



MEC^x
8864 Interchange Dr., Houston, TX 77054-2512
Phone (713) 585-7000 • Fax (713) 585-7049

21 November 2017

Mr. Elkin Arce
Ethan's Glenn
100-192 Litchfield Lane
Houston, Texas 77024
elkin@NWBCcontracting.com

Re: Post-Flood Mitigation Moisture Inspection
100-192 Litchfield Lane, Houston, Texas 77024
Building 21, Unit 87

Dear Mr. Arce:

Mr. Garrett Bowes, a MEC^x, Inc. (MEC^x) Texas Department of Licensing and Regulation (TDLR) licensed Mold Assessment Technician (MAT), performed a moisture assessment of the first floor living space of Building 21 Unit 87 (Site) at Ethan's Glenn 100-192 Litchfield Lane, Houston, Texas 77024 on 21 November 2017. The purpose of the moisture assessment was to determine the extent of remaining affected building materials affected by flood waters resulting from Hurricane Harvey which caused flooding at the Site on or about 27 August 2017.

FLOOD WATER QUALITY

According to the United States (U.S.) Environmental Protection Agency (EPA), flood waters resulting from hurricanes, tropical storms, rising rivers or tsunamis may be significantly more affected than flood waters from clean sources (i.e., potable water or rainwater that leaks into buildings). Flood water can be classified as gray water or black water. Descriptions of gray water and black water are as follows:

- Gray water contains a significant level of contamination and has the potential to cause discomfort or sickness if consumed by or exposed to humans. Gray water carries microorganisms and nutrients for microorganisms. Examples of gray water may include: sump pump failures, seepage due to hydrostatic pressure or floodwater, broken aquariums or overflows from washing machines and dishwashers.
- Black water contains sewage and other contaminated water sources entering or afflicting the indoor environment. Such water sources carry silt and organic matter into structures and create black water conditions. Toilet backflows that originate from beyond the toilet trap and contaminated floodwaters are often considered black water, regardless of the physical content or color of the water. Black water contains pathogenic agents and is grossly unsanitary.

Given the widespread nature of the flood resulting from Hurricane Harvey and the associated sewer backflows/surcharge, MEC^x considers these flood waters as black water.

INSTITUTE OF INSPECTION, CLEANING AND RESTORATION CERTIFICATION

The Institute of Inspection, Cleaning and Restoration Certification (IICRC) has established recommendations for mitigation of structures affected by flood waters. Some insurance providers/adjusters follow the IICRC recommendations when evaluating mitigation and/or restoration of flood-affected structures. IICRC Standard S500 (Standard for Professional Water Damage Restoration, Fourth Edition, November 2015) provides general recommendations for mitigating the effects of flood



waters on structures. According to Table 1 (Summary of Materials, Assemblies and Restoration Procedures) in *Descriptions of Restoration Procedures* of this specification provides recommendations for mitigating the effects of flood waters on certain building materials, including gypsum (i.e., sheetrock) and engineered wood (i.e., oriented strand board/OSB, medium density fiberboard/MDF).

According to the IICRC, gypsum board affected by Class III (i.e., black water) water has a restorability classification of “D”, which means that the IICRC considers this material un-restorable or irreparable because, among other possible factors, of the quick-developing adverse effects of moisture on the gypsum and/or the inability to adequately disinfect the gypsum.

The IICRC also states that OSB affected by a Class III (Black Water) water has a restorability classification of “B”, which means that it is generally restorable. However, drying of OSB and other building elements covered by the OSB may dry slower than other building materials.

SURVEY FINDINGS

A summary of findings and observations from MECX’s assessment is provided below. Pictures taken by MECX during this assessment are attached.

Physical Reconnaissance

MECX observed sheetrock had been removed up to 4-8 feet high in the affected areas, which is above the reported flood level.

Blowers and dehumidifiers were used to reduce moisture.

MECX did not observe elevated moisture levels in wood materials left in place.

MECX did not observe visible evidence of suspect mold growth at the time of the reconnaissance.

Moisture Measurements

MECX measured moisture in building materials at multiple locations at the Site using a Protimeter® Digital Mini moisture meter with dual-pin probes. This meter measures moisture content up to ½-inch into the surveyed material (i.e., wood, drywall). This meter can measure moisture contents from 7.9% to 99.9%. According to the manufacturer of this probe, moisture content of up to 16.9% is considered “dry”, 17% to 19.9% is “at risk” and moisture above 20% is considered “wet”.

According to *Cleaning Flooded Buildings*, (Federal Emergency Management Agency/FEMA, May 2013), moisture content of up to 15% is considered “dry”, 15% to 20% is “partially dry” and moisture above 20% is considered “wet”. A summary of the moisture measurements collected is presented below.

Location	Moisture Content (%)
Entry Point: Sill Plate/Stud	13.7/12.7
Kitchen: Sill Plate/Stud	14.7/14.9
Bathroom: Sill Plate/Stud	12.4/12.9
Closet: Sill Plate/Stud	14.5/12
Living Room: Sill Plate	16.2

Note: **bolded** data indicates partially dry materials; **bolded and shaded** data indicates wet materials.

Humidity Measurements

Microbiologists generally agree that 70% or more relative humidity can induce adverse biological activity within buildings. Where a relative humidity above 70% occurs at surfaces, mold growth, dust mite growth, decay, corrosion, etc. can occur. Therefore, conditions should be maintained within a building such that the



critical 70% (or higher) percent relative humidity at a building envelope surface does not occur. A summary of humidity measurements collected by MEC^X at the Site is presented below.

MEC^X measured humidity levels using a TSI Q-Calc™ Model 8762 to simultaneously measure indoor air quality conditions including relative humidity. MEC^X also collected two air samples for analysis of fungal spores. A summary of humidity measurements collected by MEC^X at the Site is presented below.

Location	Temperature (°F)	Relative Humidity (%)
Kitchen	70.8	75.4
Livingroom	70.8	74.7
Outside	71	74.3

ASSESSMENT CONCLUSIONS / RECOMMENDATIONS

MEC^X conclusions and recommendations are presented below.

- Ambient air conditions at the Site were above 70% humidity. Elevated humidity levels promote growth and amplification of mold spores.
- Moisture levels in building materials were acceptable.
- On the date of the inspection described herein, MEC^X did not observe visible mold and/or mold damage at the Site.
 - **Recommendation 1:** MEC^X recommends that the heating, ventilating and air conditioning (HVAC) condenser coils and air distribution ducts be professionally cleaned.
 - **Recommendation 2:** Where practical, MEC^X recommends applying U.S. EPA-approved biocide (i.e., fosters 40-80) to the exposed studs and building materials and encapsulating the exposed wood studs and wall cavities (i.e., using fosters 40-20) prior to build back.

MEC^X is pleased to present the attached Certificate of Mold Damage Remediation for this Site based on this inspection.

Please call me at 281.846.8163 (mobile) or 713.585.7000 ext. 7011 (office) if you have any questions or need further information.

Sincerely,

Matthew Haak
Licensed Mold Consultant
TDSHS MAC # 0218



Photo No.: 1	Date: 11/21/17
Build back observed throughout the residence:	



Photo No.: 2	Date: 11/21/17
Build back observed throughout the residence:	



Photo No.:	Date:
3	11/21/17

Humidity levels at the time of the inspection.



Photo No.:	Date:
4	11/21/17

Moisture Reading:





Photo No.: 5	Date: 11/21/17
Moisture Reading:	



Photo No.: 6	Date: 11/21/17
Moisture Reading:	





Photo No.:
7

Date:
11/21/17

Moisture Reading:



Photo No.:
8

Date:
11/21/17

Moisture Reading:





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CERTIFICATIONS



TEXAS DEPARTMENT OF STATE HEALTH SERVICES

Be it known that

MECX INC

is licensed to perform as a

Mold Assessment Company

in the State of Texas and is hereby governed by the rights, privileges, and responsibilities set forth in Title 25, Texas Administrative Code, Chapter 295, relating to Texas Mold Assessment and Remediation Rules, as long as this license is not suspended or revoked.

A handwritten signature in black ink, appearing to read "Kirk Cole".

Kirk Cole, Interim
Commissioner of Health

License Number: ACO1080

Expiration Date: 10/9/2017

Control Number: 6809

(Void After Expiration Date)

VOID IF ALTERED

NON-TRANSFERABLE



August 10, 2017

MECX INC
8864 INTERCHANGE DR
HOUSTON TX 77054



RE: License No.: ACO1080
Expiration Date: 1/9/2018

Dear MECX INC

Pursuant to Senate Bill 202, the regulation of the Mold Program is being transferred from the Department of State Health Services (DSHS) to the Texas Department of Licensing and Regulation (TDLR). Both agencies are working in collaboration to ensure an orderly transfer of regulatory authority. The transfer of authority will occur on November 1, 2017.

In an effort to ensure the transfer of authority does not impact your ability to renew your license, DSHS has extended the term of your current license (Certificate of Registration) by 90 days to the expiration date indicated above. **Please carry this letter with your DSHS-issued certificate or card to verify the extended expiration date until you renew and receive your new license from TDLR.**

This change in expiration date will also be reflected on the DSHS online verification system at <https://vo.ras.dshs.state.tx.us/>

You can receive email updates from TDLR informing you of how to renew your license (Certificate of Registration). Please subscribe to email updates from TDLR on their website at www.tdlr.texas.gov by selecting the appropriate licensing program and clicking on the link under "Sign Up for Email Updates" which is near the top of the page.

If you have any questions about the extension of your expiration date prior to November 1, 2017, please contact us at moldhelp@dshs.texas.gov.

Sincerely,

Environmental and Sanitation Licensing Group
Regulatory Licensing Unit
Department of State Health Services



TEXAS DEPARTMENT OF LICENSING AND REGULATION

P.O. Box 12057
Austin, Texas 78711-2057
1-800-803-9202 (512) 463-6599
www.tdlr.texas.gov

If you cut around the border of the license it will fit in
a standard 5" x 7" frame.

NOTE: Issuance of the wallet card is in a separate mailing.

MATTHEW A HAAK
8864 INTERCHANGE DR
HOUSTON TX 77054

Mike Arismendez
Chair

Thomas F. Butler
Vice Chair



Helen Callier
Rick Figueroa
Ravi Shah
Deborah A. Yurco

Mold Assessment Consultant

MATTHEW A HAAK

License Number: MAC0218

The person named above is licensed by the Texas Department of Licensing and Regulation.

License Expires: January 13, 2020

A handwritten signature in black ink that reads "Brian E. Francis".

Brian E. Francis
Executive Director

512-463-6599
800-803-9202 (toll free statewide)

Respect
Teamwork

Visit us on the web at www.tdlr.texas.gov





**ENVIRO-CON
SERVICES, INC.**

Certificate No. 41013-TX

MAC-R-249

Awards this certificate to

Matthew A. Haak
TX 17032070

for completion of the

**8 HOUR MOLD ASSESSMENT CONSULTANT
REFRESHER COURSE**

AS REQUIRED BY THE TEXAS MOLD ASSESSMENT AND REMEDIATION RULES
(25 TAC 295.301-339)

CERTIFICATE NOT VALID UNLESS ACCOMPANIED BY
ENVIRO/CON PHOTO I.D. CARD

COURSE DATE(S) January 4, 2017

EXAMINATION DATE January 4, 2017

EXPIRATION DATE January 4, 2019

Douglas S. Shotwell

Course Instructor - Douglas S. Shotwell

Douglas S. Shotwell
Director of Education and Operations
Douglas S. Shotwell
Enviro-Con Services, Inc.
1855 Barker Cypress Rd., Suite #130
Houston, Texas 77084
(281) 398-7000
www.enviro-conservices.com

CERTIFICATE INDICATES THAT COURSE AND EXAM WERE BOTH PASSED SATISFACTORILY



**MOLD ASSESSMENT CONSULTANT
8 Hour Refresher
DSHS Accredited**

1-4-17

MAC-R-249

Exam Date

Course #

41013-TX

1-4-19

Certificate #

Exp. Date

TX 17032070

Student Name

Director of Training

Matthew Haak

Certificate indicates that course and exam were both passed satisfactorily



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Certificate Of Mold Damage Remediation



TEXAS DEPARTMENT OF INSURANCE

Regulatory Policy Division - Property and Casualty Lines Office (104-PC)
 333 Guadalupe, Austin, Texas 78701 ★ PO Box 149104, Austin, Texas 78714-9104
 (512) 676-6710 | F: (512) 490-1014 | (800) 578-4677 | TDI.texas.gov | @TexasTDI

CERTIFICATE OF MOLD DAMAGE REMEDIATION

Certificate Number _____ Date of Issuance 21 November 2017

Name William Bedman

Mailing Address 1800 Augusta Drive, ste 200

City Houston State Texas Zip 77057

Property Description:

Number 87 Street Litchfield Lane Lot _____ Block _____

Addition or Tract _____ City Houston County Harris

SIGN APPROPRIATE CERTIFICATION

Mold Assessment Consultant License Holder Certification

- I hereby certify that based on visual, procedural and analytical evaluation, the mold contamination identified for this project has been remediated as outlined in the mold management plan or remediation protocol.
- I further certify with reasonable certainty that the underlying cause or causes of the mold that were identified for this project in the mold management plan or remediation protocol have been remediated. A copy of the written evaluation that forms the basis for my certification has been provided to the person named in this certificate.

 Mold Assessment Consultant
 License Holder Signature

 Texas Department of Licensing and Regulation
 License No. and Expiration Date

 Date

Mold Remediation Contractor License Holder Certification

- I hereby certify that I completed mold remediation on this project and will provide the mold remediation certificate to the property owner no later than the 10th day after the date of completion.

 Mold Remediation Contractor
 License Holder Signature

 Texas Department of Licensing and Regulation
 License No. and Expiration Date

 Date of Completion

OR

Mold Assessment Consultant or Adjustor License Holder Certification

- I hereby certify that I have inspected the property described in this certificate and that based on my inspection I have determined that the property does not contain evidence of mold damage. A copy of the written evaluation that forms the basis for my certification has been provided to the person named in this certificate.



 Mold Assessment Consultant/Adjustor
 License Holder Signature

MAC#0218

 Texas Department of Licensing and Regulation
 License No. and Expiration Date

21 November 17

 Date