3
OWNER NAME:	EILER CHAD C & ASHLEY H		
ADDRESS:	2014 SPRINGHILL COURT BIRMINGHAM, AL 35242		
PROJECT ADDRESS:	2014 SPRINGHILL COURT BIRMINGHAM, AL 35242		
SUBDIVISION:	HIGHLAND LAKES 32 ND SECTOR	LOT: 3205	BLOCK:

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Shelby Cnty Judge of Probate, AL
04/21/2017 08:03:01 AM FILED/CERT

ALEX DUDCHOCK
COUNTY MANAGER
TEL. (205) 670-6500

CHAD SCROGGINS
MANAGER
TEL. (205) 620-6650

POST IN A CONSPICUOUS PLACE