



Request for Qualifications, 17MCO519 DESIGN - BUILD SERVICES

Date Required: Friday February 3, 2017

Time Required: 10:00am Local Time

INTRODUCTION:

Midland County, hereafter called County, invites sealed Statement of Qualifications (SOQ) from entities capable of and experienced in the design/build services, hereinafter called Firm/Firm, for the demolition of Midland CRTC building and construction a Midland County CSCD office building. The following pages provide general information about the requirements and specifications for the package. Midland County will be using AIA Document A141-2004 Contract between Owner and Design-Builder, with some possible modifications.

REQUIRED SITE SURVEY:

A **Required Site Survey** will be held at the current Midland County CRTC site, just west of the Midland County jail. We will meet at the entrance to the current structure at **2:00pm on Thursday January 19, 2017** and will promptly begin the survey of the site.

**Midland County Judicial CRTC
215 W. Industrial Ave.
Midland, TX 79701**

QUESTIONS:

If further information is required, please contact the Midland County Purchasing Department. All requests for information must be submitted in writing. Responses to all questions received will be sent to each Firm known to have copies of the Request for Qualifications. Requests for information may be faxed to 432-688-4914 or e-mailed to pur103@co.midland.tx.us. All questions should be submitted on or before **5:00pm on Wednesday January 25, 2017**. Questions received after said date and time will not receive a response. Answers and clarifications which are considered to materially change the solicitation will be issued as written addenda to the original RFQ and will be posted to the Midland County website at www.co.midland.tx.us. Solution providers are responsible for ensuring all answers to questions are reviewed prior to bid submittal and that all issued added are properly acknowledged with their submitted statement of qualifications. Midland County will not be responsible for any verbal exchange between the firm and an employee of Midland County.

COPIES AND RECEIPT:

Please submit one (1) original, three (3) copies, and an electronic copy on USB drive of the SOQ. **An executed copy of the Proposal Affidavit SIGNED AND NOTARIZED (Page 7) must be included in each submission.** Please note that if no Proposal Affidavit is included, the response will be rejected. Midland County is exempt from all state and federal taxes. Tax exempt certificates are available upon request. Midland County is exempt from all state and federal taxes. Tax exempt certificates are available upon request.

All statements should be submitted in a sealed envelope, marked on the outside,

RFQ DESIGN-BUILD SERVICES CSCD 17MCO519

Company Name

SOQ's must be received by **10:00am Local Time on Friday February 3, 2017**. Late statements will be rejected and returned without being opened. The clock in the Purchasing Agent's office is the official time piece for this submission. If interested, Firms may use mail or express systems to deliver their SOQ to the Purchasing Department; they should insure that they are tendered to the carrier in plenty of time to reach the Purchasing Department by the time and date required. Facsimile transmitted statements shall not be accepted.

SUBMISSION LOCATION: All SOQ's which are mailed, shipped, delivered, etc. should be addressed as follows:

Midland County Purchasing Department
Midland County Courthouse
Attention: Kristy Engeldahl, Purchasing Agent
500 N. Loraine Street, Suite 1101
Midland, Texas 79701

DOCUMENTATION SUBMISSION:

The respondent must submit all required documentation. Failure to provide requested information may result in rejection of the statement.

ALTERATION OF STATEMENT OF QUALIFICATIONS:

A SOQ may be altered, modified or amended by a Firm at any time, prior to the time and date set forth above as the submission deadline. Alterations, modifications or amendments to a SOQ must be made in the offices of the Purchasing Department. Any interlineations, alteration or erasure made on a SOQ before the submission deadline must be initialed by the signer of the SOQ, guaranteeing authenticity. A SOQ may not be altered, modified or amended after the submission deadline.

WITHDRAWAL:

A SOQ may not be withdrawn or canceled by the respondent for a period of sixty (60) days following the date designated for the receipt of SOQ, and respondent so agrees upon submittal of their SOQ.

CONFLICT OF INTEREST:

No public official shall have interest in this contract, in accordance with Vernon's Texas Codes annotated Local Government Code Title 5, Subtitle C, Chapter 171. Firm is required to sign affidavit form included in SOQ documents.

SILENCE OF SPECIFICATIONS:

The apparent silence of these specifications as to any detail of the apparent omission from it of a detailed description concerning any point, shall be regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications shall be made on the basis of this statement.

CONFIDENTIALITY:

Contents of the SOQ's will remain confidential until the contract is awarded. At that time the contents will be made public under the Texas Public Information Act; except for any portion of a SOQ which has been clearly marked as a trade secret or proprietary data (the entire SOQ may not be so marked). SOQ's will be opened, and the name of the firm submitting the SOQ read aloud, acknowledged, at **10:05am on Friday February 3, 2017**, in the Purchasing Department Conference Room located in the Midland County Courthouse, Suite 1101. All respondents or other interested parties are invited to attend the opening.

Firms are hereby notified that the Owner strictly adheres to all statutes, court decisions, and opinions of the Texas Attorney General with respect to disclosure of public information.

ADDITIONAL INFORMATION AND DEMONSTRATION, NEGOTIATIONS:

Submission of a Statement of Qualifications indicates acceptance by the firm of the conditions contained in this Request for Qualifications unless clearly and specifically noted in the Statement of Qualifications submitted and confirms in the contract between the County and the firm selected. Midland County also reserves the right to reject any or all SOQ's submitted and further reserves the right to design the evaluation criteria to be used in selected the firm.

Prior to award, selected Firms may be asked to provide further information concerning their SOQ, up to and including presentations/demonstrations. The Midland County Commissioners Court reserves the right to reject any and all SOQ's or waive formalities as deemed in the best interests of Midland County. The County may also enter into discussions after submission and before award for the purpose of obtaining the best and final offer, and to accept the SOQ deemed most advantageous to Midland County.

RIGHTS OF THE CONTRACTING AUTHORITY:

Midland County reserves the right to withdraw this RFQ at any time and for any reason. Midland County also has the right to terminate its selection process at any time and to reject all SOQ's. Receipt of the SOQ materials by Midland County or submission of a SOQ to Midland County confers no rights upon the firm nor obligates Midland County in any manner.

All costs associated with the preparation or submittal of SOQ's shall be borne by the firm, and no cost shall be sustained by Midland County.

ORAL COMMITMENT:

Firms should clearly understand that any verbal representations made or assumed to be made during any discussions held between representatives of a firm and any Midland County personnel or official are not binding on Midland County.

WAIVER OF CLAIMS:

Submission of a SOQ indicates Firm's acceptance of the evaluation technique and Firm's recognition that some subjective judgments must be made by the County during the determination of qualification.

ORDINANCES AND PERMITS:

The Firm agrees, during the performance of the work, to comply with all applicable Federal, State, or local code and ordinances.

INVOICES:

Invoices are to be mailed to P.O. Box 421, Midland, Texas 79702 and should cite the applicable Purchase Order Number. Any and all notices or other communications required or permitted by any contract awarded as a result of this RFQ shall be served on or given to Midland County, in writing, by personal delivery to the Purchasing Agent of Midland County, Texas, or by deposit with the United States Mail, postage prepaid, registered or certified mail, return receipt requested, addressed to the Midland County Purchasing Agent 500 N. Loraine Suite 1101 Midland, TX 79701, or at such other address as may have been specified by written notice to Firm.

INSURANCE:

The awarded Firm will maintain such insurance as will protect the Firm and the County from claims under the Workers' Compensation Acts, and any amendments thereof, and from any other claims for damages from personal injury, including death, which may arise from operations under this agreement, whether such operations be by themselves or by any sub-contractor, or anyone directly or indirectly employed by either of them. Current Certificate of such insurance shall be furnished to Midland County and shall show all applicable coverage(s).

Other insurance requirements are:

- General Liability (including completed operations) with a \$1,000,000 per occurrence limit and \$2,000,000 general aggregate. Coverage will not exclude work performed by subcontractors.
- Pollution Liability with a limit of no less than \$1,000,000. If coverage is provided on a "claims made" policy, it will be kept in force for no less than five years after the completion of the project.
- Commercial Automobile Liability with a limit of no less than \$1,000,000. The coverage will also extend liability to hired and non-owned autos.
- Workers' Compensation with limit of \$1,000,000 for Employers Liability.
- We also require a minimum umbrella (or follow form excess policy covering over general liability, auto liability and workers compensation) of no less than \$2,000,000.

Midland County will require the selected Firm to name Midland County as an additional for both the general liability and auto liability. A waiver of subrogation in favor of the County is required for the workers compensation. If the additional insured status or waiver of subrogation is not blanket, please send a copy of the actual endorsements prior to commencement of any work.

Midland County will require the selected Firm to name Midland County as an additional insured and provide a waiver of subrogation prior to making a contract.

INDEMNIFICATION:

The Firm shall defend, indemnify and save whole and harmless the County and all its officers, agents and employees from and against any and all demands, claims, suits, or causes of action of any character, name, kind or description brought for, or on account of, arising out of or in connection with the Firm's performance or non-performance of any obligation of Firm or any negligent act, misconduct or omission of the Firm in the performance of its contractual obligations. The Firm shall defend, indemnify, save, and hold harmless the County and its officers, agents, representatives and employees from and against any and all demands, claims, suits, or causes of action of any character, name, kind or description brought for, on account of, arising out of or in connection with Firm's product or service.

STATUS OF INDEPENDENT CONTRACTOR:

Firm shall be considered an independent contractor, for all purposes. Firm will not at any time, directly or indirectly, act as an agent, servant, representative or employee of the County. Firm will not take any action which is intended to create any commitments, duties, liabilities or obligations on behalf of the County, without prior written consent of the County.

ARCHITECT IDENTIFICATION:

The Firm shall specify the name of the project architect, in-house or hired.

PARTIAL INVALIDITY:

In the event any one or more of the provisions contained in this RFQ or any contract resulting therefore, for any reason, be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provision of this RFQ or any contract resulting therefore and this RFQ or the contract resulting therefore shall be construed as if such invalid, illegal or unenforceable provision had never been contained herein.

CONTRACT TERMINATION:

Non-performance of the Firm in terms of specifications or noncompliance with terms of this contract shall be basis for termination of the contract by the County. Termination in whole or in part, by the County may be made at its option and without prejudice to any other remedy to which it may be entitled at law or in equity, or elsewhere under this contract, by giving (60) sixty days written notice to the Firm with the understanding that all work being performed under this contract shall cease upon the date specified in such notice. The County shall not pay for work, equipment, services or supplies which are unsatisfactory. Firm may be given reasonable opportunity prior to termination to correct any deficiency. This, however, shall in no way be construed as negating the basis for termination for non-performance. The right to terminate the notice thereof is controlled by these RFQ specifications and is not subject to being altered by contract.

LAW GOVERNING:

The parties under contract shall be subject to all Federal laws and regulations, and all rules and regulations of the State of Texas. The laws of the State of Texas shall govern the interpretation and application of the contract; regardless of where any disagreement over its terms should arise or any case of action arise.

REMEDIES:

The successful firm and Midland County agree that both parties have all rights, duties, and remedies available as stated in the Uniform Commercial Code.

VENUE:

It is hereby agreed that the contract will be made in Midland, Midland County, Texas, and any dispute arising as a result of it shall be governed by the laws of the State of Texas for the purpose of any law suit, and the parties agree that such lawsuit shall be brought in Midland County, Texas.

FUNDING CONTINGENCY:

Any contract awarded pursuant to this RFQ shall be contingent on sufficient funding and authority being made available in each fiscal period by the appropriate officials of Midland County. If sufficient funding or authority is not made available, the contract shall become null and void.

ASSIGNMENT:

The Firm shall not sell, assign transfer or convey this contract in whole or in part, without the prior written consent of the County.

BUSINESS CHANGE DISCLOSURE:

The Firm shall immediately disclose any knowledge of a business change (i.e., name change, change in ownership, etc.) that will take place during the duration of this contract.

**REQUIRED FORM
COMPANY AFFIDAVIT**

The affiant, _____ states with respect to this submission to County:

I (we) hereby certify that if the contract is awarded to our firm that no member or members of the governing body, elected official or officials, employee or employees of said County, or any person representing or purporting to represent the County, or any family member including spouse, parents, or children of said group, has received or has been promised, directly or indirectly, any financial benefit, by way of fee, commission, finder's fee or any other financial benefit on account of the act of awarding and/or executing a contract.

I hereby certify that I have full authority to bind the company and that I have personally reviewed the information contained in the RFQ and this submission, and all attachments and appendices, and do hereby attest to the accuracy of all information contained in this submission, including all attachments and exhibits.

I acknowledge that any misrepresentation will result in immediate disqualification from any consideration in the submission process.

I further recognize that County reserves the right to make its award for any reason considered advantageous to the County. The company selected may be without respect to price or other factors.

Signature _____ Date _____

Name _____ Phone _____

Title _____

Firm Name _____

Type of business organization (corporation, LLC, partnership, proprietorship)

Address _____

County, State, Zip _____

Notary Seal Below

SPECIFICATION

PURPOSE:

Midland County is seeking qualifications for a design-build firm that will provide demolition and disposal services for the current building and slab on site, as well as design and build a new building for our CSCD (Adult Probation) office, per the project scope below.

SCOPE OF PROJECT:

The current building and slab will need to be demolished and legally disposed of. Then Clearance Letter and Indoor Environmental Quality Report for the existing building can be found in ATTACHMENT A.

The new building will be an office suite designed and built to be located on the site made available after the demolition and removal of the current building and slab. The office suite will be set up with the following requirements, with the possibility of changes made during the design phase. The building will be approximately 15,000 sq ft:

- 1. 1 entry vestibule
- 2. 1 public lobby/waiting area – seat/wait for 15 people
- 3. 1 collections unit – counter/work for 3 including cashier, receptionist, victim coordinator
- 4. 1 secure mail/ cash area
- 5. 1 office for Collections Unit Supervisor – next to lobby
- 6. 2 public restrooms – all plumbing fixtures comparable to Kohler
- 7. 1 security vestibule – metal detector
- 8. 2 training/multi-purpose rooms – located near lobby
- 9. 2 staff restrooms – all plumbing fixtures comparable to Kohler
- 10. 1 staff break room/vending area
- 11. 1 staff entry vestibule –located near parking
- 12. 4 staff supervisor offices
- 13. 1 urinalysis restroom
- 14. 1 UA tech area – next to UA restroom
- 15. 1 drug testing storage
- 16. 25 probation officer offices
- 17. 6 future offices
- 18. 4 counselor offices
- 19. 1 director office
- 20. 1 fiscal operations manager office
- 21. 1 data analyst office
- 22. 2 out-of-area offenders probation clerk offices
- 23. 1 large conference room
- 24. 2 work/copy/supplies rooms
- 25. 1 HR file room
- 26. 1 technology/computer room
- 27. 1 janitor closet

- 28. 2 electrical rooms
- 29. 1 secure storage
- 30. 1 fire sprinkler riser area
- 31. 2 mechanical rooms
- 32. central heat and air conditioning
- 33. electrical and plumbing for the facility
- 34. compliance with ADA

The ideal project timeline will consist of the following:

Design – no more than 90 days

Project Permitting – to be determined

Demolition – no more than 60 days

Build – no more than 270 days

REFERENCES:

Please provide at least 3 references for commercial projects, preferably any local/state government clients that the firm has provided design-build needs.

EVALUATION PROCESS:

Qualifiers will be ranked according to the selected criteria. The number one ranked firm will be contacted to submit a letter of engagement/contract for negotiation based on the Evaluation Criteria. If negotiations prove unsuccessful, the next highest ranged firm will be contacted.

Submission of a Statement of Qualifications indicates acceptance by the firm of the conditions contained in this Request for Qualifications unless clearly and specifically noted in the Statement of Qualifications submitted and confirms in the contract between the County and the firm selected. Midland County also reserves the right to reject any or all SOQ's submitted and further reserves the right to design the evaluation criteria to be used in selected the firm.

CRITERIA:

Introduction (Executive Summary): 1 page maximum

Required Company Affidavit: 1 page

Required Confirmation Checklist: 1 page (25 points)

Tab 1 Previous Related Experience: (25 points)

- Indicate experience with publicly funded facilities of same approximate size and type as the anticipated project. Include previously successful projects with Midland County.
- Indicate safety record on previous projects.
- Indicate whether Firm has had similar contracts terminated prior to completion or whether a bonding company surety has had to pay funds under a bond of the Firm.

Tab 2 Identity and Location of Firm: (25 points)

- Indicate the exact legal name of Firm, its type of legal organization, its state of organization, its mailing address, the office/business location of the Firm from which the Project will be managed; and, address Firm's availability to the County and the response time.
- Resumes of key professionals being assigned to this project.

Tab 3 References: (Include name, address, and phone number of contact): (25 points)

- Indicate (3 minimum) general references, including at least 1 completed design-build project, who can attest to the Firm's ability, performance, and safety record.

REQUIRED FORM
CONFIRMATION CHECKLIST

Please provide confirmation that your firm is aware of and can provide the items/duties necessary to complete this project as listed in the table below. If for some reason the firm is unable to provide the items/duties below, please provide comments.

		YES/NO	COMMENTS
1	Firm will demolish and legally dispose of current building and slab		
2	Firm will design and build office suite as per the scope on page 8		
3	Firm will provide architectural and engineering services for project		
4	Firm will be responsible for all activity on the premises during demolition and construction		
5	Firm will provide on-site management; project superintendent must be on site every day		
6	Firm will provide, in SOQ, any lawsuits that they have been involved with in the last 5 years		
7	Firm is bondable		
8	Firm will provide a criminal background check for any workers on site, including superintendent, during this project (felonies and misdemeanors)		
9	Does the firm owe any delinquent taxes or fines to Midland County?		
10	Does the firm owe any delinquent taxes or fines to the City of Midland?		

INTERIM POST REMEDIATION VERIFICATION

Date: November 11, 2014

Project: CRTS Building, 215 W. Industrial, Midland, TX

Terracon Protocol/Report: 94147403

Pass

~~Fail~~

This notice provides written, interim documentation that the listed project has **passed** ~~failed~~ the criteria for post remediation verification as established in Terracon Fungal Remediation Report number 94147043, dated February 13, 2014.



MAC: _____

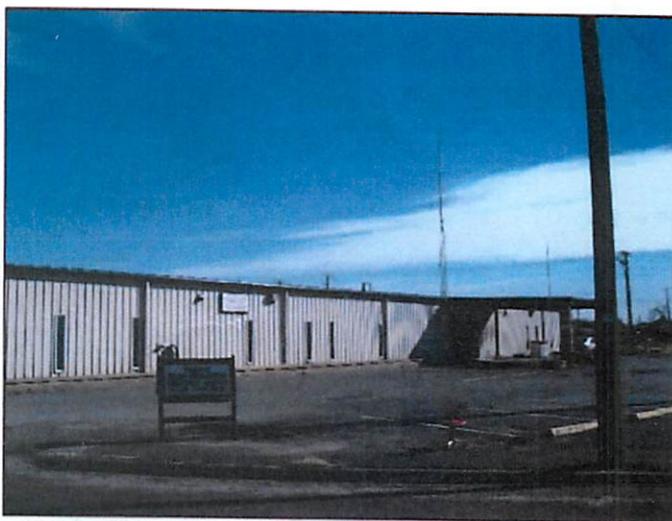
MAC Number/Expiration: # 0107/11-10-16

LAB Number: # 1010

Indoor Environmental Quality Report

**CRTC Building
215 W. Industrial
Midland, Texas**

February 13, 2014
Terracon Project No. 94147043



Prepared for:
Cotton, Bledsoe, Tighe & Dawson, P. C.
500 West Illinois, Suite 300
Midland, Texas

Prepared by:
Terracon Consultants, Inc.
Dallas, Texas

terracon.com

Terracon

Environmental



Facilities



Geotechnical



Materials



February 13, 2014

Cotton, Bledsoe, Tighe & Dawson, P. C.
500 West Illinois
Suite 300
Midland, Texas 79701

Attn: Mr. Clark Lea
P: (432) 685-8556
E: clea@cbtd.com

Re: Indoor Environmental Quality Report
CRTC Building
215 W. Industrial
Midland, Texas 79701
Terracon Project No: 94147043

Dear Mr. Lea:

The purpose of this report is to present the results of the recent Indoor Environmental Quality (IEQ) evaluation performed at the CRTC Building, located at 215 W. Industrial, Midland, Texas.

Terracon appreciates the opportunity to provide this service to Cotton, Bledsoe, Tighe & Dawson, P. C. If you have any questions regarding this report please contact the undersigned at (214) 630-1010.

Sincerely,

Terracon



Robert Garrison
Department Manager, Indoor Air Quality
TDSHS MAC # 0107



Sharon Freis
TDSHS MAC # 0498

Terracon Consultants, Inc. 8901 Carpenter Freeway, Suite 100 Dallas, Texas 75247
P [214] 630 1010 F [214] 630 7070 terracon.com/dallas

Environmental

Facilities

Geotechnical

Materials

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APPENDIX A: Analytical Report

APPENDIX B: Photographs

APPENDIX C: Site Diagram

APPENDIX D: Fungal Remediation Protocol

Indoor Environmental Quality Report

CRTC Building

215 W. Industrial

Midland, Texas 78701

Terracon Project 94147043

February 13, 2014

1.0 PROJECT DESCRIPTION

Terracon Consultants, Inc. (Terracon) conducted an Indoor Environmental Quality (IEQ) evaluation at 215 W. Industrial, Midland, Texas. Terracon representative, Mr. Robert Garrison, Texas Department of State Health Services (TDSHS) Mold Assessment Consultant (License # 0107), conducted the IEQ evaluation on January 28, 2014. The evaluation was conducted in general accordance with Terracon proposal P94140098, dated January 23, 2014.

Based on the review of a Limited Mold Assessment report by Texas Consulting Services, dated January 14, 2014, Terracon understands that potential moisture intrusion occurred at the referenced facility which may have resulted in fungal growth on interior building materials. Terracon was provided the report for reference by Mr. Clark Lea. Terracon was requested by Cotton, Bledsoe, Tighe & Dawson, P. C. to conduct an IEQ evaluation of the referenced facility and provide remedial recommendations in accordance with the Texas Mold Assessment and Remediation Rules (TMARR). In support of anticipated fungal remediation a limited asbestos survey of the building materials that may be disturbed was conducted in accordance with the Texas Asbestos Health Protection Rules (TAHPR). The results of the limited asbestos survey are presented in Terracon report 94147043A, dated February 13, 2014.

1.1 Scope of Services

The evaluation consisted of a visual hygiene assessment of the indoor environmental and accessible heating, ventilating, air conditioning (HVAC) systems. Additionally, an analytical evaluation of moisture content of building materials, temperature, relative humidity, and total bioaerosols (airborne fungal spores) was conducted.

1.2 Regulatory Overview

The TDSHS regulates fungal assessment and remediation activities under the Texas Mold Assessment and Remediation Rules (TMARR). The TMARR requires that fungal assessments be performed by a TDSHS-licensed Mold Assessment Technician (MAT) or Mold Assessment Consultant (MAC) following specified minimum work practices and procedures. Bulk, surface and air samples collected during a fungal assessment must be analyzed by a TDSHS-licensed mold analysis laboratory. Visible fungal growth that exceeds twenty five (25) contiguous square feet is considered a regulated quantity and must be

remediated by a licensed Mold Remediation Contractor following a site specific fungal remediation protocol prepared by a MAC.

1.3 Standard of Care

This IEQ assessment was conducted at the referenced facility on January 28, 2014, based on information provided to Terracon regarding building conditions. Terracon did not attempt to identify every potential exposure or hazard present in the subject building.

This investigation was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, conclusions, and recommendations expressed in this report are based on conditions observed during our January 28, 2014, assessment. Many factors such as weather conditions, building occupancy, ventilation patterns, and seasonal variations in fungal concentrations or local sources of volatile chemicals can affect the conditions observed. The information contained in this report should not be relied upon to represent conditions that existed previously or at a later date. Terracon does not warrant the services of regulatory agencies, laboratories, or other third parties supplying information that may have been used in the preparation of this report.

1.4 Reliance

The report has been prepared on behalf of and exclusively for use by Cotton, Bledsoe, Tighe & Dawson, P. C and Midland County for specific application to their project as discussed. No other individual or entity may rely on this report without written permission of Terracon and Cotton, Bledsoe, Tighe & Dawson, P. C and Midland County. Reliance on this report by Cotton, Bledsoe, Tighe & Dawson, P. C and Midland County and all authorized parties will be subject to the key understandings and limitations stated in the proposal, this report, and Terracon's Agreement for Services. The limitation of liability defined in Terracon's Agreement for Services is the aggregate limit of Terracon's liability to Cotton, Bledsoe, Tighe & Dawson, P. C and Midland County and all relying parties.

2.0 EVALUATION CRITERIA

2.1 Visual Evaluation/Moisture Intrusion

Indoor air quality can be degraded due to multiple contaminant sources from within a building or from the outdoor environment. If contaminant sources are not controlled, IAQ issues that affect occupants can arise, even with well-maintained heating, ventilating, and air conditioning (HVAC) systems. Based on the multiple sources of potential indoor/outdoor contaminants that can affect indoor air quality, the visual evaluation is conducted to assess general indoor hygiene, building maintenance practices, HVAC system design and hygiene, moisture intrusion and uncontrolled condensate formation. Indoor contaminants can originate from moisture intrusion events that result in water damage and visible or hidden microbial growth. Indoor air

frequently contains a mixture of pollutants at low concentrations that are well below regulatory occupational exposure limits. The visual assessment focuses on collecting primarily observational data (i.e., information obtained by visual inspection of the building and interviews with the building management, owners, and occupants). The visual assessment can help to formulate plans for more in-depth investigation.

2.2 Thermal Comfort

Indoor temperature and relative humidity are physical conditions important to the perception of comfort. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) have published recommendations regarding thermal comfort. ASHRAE Standard 55-2010, Thermal Environmental Conditions for Human Occupancy, identifies six primary factors that affect comfort: metabolic rate (affected by the activity being performed), clothing insulation, air temperature, radiant temperature, air speed, and humidity.

Although the relationships are complex, a temperature range between 73 and 79 degrees Fahrenheit (°F) with relative humidity between roughly 20 and 60 percent (%) are recommended for persons performing "office" work and wearing light summer clothing. Higher temperatures require lower humidity for comfort. For persons in winter clothing, temperatures can range between 68 and 75 °F, with relative humidity between 30 % and 60%.

2.3 Bioaerosols

An airborne biogenic particle, such as a fungal spore, is a bioaerosol. Fungal spores are ubiquitous in the environment, and have specific requirements for survival, germination, and growth. Although fungal bioaerosols have not been conclusively associated with adverse health effects commonly noted in typically building-related complaints (e.g., mucous membrane irritation, headache, and fatigue), they are known in the medical literature to be associated with common allergy, or more serious respiratory disease. Some studies and case histories have shown correlations between allergy, or more serious respiratory symptoms, and fungal contamination of heating, ventilating, air conditioning (HVAC) systems.

The spore trap sampling method used for total bioaerosol sampling is capable of determining total fungal spore concentrations per cubic meter of air (spores/m³). Bioparticulate such as pollen grains, insect exoskeletons, or fungal spores that require specific substrates in order to germinate and/or produce taxonomically identifiable reproductive structures (e.g., Ascospores and Basidiospores) are detected by this technique. While many fungal spores can be identified by this method, others, which are morphologically similar, cannot be positively assigned a taxa designation and are grouped based on similar spore morphology (e.g. *Aspergillus/Penicillium*, *Drechslera/Bipolaris*). High variability in fungal spore concentrations will exist in different geographic locations, during different seasons, and weather patterns, and over the course of a given day. As a general rule, indoor fungal spore concentrations in an HVAC-supplied building are typically less than, but qualitatively similar

to, fungal spore concentrations found in the outside environment. To assist in the interpretation of bioaerosol sampling results, a comparative sampling strategy is employed.

3.0 METHODS

3.1 Visual Evaluation/Moisture Detection

The visual evaluation was conducted in general accordance with guidelines published by the TDSHS (*Texas Mold Assessment and Remediation Rules*, 2004), the United States Environmental Protection Agency (*Indoor Air Quality Building Education and Assessment Model (I-BEAM)*, EPA Reference Number 402-C-01-001, December 2002), the American Conference of Governmental Industrial Hygienist (*Bioaerosols; Assessment and Control*, 1999) and American Standard Test Methods (*Standard Guide for Assessment of Fungal Growth in Buildings*, ASTM D7338-10). The indoor environment was evaluated for visual evidence of moisture intrusion, visible fungal growth or other hygiene concerns that could impact indoor air quality. Accessible HVAC components were also evaluated for hygiene concerns. Destructive sampling/testing to evaluate hidden, interstitial spaces was not within the scope of work for the project.

Wall and ceiling systems were evaluated with an infrared (IR) thermal imager for the presence of temperature differentials that suggest the presence of moisture. A Fluke Model TiR-32 thermal imager was used to evaluate temperature differences that are consistent with moisture intrusion.

Moisture content of building materials was confirmed with a conductive digital moisture meter; Model DT-100, from Professional Equipment Company. The moisture meter was calibrated prior to use in the field. The normal moisture content of building materials was standardized at 10 % relative by evaluating similar building materials that were known to be "dry".

3.2 Thermal Comfort

Temperature and relative humidity were monitored using an Extech digital psychrometer, Model RH300, at representative indoor and outdoor locations. The instrument was calibrated prior to use in the IEQ study.

3.3 Bioaerosols

Total bioaerosols were collected with a Buck BioAire Bioaerosol Sampling Pump, Model B520, at representative indoor and outdoor sample locations as indicated in the attached analytical report in Appendix A and the site diagram in Appendix C. Ten (10) total bioaerosol samples were collected during the site visit. Air samples were collected with 37 millimeter Allergenco-D cassettes at a flow rate of fifteen (15) liters per minute for five (5) minutes. The sample pump was calibrated immediately prior to sample collection. Fungal spores were identified based on morphology and samples were quantified as spores per cubic meter of air (spores/m³). The

lower limit of detection (LOD) for the method, based on a sample volume of 75 liters, was 43 spores/m³. Air samples were collected from the indoor and outdoor environments. This protocol provides indoor/outdoor comparison and information related to potential indoor fungal amplification locations. Total bioaerosol samples were submitted for analysis under chain of custody to Moldlab, Inc., a TDSHS licensed Mold Analysis Laboratory (License # 0137).

4.0 FIELD OBSERVATIONS/RESULTS

4.1 Visual Evaluation

General Observations: The facility is a single story metal building constructed on a slab on grade foundation. The building's vertical wall system is constructed with exterior metal panels, fibrous glass insulation located between the exterior metal panels and the interior gypsum wallboard walls. There did not appear to be an exterior sheathing layer within the wall system. The metal roof has rain gutters installed at the roof perimeter which drain to surfaces adjacent the building. The perimeter soil and concrete surfacing appeared properly graded to direct surface water away from the foundation. Indoor flooring materials consist of vinyl floor tile, ceramic tile in the restrooms and vinyl floor tile and carpet in the Administration wing. The wall systems are constructed of typical gypsum wallboard. The ceilings are a drop ceiling tile grid system or finished gypsum wallboard.

An on-site interview was conducted with Mr. Jed Davenport, Director, Midland Judicial District, who provided information related to the recent renovation/construction and use of the facility. Mr. Davenport reported occupants of the facility were relocated on January 17, 2014, and the facility is currently unoccupied. Additionally, Mr. Davenport indicated the HVAC system had remained in operation since the relocation of the occupants and was operating under normal parameters on the day of the site reconnaissance. Mr. Davenport indicated that prior to the Limited Mold Assessment conducted by Texas Consulting Services, an occupant knocked a hole in the exterior gypsum wallboard in Room 3, in the north wing. Mr. Davenport further indicated that during repair of the hole building maintenance staff reported discoloration consistent with fungal growth on the interstitial side of the gypsum wallboard. The referenced hole had been patched prior to Terracon's site visit. Additionally, Mr. Davenport reported that the walls in Room 3 and Room 5, located in the north wing and common with the north wing east restroom, had recently been deconstructed. Mr. Davenport also reported that the north wing east restroom had recently been deconstructed to observe and repair plumbing.

Several indoor locations within the south and north wings of the facility exhibited visible evidence of potential indoor environmental hygiene concerns. Additionally, the exterior of the facility exhibited locations of degradation that are discussed in Section 4.1.2. The indoor locations that exhibited indoor environmental hygiene concerns are discussed further in Section 4.1.3. The visual evaluation of accessible HVAC components was limited to the exterior of the air handling units and selected return air plenums. The visual observations related to the HVAC systems are discussed in Section 4.1.4. The individual building areas assessed during the IEQ evaluation are summarized in Table 1.0.

TABLE 1.0, INDOOR AREAS EVALUATED

Facility Locations/Photos	Observations
Exterior (Photos 1-21)	Section 4.1.2
Reception/Dining/Recreation (Photos 22-23)	No hygiene concerns observed
South Wing, SSC Room 10 (Photos 24-25)	Section 4.1.3
South Wing Corridor (Photo 26)	No hygiene concerns observed
South Wing, Storage Closet	No hygiene concerns observed
South Wing, Closet	No hygiene concerns observed
South Wing, Room 2	No hygiene concerns observed
South Wing, Room 4 (Photos 27-29)	Section 4.1.3
South Wing Restroom (Photos 30-36)	Section 4.1.3
South Wing, Room 3	No hygiene concerns observed
South Wing Room 1 (Photo 37)	No hygiene concerns observed
North Wing Corridor (Photos 38, 67-69)	Section 4.1.3
North Wing, Room 1	No hygiene concerns observed
North Wing, Room 2	No hygiene concerns observed
North Wing, Room 3 (Photos 58-61)	Section 4.1.3
North Wing, Room 4 (Photos 39-40)	Section 4.1.3
North Wing, East Restroom (Photos 62-66)	Section 4.1.3
North Wing, Room 5 (Photos 70-73)	Section 4.1.3
North Wing, Room 6 (Photos 41-43)	Section 4.1.3
North Wing, West Restroom (Photos 44-51)	Section 4.1.3
North Wing, Room 7	No hygiene concerns observed
North Wing, Room 8 (Photos 52-57)	Section 4.1.3
North Wing, Room 10	No hygiene concerns observed
Recreation Room	No hygiene concerns observed
Dining Room	No hygiene concerns observed
Kitchen/Kitchen Office, Storage, Corridor	No hygiene concerns observed
Laundry Room/Linen Closet	No hygiene concerns observed
Administration Wing	No hygiene concerns observed
Administration Wing Room Restrooms	No hygiene concerns observed
South Wing HVAC (Photos 74-76)	Section 4.1.4
North Wing HVAC (Photos 77-79)	Section 4.1.4
Administration Wing HVAC (Photos 80-81)	Section 4.1.4

4.1.2 Exterior Observations

Exterior Metal Walls (Photos 1-21): The building exterior envelope exhibited visual evidence of chronic water exposure at various locations. Moderate to significant rust/metal deterioration was observed at the base of the vertical metal panels, primarily in the general vicinity of the north and south wing restrooms. The southwest exterior metal panels, common with the south wing restroom, the northwest exterior metal panels, common with the north wing west restroom, the Recreation Yard exterior metal panels, common with the north wing east restroom and the southeast exterior metal panels common with the laundry room exhibited the referenced rust/metal deterioration. Mr. Davenport reported that during deconstruction of the north wing east restroom it was discovered that there was not a shower pan installed in the shower. The absence of a shower pan in the north wing east restroom is consistent with the rust/metal deterioration observed on the metal exterior panels common with this location. The rust/metal deterioration of the exterior metal panels common with the north wing west restroom and south wing restroom suggests the showers in these locations are constructed in a similar manner. The minor rust/deterioration on the southeast exterior common with the laundry appeared to be related to historical plumbing leaks.

Additionally, rust/metal deterioration was observed in the Recreation Yard in the southwest, northwest, northeast and southeast corners. The rust/metal deterioration at the referenced locations did not appear to be associated with water sources related to restrooms or known areas where plumbing lines would be anticipated to be present. The Recreation Yard concrete surface appeared to be adequately sloped to two drains located in the Recreation Yard suggesting that standing surface water would not accumulate at the southwest, northwest, northeast and southeast corners. Based on the observed exterior rust/metal deterioration, the source of the water intrusion at the referenced locations appeared to be related to potential leaks in the metal roof or roof flashing and subsequent moisture migration through the exterior wall systems.

4.1.3 Indoor Environmental Hygiene Observations

South Wing, SSC Room 10 (Photos 24, 25): Multiple water stained ceiling tiles were observed in the SSC room at the time of the IEQ evaluation. Moisture content of the affected ceiling tiles was normal and there was no visible evidence of fungal growth on the ceiling tiles. The water stained ceiling tiles appeared to be related to historical roof leaks.

South Wing, Room 4 (Photos 27-29): Room 4 was located adjacent the south wing restroom. Visible evidence of a previous wall repair was observed at the southwest corner wall, common with the restroom. A crack was also evident in the southwest corner of the patched wall. Moisture content of the wall system was normal at the time of the IEQ evaluation as indicated by IR thermography and confirmed with a hand held digital moisture meter.

South Wing Restroom (Photos 30-36): The shower area of the restroom, common with Room 4, exhibited residual moisture on the lower section of the wall within the ceramic tile substrate as indicated by IR thermography (Photos 32-34). Additionally, typical fungal growth was observed on the ceramic tile grout of the shower. There was not an exhaust fan/ventilation installed in the restroom at the time of the IEQ evaluation.

North Wing, Room 4 (Photos 39, 40): Visible evidence of previous wall repair was observed adjacent the window on the exterior west wall (Photos 39, 40). Moisture content of the wall system was normal at the time of the IEQ evaluation as indicated by IR thermography and confirmed with a hand held digital moisture meter.

North Wing, Room 6 (Photos 41-43): Room 6 was located adjacent the north wing west restroom. Visible evidence of a previous wall repair was observed adjacent the window on the exterior west wall (Photos 41). Additionally, visible evidence of previous wall repairs was observed at the wall common with the north wing west restroom (Photos 42). Apparent rust stains were present on the floor tile adjacent the repair location common with the north wing west restroom, suggesting historical moisture migration through the wall system (Photo 43). Moisture content of the wall system was normal at the time of the IEQ evaluation as indicated by IR thermography and confirmed with a hand held digital moisture meter.

North Wing, West Restroom (Photos 44-51): Mr. Davenport previously reported that a building occupant created a hole in the north wall adjacent the shower enclosure. Visible fungal growth was observed within the exposed interstitial wall cavity on the wall cavity side of the gypsum wallboard in Room 8, common with the west restroom (Photos 45, 46). The shower enclosure exhibited residual moisture on the lower section of the wall within the ceramic tile substrate as indicated by IR thermography (Photos 49, 50). An exhaust vent was installed in the ceiling of the west restroom and was ducted to the exterior west wall (Photos 51 and 68, 69).

North Wing, Room 8 (Photos 52-57): Room 8 was located adjacent the north wing west restroom. Rust was evident on the floor tile adjacent the west exterior wall, suggesting historical moisture intrusion through the exterior wall or from the adjacent north wing west restroom (Photo 53). Evidence of previous wall repairs and paint delamination were evident at the southwest corner, common with the north wing west restroom (Photos 54, 55). Elevated moisture was detected where paint delamination was observed on the south wall common with the north wing west restroom by IR thermography (Photos 56, 57). The moisture content was measured at 22 % with a hand held digital moisture meter. There was no visible fungal growth at the time of the IEQ evaluation.

North Wing, Room 3 (Photos 58-61): Room 3 was located adjacent the north wing east restroom. The east exterior wall, common with the Recreation Yard, exhibited a square patch. The square patch is the location which Mr. Davenport previously indicated a hole had been knocked in the wall by an occupant and discoloration was observed by building maintenance staff on the interstitial side of the gypsum wallboard (Photo 58). Prior to the

site reconnaissance, a section of the north wall common with the east restroom had been removed from floor to ceiling level, exposing the concrete masonry unit (CMU) shower enclosure and the metal framing (Photo 59). Minor fungal growth was observed on the exposed gypsum wallboard and the metal framing exhibited severe rust/deterioration suggesting long term exposure to moisture (Photos 60, 61). The quantity of visible fungal growth was estimated at two (2) square feet.

North Wing, East Restroom (Photos 62-66): The ceramic tile on the walls and floor of the shower enclosure had been removed prior to the site reconnaissance (Photo 63). Mr. Davenport previously indicated that during the deconstruction of the shower it was discovered that there was not a shower pan installed in the floor of the shower. Additionally, sections of the gypsum wallboard had been deconstructed exposing water damage and rust/deterioration on the metal framing consistent with long term moisture exposure (Photos 64). Minor fungal growth was observed on the exposed south wall behind floor trim which had previously been removed (Photo 65). The quantity of visible fungal growth behind the floor trim was estimated at less than one (1) square foot.

The metal fire suppression head mounted on the ceiling in the east restroom and the ceiling tile grid in the corridor between the east and west restrooms also exhibited rust consistent with long term moisture exposure (Photos 66, 67). The observation of rust on the referenced metal surfaces is consistent with exposure to humid air generated during use of the shower. An exhaust fan mounted on the ceiling was ducted to the east exterior wall (Photos 66, 69, 70).

North Wing, Room 5 (Photos 70-73): Room 5 was located adjacent the north wing east restroom. A section of the wall, common with the east restroom, had previously been removed from floor to ceiling level, exposing the CMU shower enclosure and the metal framing (Photo 71). The metal framing exhibited rust/deterioration consistent with long term moisture exposure (Photo 72). Apparent rust stains were also observed on the floor tile adjacent the window, suggesting historical moisture migration through the east exterior wall system or from the adjacent shower enclosure (Photos 73).

4.1.4 HVAC Hygiene Observations

Air Handling Units (Photos 74-83): The indoor environment was provided conditioned air by several vertical AHU's located in mechanical closets at different locations within the facility. The interior components of the AHU's were not accessible for visual evaluation.

South Wing, North Wing, Administration Wing (Photos 74-83): The interior of the return air plenums of the AHU's servicing the south and north wings were accessible for visual evaluation. The interior of the south and north wing return air plenums exhibited evidence of previous exposure to moisture or condensate drain pan overflow and suspect fungal growth (Photos 75, 76, 78, 79). The exterior of the return air plenum in the Administration wing exhibited damage and stains that appeared to be associated with moisture or a condensate

pan overflow (Photo 81). The surfaces within the referenced return air plenums were not accessible for sample collection. The quantity of suspect fungal growth in both the south and north wing return air plenums was estimated at less than one (1) square foot.

4.2 Thermal Comfort, Temperature and Relative Humidity

Temperature and relative humidity were monitored in the indoor and outdoor environments. The temperature and relative humidity of the outdoor environment was 53.2 F and 5.4 %, respectively. The temperature in the indoor environment was 66.7 F and the relative humidity was 10.3 % at the time of the IEQ evaluation. The temperature of the indoor environment was slightly below the referenced ASHRAE guideline for thermal comfort. The indoor relative humidity was significantly below the referenced ASHRAE benchmark value; however, the low indoor relative humidity appeared to be an artifact of the low outdoor environment relative humidity and is not unusual for the geographic location. Long term monitoring would be required to determine if the indoor ambient relative humidity was a chronic condition that could be related to occupant discomfort.

4.3 Total Bioaerosol Analysis

Total bioaerosol samples were collected at representative indoor locations as presented in Appendix A. The outdoor environment was contemporaneously sampled in duplicate to provide comparative data.

The average indoor total bioaerosol results were lower than the average outdoor total bioaerosol results on the day of the sample collection. The average total bioaerosol concentration in the indoor environment was $278 \text{ spores/m}^3 \pm 211 \text{ spores/m}^3$ ($n = 8$), with a range of 43 spores/m^3 to 726 spores/m^3 . The average total bioaerosol concentration in the outdoor environment was $492 \text{ spores/m}^3 \pm 211 \text{ spores/m}^3$ ($n = 2$), with a range of 342 spores/m^3 to 641 spores/m^3 . Based on the referenced literature and Terracon's in-house bioaerosol database the outdoor total bioaerosol results were seasonally typical.

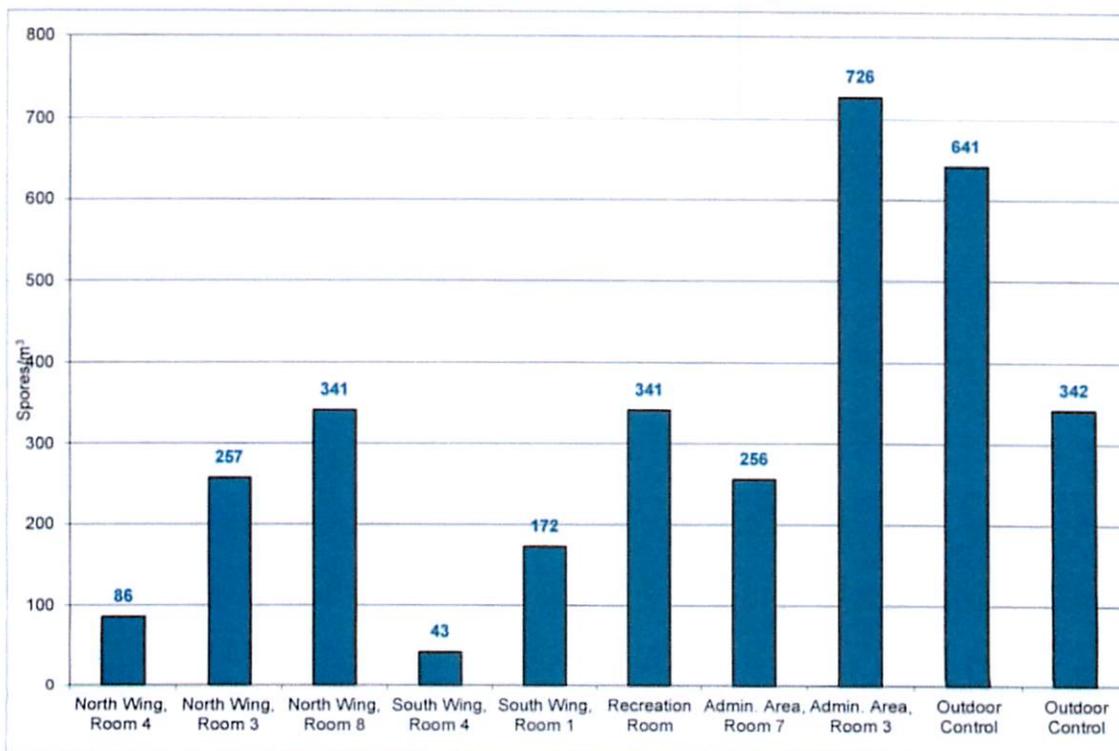
The fungal genera identified from the indoor environment were qualitatively consistent with the fungal genera encountered outdoors. *Cladosporium* bioaerosols were slightly elevated in the Administration wing, Room 3, relative to the concentration of *Cladosporium* bioaerosols detected in the outdoor environment at the time of sample collection. Additionally, the spore group *Aspergillus/Penicillium* was slightly elevated in the north wing, Room 8, the Recreation Room and the Administration wing, Room 3, relative to the highest concentration of the spore group *Aspergillus/Penicillium* detected in the outdoor environment at the time of sample collection. *Cladosporium* bioaerosols are commonly detected in the indoor and outdoor environments and the collection and concentration of these bioaerosols was not considered significant. The slight elevation of the spore group *Aspergillus/Penicillium* was suggestive of an indoor source of these bioaerosols. However, the airborne concentrations of both *Cladosporium* and *Aspergillus/Penicillium* bioaerosols were within typical ranges detected in

indoor environments that do not have evidence of indigenous fungal contamination and are not suggestive of atypical exposure to these fungal aerosols.

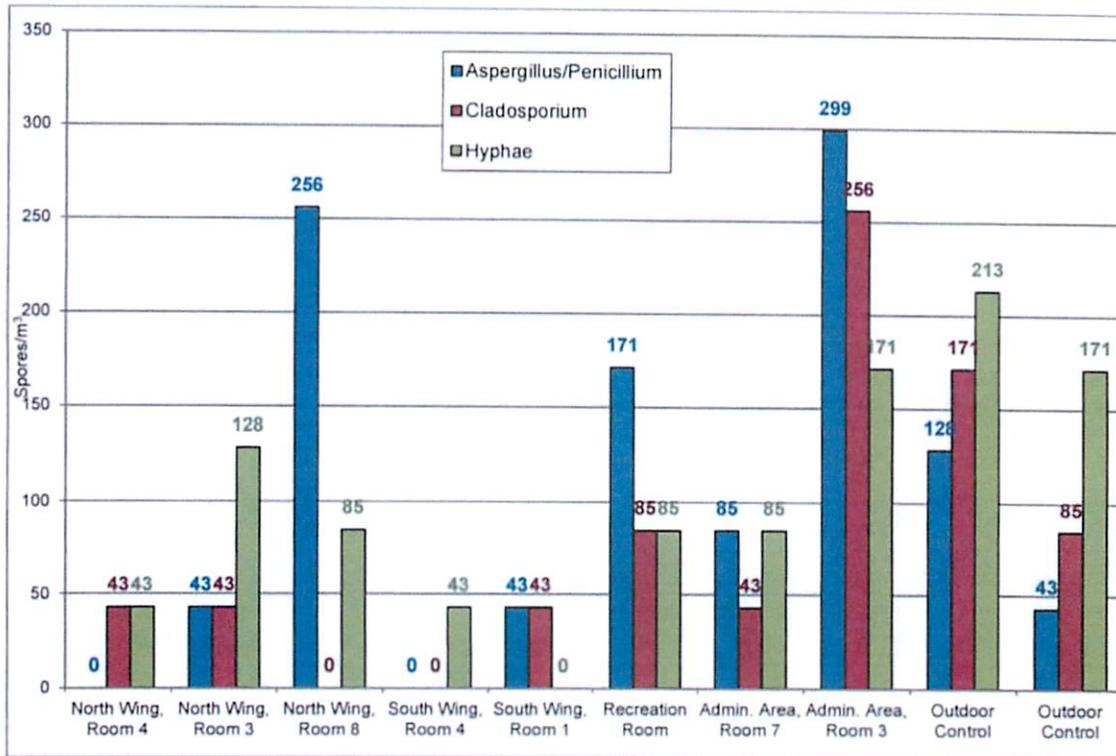
The bioaerosol results on January 28, 2014, were significantly different both qualitatively and quantitatively to the bioaerosol results reported by Texas Consulting Services from air samples collected during a site visit on December 30, 2013. Texas Consulting Services reported the wall damage present in the north wing, Room 3, as previously indicated by Mr. Davenport. The large differences in the bioaerosol results appear to be related to the referenced wall damage and disruption of fungal growth that could result in subsequent aerosolization and dissemination of fungal spores into the indoor environment.

The total bioaerosol results documented in this report (Appendix A) are based on empirical sample and analysis methods. To date, there is no data that supports a medically based threshold limit or dose-response relationship for exposure to fungal aerosols or fungal aeroallergens. There are no State or Federal exposure limits established for fungal aerosols. The total bioaerosol results are presented in Appendix A and Graphs 1.0 and 2.0.

GRAPH 1.0, TOTAL BIOAEROSOLS



GRAPH 2.0, MAJOR BIOAEROSOLS DETECTED



5.0 SUMMARY

Terracon conducted an IEQ evaluation of the unoccupied CRTC Building located at 215 West Industrial, Midland, Texas, on January 28, 2014. The metal exterior panels at several locations exhibited rust/deterioration consistent with long term exposure to moisture. Visual evidence of chronic moisture intrusion was observed at various locations in the south and north wings of the facility, especially in rooms that shared a common wall with the south wing restroom and the north wing east and west restrooms. The air samples collected during the site reconnaissance indicated a slight elevation of the spore group *Aspergillus/Penicillium*, suggesting an indoor source of these bioaerosols. In general, the airborne concentration of the bioaerosols detected were within typical ranges observed in indoor environments that do not have evidence of indigenous fungal contamination and were not indicative of an atypical exposure to the identified fungal aerosols.

The temperature of the indoor environment was slightly below the referenced ASHRAE guideline for thermal comfort. The indoor relative humidity was significantly below the referenced ASHRAE benchmark values; however, the low indoor relative humidity appeared to be an artifact of the low outdoor environment relative humidity and is not unusual for the geographic location.

A summary of the field observations and apparent moisture sources are presented in Table 2.0.

TABLE 2.0, SUMMARY OF FIELD OBSERVATIONS

LOCATION	FIELD OBSERVATION / MOISTURE SOURCE
Exterior	<p>The southwest exterior metal panels, common with the south wing restroom, the northwest exterior metal panels, common with the north wing west room, the Recreation Yard exterior metal panels, common with the north wing east restroom and the southeast exterior metal panels common with the laundry room exhibited rust/metal deterioration. The absence of a shower pan in the north wing east restroom is consistent with the rust/metal deterioration observed on the metal exterior panels common with this location. The rust/metal deterioration of the exterior metal panels common with the south wing restroom and north wing west restroom suggests a similar moisture source. The minor rust/deterioration on the southeast exterior common with the laundry appeared to be related to historical plumbing leaks.</p> <p>Rust/metal deterioration was observed in the Recreation Yard in the southwest, northwest, northeast and southeast corners. The source of the water intrusion appeared to be related to potential leaks in the metal roof or roof flashing and subsequent moisture migration through the exterior wall systems.</p>
SSC Room 10	Water stained ceiling tiles were observed in the SSC room. The water stained ceiling tiles appeared to be related to historical roof leaks.
South Wing, Room 4	Previous wall repair was observed at the southwest corner wall, common with the south wing restroom. The wall repair and visible damage appear to be related to moisture intrusion from the shower enclosure in the south wing restroom.
South Wing Restroom	Typical fungal growth was observed on the ceramic tile grout of the shower. The fungal growth is associated with inadequate routine cleaning.
North Wing, Room 3	A section of the north wall common with the east restroom had been removed from floor to ceiling level. Minor fungal growth was observed on the exposed gypsum wallboard and the metal framing exhibited severe rust/deterioration. The quantity of visible fungal growth was estimated at 2 square feet. The moisture damage and fungal growth appear to be related to moisture intrusion from the north wing east restroom shower enclosure.
North Wing, Room 4	Visible evidence of previous wall repair was observed adjacent the window on the exterior west wall. The wall repairs appeared to be associated with moisture intrusion through the building envelope.
North Wing, Room 5	A section of the wall, common with the north wing east restroom, was removed from floor to ceiling level. The metal framing exhibited rust/deterioration. Rust stains were observed on the floor tile adjacent the west window. The wall repairs and rust stains appeared to be associated with moisture intrusion through the building envelope and/or the north wing east restroom shower enclosure.
North Wing, Room 6	Visible evidence of previous wall repair was observed adjacent the window on the exterior west wall. Visible evidence of previous wall repair was observed at the wall common with the north wing west restroom. Rust stains were present on the floor tile common with the north wing west restroom. The wall repairs appeared to be associated with moisture intrusion through the building envelope and/or the north wing west restroom shower enclosure.

TABLE 2.0, SUMMARY OF FIELD OBSERVATIONS, continued

LOCATION	FIELD OBSERVATION / MOISTURE SOURCE
North Wing, Room 8	Rust was evident on the floor tile adjacent the west exterior wall. Evidence of previous wall repairs and paint delamination were evident at the southwest corner, common with the north wing west restroom. Elevated moisture was detected on the south wall common with the north wing west restroom. The wall repairs and elevated moisture appeared to be associated with moisture intrusion through the building envelope and/or the north wing west restroom shower enclosure.
North Wing, West Restroom	Visible fungal growth was observed within the exposed interstitial wall cavity of the gypsum wallboard in Room 8, common with the west restroom. The quantity of visible fungal growth was estimated at one (1) square foot. The fungal growth adjacent the shower enclosure is consistent with moisture migration from the shower enclosure.
North Wing, East Restroom	<p>The ceramic tile on the walls and floor of the shower enclosure had been removed prior to the site reconnaissance. There was not a shower pan installed in the shower. Sections of the gypsum wallboard had been deconstructed exposing water damage and rust/deterioration on the metal framing. Minor fungal growth was observed on the south wall behind floor trim. The quantity of visible fungal growth behind the floor trim was estimated at less than one (1) square foot. The moisture damage and fungal growth adjacent the shower enclosure is consistent with moisture migration from the shower enclosure.</p> <p>The metal fire suppression head mounted on the ceiling exhibited rust. The rust is indicative of exposure to humid air generated during use of the shower and inadequate exhaust ventilation.</p>
North Wing Corridor	The ceiling tile grid in the corridor between the east and west restrooms exhibited rust. The rust is indicative of exposure to humid air generated during use of the showers and inadequate exhaust ventilation.
South Wing HVAC	The interior of the return air plenum exhibited evidence of previous exposure to moisture and suspect fungal growth. The moisture damage and suspect fungal growth is consistent with drain pan overflow or condensate water leakage.
North Wing HVAC	The interior of the return air plenum exhibited evidence of previous exposure to moisture and suspect fungal growth. The moisture damage and suspect fungal growth is consistent with drain pan overflow or condensate water leakage.
Administration Wing HVAC	The exterior of the return air plenum exhibited damage and stains that appeared to be associated with moisture. The damage and stains are consistent with drain pan overflow or condensate water leakage.

6.0 RECOMMENDATIONS

Based on the visual and analytical results of the IEQ evaluation, Terracon anticipates additional, regulated fungal growth and/or water damage to be present within the perimeter wall systems in the south and north wings and the south and north wing restroom wall

Indoor Environmental Quality Report

CRTC Building, 215 W. Industrial ■ Midland, Texas
February 13, 2014 ■ Terracon Project No. 94147043



systems of the CRTC Building. Terracon recommends the wall systems should be remediated in accordance with the TMARR. Terracon further recommends that destructive investigation of the referenced perimeter wall systems should be conducted to further define the extent of potential fungal remediation. The current fungal remediation protocol presented in Appendix D would be modified as required to include the remediation of additional gypsum wallboard based on the results of destructive investigation.

Prior to any remedial activities that could disturb or damage building materials, building materials that are suspect as asbestos containing must be sampled for asbestos in accordance with the Texas Asbestos Health Protection Rules (TAHPR). Terracon's licensed Asbestos Inspector (License No. 603253) conducted an asbestos containing materials survey on January 28 and 29, 2014. The results are presented in Terracon report 94147043A, dated February 13, 2014. Window frame caulk collected from the exterior windows in the Recreation Yard was determined to be an Asbestos Containing Material. The asbestos containing exterior window caulk is classified as Category II nonfriable ACM. The identified quantity of this material is below the regulatory threshold of 260 linear feet established in EPA regulation 40 CFR 61, Subpart M, the National Emission Standards for Hazardous Air Pollutants (NESHAP); therefore, this material is not regulated by NESHAP or the Texas Asbestos Health Protection Rules (TAHPR), and is exempt from the requirement for removal by a TDSHS licensed asbestos abatement contractor and can be removed or demolished in place.

Terracon recommends the areas with non-regulated fungal growth or exhibiting water damage should be remediated as follows:

- Terracon recommends the HVAC return air plenums that provide conditioned air to the north, south and Administration wings should be cleaned by HEPA vacuum and wet wiped with a non-ionic detergent or disinfectant registered for use by the Environmental Protection Agency (EPA) in HVAC systems. Following thorough drying an anti-microbial encapsulant paint product, EPA registered for use in HVAC systems, should be applied to the gypsum or wood surfaces.
- The water stained ceiling tiles should be removed and discarded.
- The condensate drainage system for the AHU's should be evaluated for proper drainage alignment and efficient drainage.
- The exhaust ventilation system to the restrooms should be evaluated for proper ventilation and efficiency. Exhaust ventilation should be installed in the south wing restroom.
- The roof, roof flashing, and window systems should be evaluated for leaks and repaired as required. Restroom plumbing, inclusive of shower pan drain systems, should be evaluated and repaired/installed as required.

- The exterior vertical metal wall panels that exhibit rust/deterioration should be repaired or replaced to mitigate uncontrolled air exchange between the outdoor and indoor environments.

7.0 REFERENCES

1. *The Texas Mold Assessment and Remediation Rules*, (25 TAC §§295.301-295.338), Texas Department of State Health Services, May 16, 2004.
2. United States Environmental Protection Agency (*Indoor Air Quality Building Education and Assessment Model (I-BEAM)*, EPA Reference Number 402-C-01-001, December 2002).
3. *Bioaerosols; Assessment and Control*; American Conference of Governmental Industrial Hygienists, 1999.
4. *Standard Guide for Assessment of Fungal Growth in Buildings*, ASTM D7338-10.
5. Moldlab Report 14-0200, dated February 3, 2014.

APPENDIX A
ANALYTICAL REPORT

MOLD SUMMARY REPORT

Test Method: Mold; Nonculturable – Air Samples

Lab Job No.: 14-0200

Report Date: 02/03/2014

Submitted by : Robert Garrison

Submittal Date : 1/31/2014

No. of Samples: 10

Sample Date : 1/28/14

Client: Terracon Consultants, Inc.

Project: 94147043: 215 W. Industrial, Midland, TX

Project No: 94147043

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Sample No	Volume (liters)	Sample Description	Identification	Raw Count	Concentration (spores/m ³)
01	75	Outdoor, West Entrance	Ascospores	1	43
			Aspergillus / Penicillium	3	128
			Basidiospores	1	43
			Cladosporium	4	171
			Myxomycete / Rust / Smut	1	43
			Hyphal-like fragments	5	213
			Total:		641
Debris Field Rating - Light <20%					
02	75	Room 9, N Wing	Cladosporium	1	43
			Hyphal-like fragments	1	43
			Total:		86
			Debris Field Rating - Light <20%		
03	75	Room 3, N Wing	Aspergillus / Penicillium	1	43
			Cladosporium	1	43
			Myxomycete / Rust / Smut	1	43
			Hyphal-like fragments	3	128
			Total:		257
Debris Field Rating - Light <20%					
04	75	Room 8, N Wing	Aspergillus / Penicillium	6	256
			Hyphal-like fragments	2	85
			Total:		341
Debris Field Rating - Light <20%					

MOLD SUMMARY REPORT

Test Method: Mold; Nonculturable – Air Samples

Lab Job No.: 14-0200

Report Date: 02/03/2014

Submitted by : Robert Garrison

Submittal Date : 1/31/2014

No. of Samples: 10

Sample Date : 1/28/14



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Client: Terracon Consultants, Inc.

Project: 94147043: 215 W. Industrial, Midland, TX

Project No: 94147043

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Sample No	Volume (liters)	Sample Description	Identification	Raw Count	Concentration (spores/m ³)
05	75	Room 4, S Wing	Hyphal-like fragments	1	43
			Total:		43
			Debris Field Rating - Light <20%		
06	75	Room 1, S Wing	Aspergillus / Penicillium	1	43
			Basidiospores	1	43
			Cladosporium	1	43
			Myxomycete / Rust / Smut	1	43
			Total:		172
			Debris Field Rating - Light <20%		
07	75	Recreation Room	Aspergillus / Penicillium	4	171
			Cladosporium	2	85
			Hyphal-like fragments	2	85
			Total:		341
			Debris Field Rating - Light <20%		
08	75	Room 7, Administration	Aspergillus / Penicillium	2	85
			Basidiospores	1	43
			Cladosporium	1	43
			Hyphal-like fragments	2	85
			Total:		256
			Debris Field Rating - Light <20%		

MOLD SUMMARY REPORT

Test Method: Mold; Nonculturable – Air Samples



www.moldlab.com (972) 247-9373 / 1-866-416-MOLD

Lab Job No.: 14-0200

Report Date: 02/03/2014

Submitted by: Robert Garrison

Submittal Date: 1/31/2014

No. of Samples: 10

Sample Date: 1/28/14

Client: Terracon Consultants, Inc.

Project: 94147043: 215 W. Industrial, Midland, TX

Project No: 94147043

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Sample No	Volume (liters)	Sample Description	Identification	Raw Count	Concentration (spores/m ³)
09	75	Room 3, Administration	Aspergillus / Penicillium	7	299
			Cladosporium	6	256
			Hyphal-like fragments	4	171
			Total:		726
Debris Field Rating - Med 20-50%					
10	75	Outdoor Control, West	Aspergillus / Penicillium	1	43
			Cladosporium	2	85
			Myxomycete / Rust / Smut	1	43
			Hyphal-like fragments	4	171
Total:					342
Debris Field Rating - Light <20%					

Report Tips

- Each type of mold listed above (in blue) is linked to our Mold Dictionary. Simply place your cursor over the name of the mold and click.
- For help how to read this report, what the numbers mean, etc. please click here [REPORT HELP](#)

*Diagnosis of health effects should be left to a medical professional. Health effects in general are not well studied, and dosage, exposure, and sensitivity thresholds are not well known and can potentially vary tremendously depending on various conditions and on the particular individual. Effects can also vary from species to species within a particular mold genus. The EPA, OSHA, NIOSH and other occupational health related associations in the U.S. have not yet established permissible exposure levels (PEL), recommended exposure limits (REL), or other limit values for aeroallergens. Please realize that the evaluation of one's specific results in terms of potential health hazards and subsequent courses of action are beyond the scope of the laboratory analysis. Those requiring expert advisement on a particular situation should retain the services of a professional IAQ consultant.

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Kristina Rucker is a Certified Spore Analyst Level 1 (ID No: 10040071) by the Pan American Aerobiology Certification Board.

Analyst: Kelly Wood

Lab Director: Kristina Rucker

Terracon

8901 Carpenter Freeway, Suite 100
Dallas, Texas 75247

FIELD DATA SHEET AND CHAIN OF CUSTODY

PROJECT NAME: 94147043
ADDRESS: 215 W Industrial, Midland, TX
PROJECT NO: 94147043

Comments:
Calibrated @ 15 L/min

Sample #	Sample Description or Location	Date	Method	Sample Time	Flow Rate	Volume	Analytical
01	Outdoor, West Entrance	12/8/14	M1-D	5 min	15 L/min	75 L	
02	Room 4, N wing						
03	Room 3, N wing						
04	Room 8, N wing						
05	Room 4, S wing						
06	Room 1, S wing						
07	Recreation Room						
08	Room 7, Administration						

Released by: [Signature] Date: 12/8/14

Received By: [Signature] Date: 1/31/14 12:38
14-0200

Terracon

8901 Carpenter Freeway, Suite 100
Dallas, Texas 75247

FIELD DATA SHEET AND CHAIN OF CUSTODY

PROJECT NAME: _____
ADDRESS: _____
PROJECT NO: 94147043

Comments:

Sample #	Sample Description or Location	Date	Method	Sample Time	Flow Rate	Volume	Analytical
09	Room 3, Administration	12/28/14	ATL-D	5 min	152 µm	35 l	
10	Outdoor Control, West						

Released by: [Signature] Date: 12/28/14

Received By: [Signature] Date: 1/31/14 12:38
14-0200-2

APPENDIX B
PHOTOGRAPHS



Photo 1 Exterior overview



Photo 2 West exterior, south wing, overview



Photo 3 West exterior, rust/deterioration in vicinity of south wing restroom

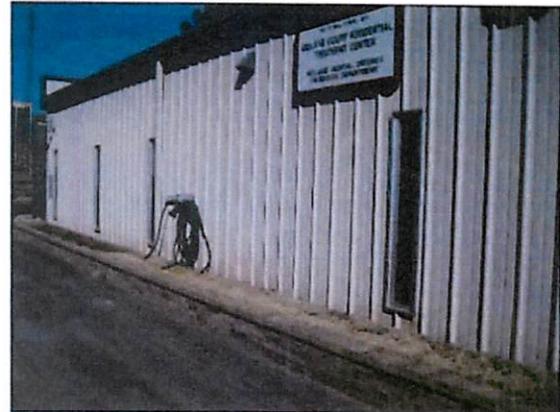


Photo 4 West exterior, north wing area, overview



Photo 5 West exterior, north wing, restroom exhaust ventilation



Photo 6 West exterior, north wing, rust/deterioration at faucet head



Photo 7 West exterior, north wing, rust/deterioration in vicinity of north wing west restroom



Photo 8 East exterior overview



Photo 9 East exterior, in vicinity of laundry room



Photo 10 East exterior overview



Photo 11 East exterior overview



Photo 12 Recreation Yard overview

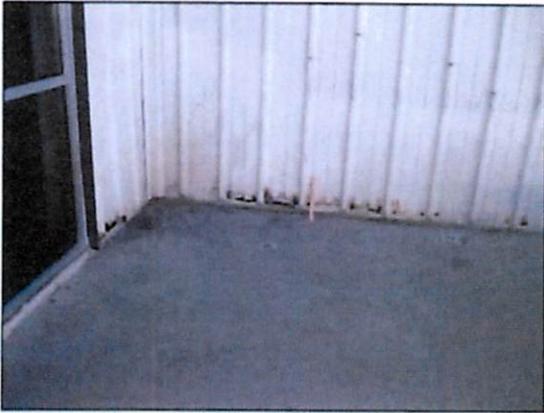


Photo 13 Recreation Yard, rust/deterioration on metal exterior, southwest corner common with Room 1



Photo 14 Recreation Yard, rust/deterioration on metal exterior, southwest corner common with Room 1



Photo 15 Recreation Yard, rust/deterioration on metal exterior in vicinity of north wing



Photo 16 Recreation Yard, rust/deterioration on metal exterior in vicinity of north wing



Photo 17 Recreation Yard, rust/deterioration on metal exterior, northwest corner, common with Room 7



Photo 18 Recreation Yard, rust/deterioration on metal exterior, northwest corner, common with Room 7

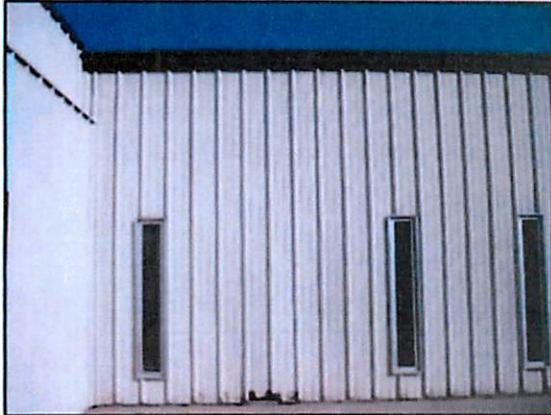


Photo 19 Recreation Yard, rust/deterioration on metal exterior, northeast corner, common with Admin Office 3



Photo 20 Recreation Yard, rust/deterioration on metal exterior, northeast corner, common with Admin Office 3



Photo 21 Recreation Yard, rust/deterioration on metal exterior, southeast corner, common with Admin Office 7



Photo 22 Reception overview, view to east



Photo 23 Recreation room, view to west



Photo 24 SSC Room 10 overview



Photo 25 SSC Room 10 water stained ceiling tiles



Photo 26 South wing corridor overview



Photo 27 South wing, Room 4 overview



Photo 28 South wing, Room 4, southwest corner common with south wing restroom, evidence of previous wall repair/patch



Photo 29 South wing, Room 4, southwest corner, common with south wing restroom, evidence of previous wall repair/patch



Photo 30 South wing restroom overview

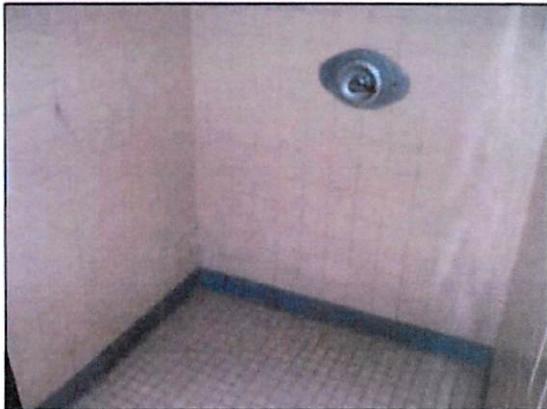


Photo 31 South wing restroom, shower area

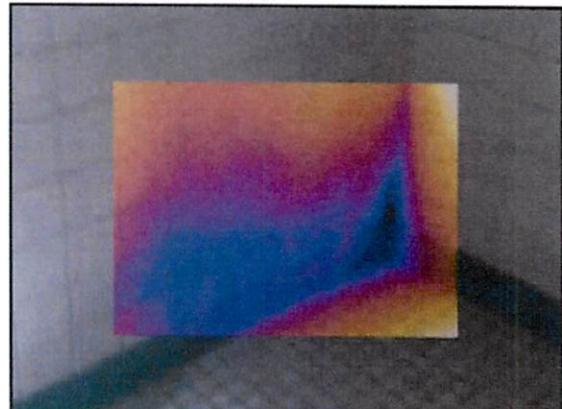


Photo 32 South wing restroom, shower area, evidence of residual moisture in wall system as viewed through IR camera

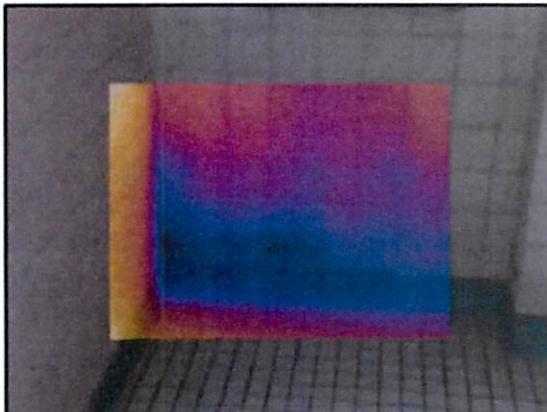


Photo 33 South wing restroom, shower area, evidence of residual moisture in wall system as viewed through IR camera

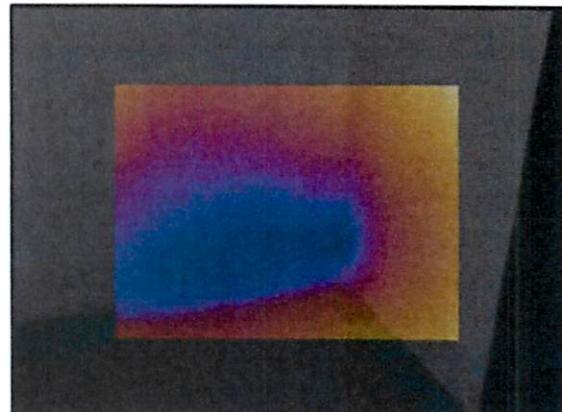


Photo 34 South wing restroom, shower area, evidence of residual moisture in wall system as viewed through IR camera

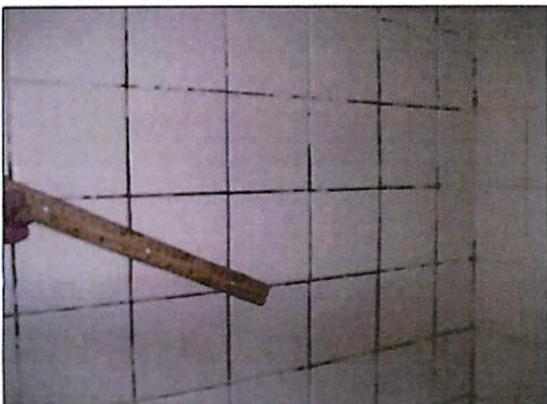


Photo 35 South wing restroom, shower area, typical fungal growth on tile grout

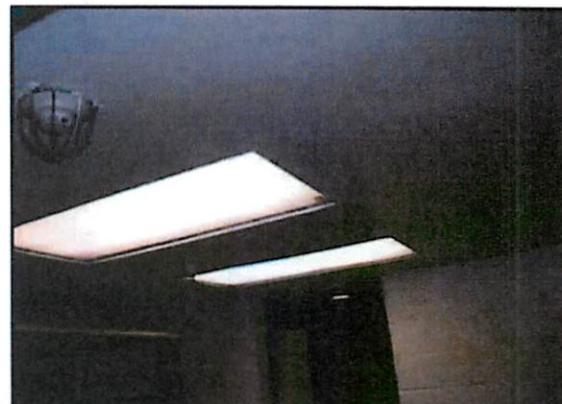


Photo 36 South wing restroom ceiling, no exhaust ventilation observed

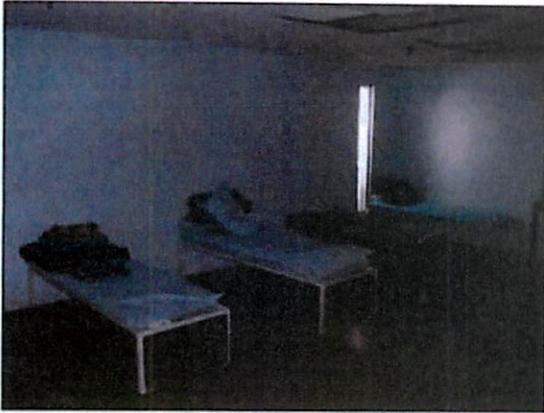


Photo 37 South wing, Room 1 overview



Photo 38 North wing corridor overview

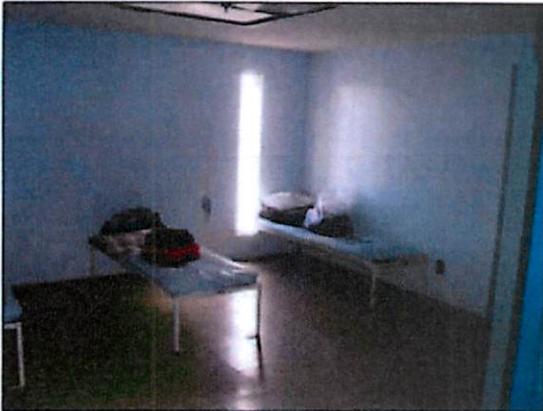


Photo 39 North wing, Room 4 overview



Photo 40 North wing, Room 4, evidence of previous wall repair/patch on exterior wall system

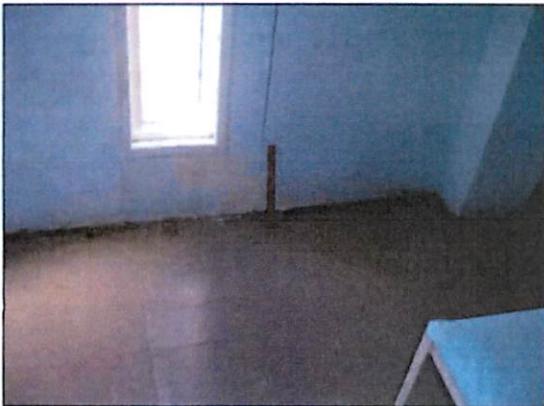


Photo 41 North wing, Room 6, evidence of previous wall repair/patch on exterior wall system

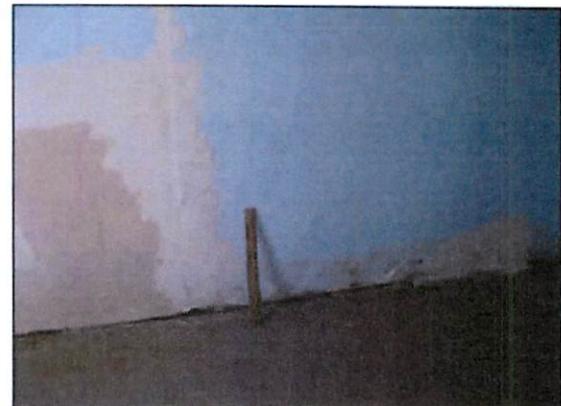


Photo 42 North wing, Room 6, evidence of previous wall repair/patch on exterior wall system



Photo 43 North wing, Room 6, evidence of rust on floor tile, common with north wing west restroom



Photo 44 North wing, west restroom overview

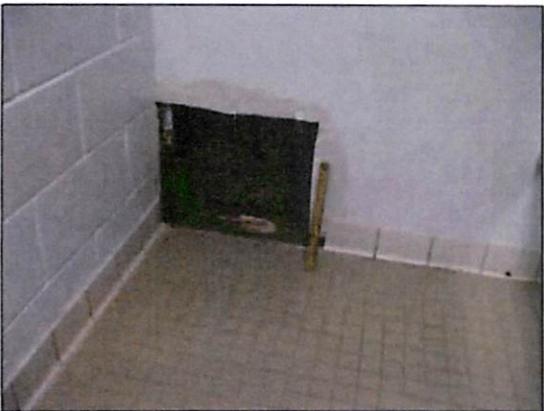


Photo 45 North wing, west restroom, west wall previously deconstructed



Photo 46 North wing west restroom, west wall, water damage, fungal growth



Photo 47 North wing, west restroom shower area



Photo 48 North wing, west restroom shower area

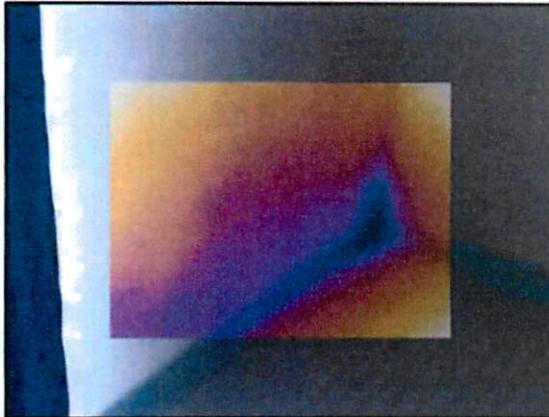


Photo 49 North wing, west restroom shower area, evidence of residual moisture in wall system as viewed by IR camera

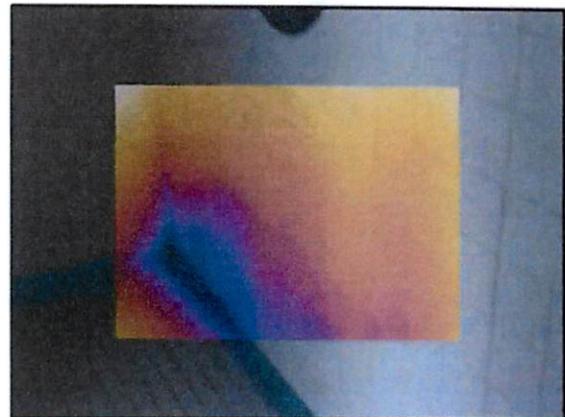


Photo 50 North wing, west Restroom shower area, evidence of residual moisture in wall system as viewed by IR camera



Photo 51 North wing, west restroom, exhaust ventilation

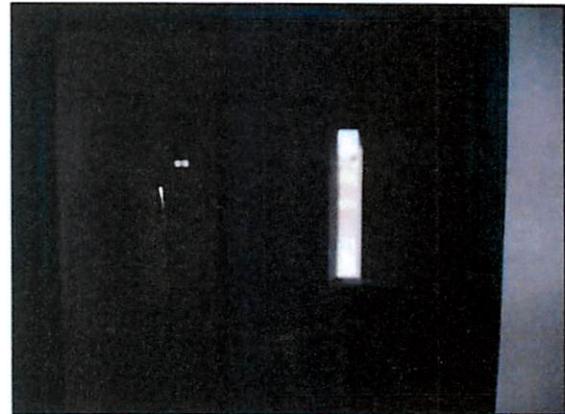


Photo 52 North wing, Room 8, wall common with west restroom, evidence of previous repair/patch



Photo 53 North wing, Room 8, exterior wall, rust on floor tile adjacent wall



Photo 54 North wing, Room 8, wall common with west restroom, evidence of previous repair/patch



Photo 55 North wing, Room 8, wall common with west restroom, delaminating paint, elevated moisture



Photo 56 North wing Room 8, wall system common with west restroom evidence of moisture as viewed through IR camera



Photo 57 North wing Room 8, wall system common with west restroom evidence of moisture as viewed through IR camera

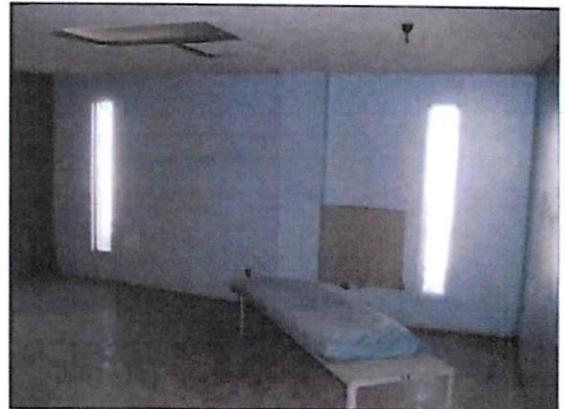


Photo 58 North wing, Room 3, exterior wall patch



Photo 59 North wing Room 3, wall system common with east restroom, previously deconstructed

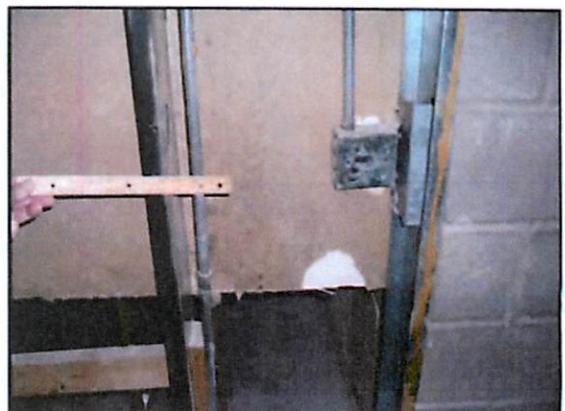


Photo 60 North wing Room 3 wall system common with east restroom, minor fungal growth on exposed interstitial wall board



Photo 61 North wing Room 3 wall system common with east restroom, rust/deterioration of exposed metal wall studs

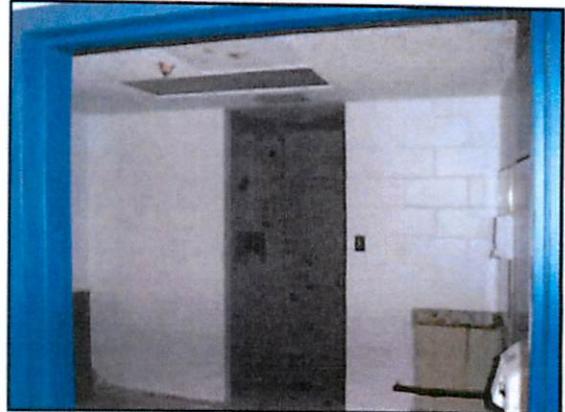


Photo 62 North wing, east restroom overview



Photo 63 North wing, east restroom, west wall previously deconstructed



Photo 64 North wing, east restroom, wall system previously deconstructed



Photo 65 North wing, east restroom, minor fungal growth at floor trim area



Photo 66 North wing, east restroom ceiling, rust on sprinkler head, exhaust ventilation



Photo 67 North wing corridor, ceiling tile grid between east and west restrooms, rust on metal grid



Photo 68 North wing, west restroom exhaust ventilation to outdoors

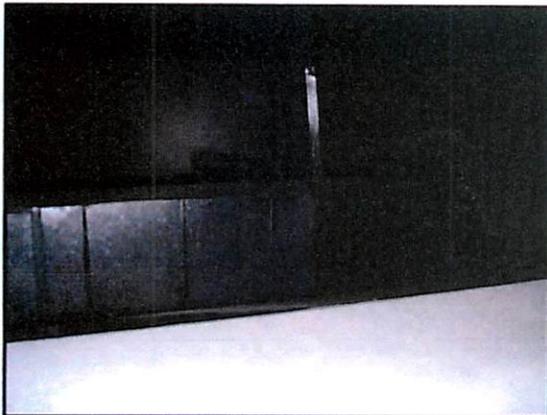


Photo 69 North wing, east restroom exhaust ventilation to outdoors



Photo 70 North wing, Room 5, overview



Photo 71 North wing, Room 5, wall common with east restroom, wall system previously deconstructed



Photo 72 North wing, Room 5, wall common with east restroom, wall system previously deconstructed, rust/deterioration on metal wall studs



Photo 73 North wing Room 5, evidence of previous wall repair/patch and rust on floor tile at exterior east wall



Photo 74 South wing, vertical AHU's



Photo 75 South wing, vertical AHU return air plenum, evidence of water staining, suspect fungal growth



Photo 76 South wing, vertical AHU return air plenum, evidence of water staining, suspect fungal growth

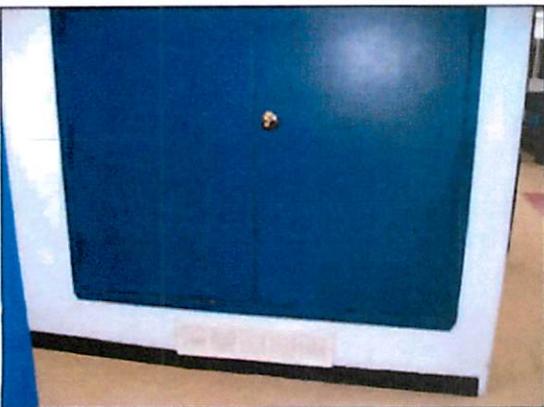


Photo 77 North wing vertical AHU locked mechanical closet



Photo 78 North wing vertical AHU, return air plenum, evidence of water staining, suspect fungal growth



Photo 79 North wing vertical AHU, return air plenum, evidence of water staining, suspect fungal growth



Photo 80 Administration wing, vertical AHU's



Photo 81 Administration wing, vertical AHU platform, evidence of water damage

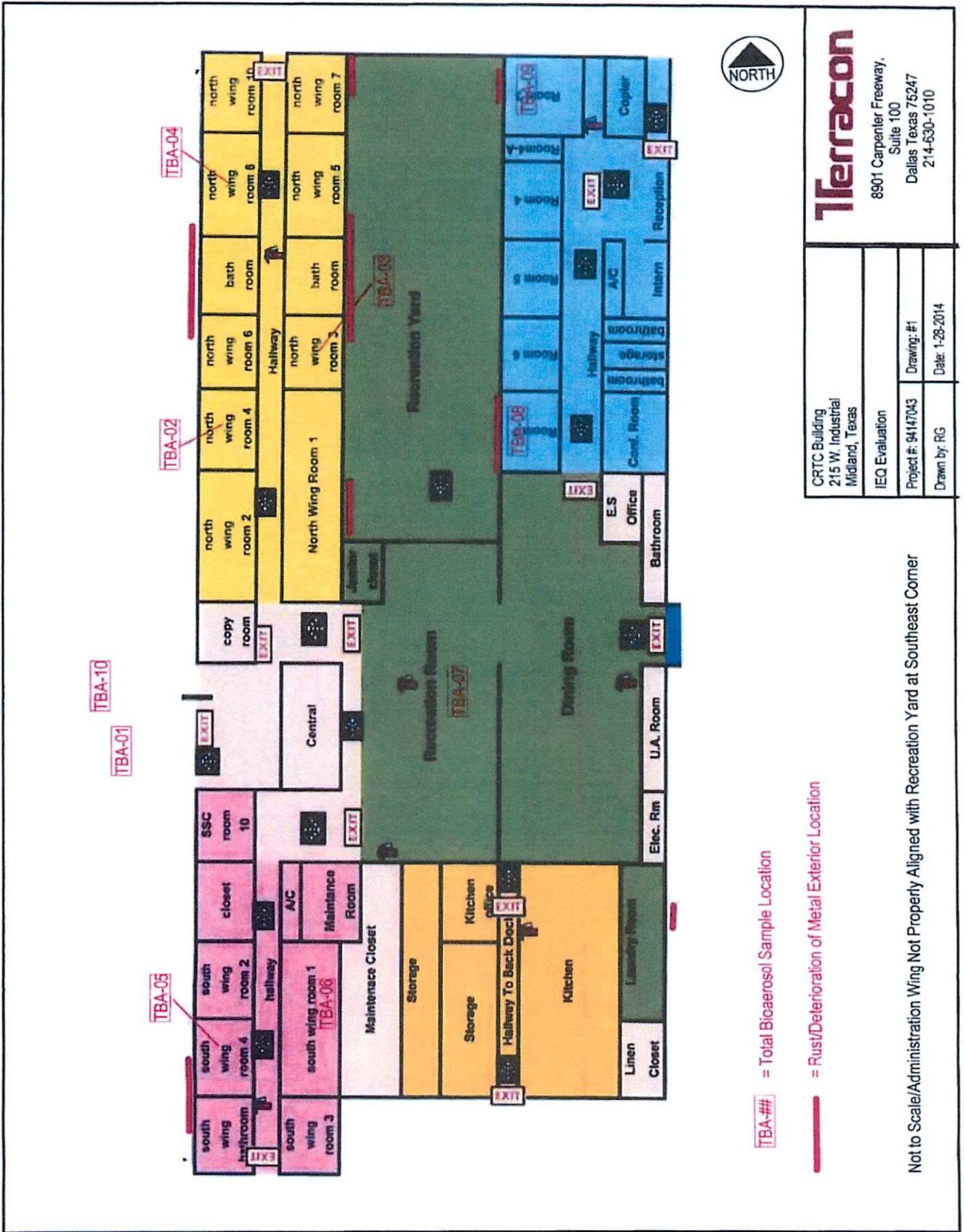


Photo 82 Mechanical Closet off Dining room



Photo 83 Mechanical Closet off Dining room, vertical AHU's

APPENDIX C
SITE DIAGRAM



Terracon

8901 Carpenter Freeway,
Suite 100
Dallas Texas 75247
214-630-1010

CRTC Building 215 W. Industrial Midland, Texas	
IEQ Evaluation	
Project #: 94147043	Drawing: #1
Drawn by: RG	Date: 1-28-2014

Not to Scale/Administration Wing Not Properly Aligned with Recreation Yard at Southeast Corner

APPENDIX D
FUNGAL REMEDIATION PROTOCOL

Fungal Remediation Protocol

**CRTC Building
215 W. Industrial
Midland, Texas**

February 13, 2014
Terracon Project No. 94147043



Prepared for:
Cotton, Bledsoe, Tighe & Dawson, P.C.
500 West Illinois, Suite 300
Midland, Texas

Prepared by:
Terracon Consultants, Inc.
Dallas, Texas



Robert Garrison
TDSHS Mold Assessment Consultant
License No. MAC 0107 / Expires 11.10.2014

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SCOPE OF WORK – FUNGAL REMEDIATION

**Project: 215 West Industrial
Midland, Texas 79701
February 13, 2014**

Terracon Project No. 94147043

PROJECT SUMMARY:

Terracon identified moisture damage, elevated moisture and suspect fungal growth on the perimeter wall systems of the south and north wings of the unoccupied facility located at 215 W. Industrial, Midland, Texas. Moisture damage and fungal growth were also identified in the wall systems of the east and west restrooms in the north wing and are suspected in the wall systems of the south wing restroom. In addition, moisture damage and suspect fungal growth were identified in the west perimeter wall of the Administration wing and a section of the east perimeter wall in the laundry room. The quantity of building materials that are anticipated to exhibit regulated fungal growth is estimated to exceed 25 contiguous square feet. The moisture damage and fungal growth appeared to be associated with restroom plumbing leaks, current/historical roof leaks, current/historical roof flashing leaks, window leaks and air/moisture intrusion through the building envelope.

The *Texas Mold Assessment and Remediation Rules* (TMARR) define "regulated" fungal growth as fungal growth in the indoor environment that exceeds 25 square feet of contiguous surface area. The visible fungal contamination at the referenced location exceeded 25 square feet and must be remediated in accordance with the TMARR. The TMARR specifies that regulated quantities of fungal growth must be remediated by a licensed Mold Remediation Contractor (MRC) in accordance with a fungal remediation protocol prepared by a licensed Mold Assessment Consultant (MAC).

The fungal remediation project will consist of the removal of the affected gypsum wallboard on perimeter wall systems of the south and north wings, the previously referenced restroom walls the Administration wing perimeter west wall and a section of the east perimeter wall in the laundry room. The interstitial wall cavities will be cleaned with a non-ionic detergent solution or approved disinfectant solution. Metal framing that has deteriorated will be cleaned, replaced or shored. The fungal remediation will be conducted in negative pressure containment with HEPA filtered exhaust and two stage decontamination egress. The contained work area will be subject to the visual and analytical clearance criteria presented in this protocol. The remedial activities will be conducted in accordance with Texas Department of State Health Services (TDSHS) regulations contained in the Texas Administrative Code (TAC) Title 25, Part 1, Subchapter J, *Texas Mold Assessment and Remediation Rules*, (TAC 25, TMARR §295.301-295.338). Specific sections of the TMARR that apply to the MRC and the fungal

remediation project are TMARR §295.314, §295.315, §295.316, §295.322, §295.325 and §295.327.

Terracon's licensed Asbestos Inspector (License No. 603253) conducted an asbestos containing materials survey on January 28 and 29, 2014. The results are presented in Terracon report 94147043A, dated February 13, 2014. The results of the asbestos survey indicate that the exterior window caulk contains asbestos. The asbestos containing exterior window caulk is classified as Category II nonfriable asbestos-containing material (ACM). The identified quantity of this material is below the regulatory threshold of 260 linear feet established in EPA regulation 40 CFR 61, Subpart M, the National Emission Standards for Hazardous Air Pollutants (NESHAP); therefore, this material is not regulated by NESHAP or the Texas Asbestos Health Protection Rules (TAHPR), and is exempt from the requirement for removal by a TDSHS licensed asbestos abatement contractor and can be removed or demolished in place.

1.0 SAFETY PRACTICES

The contractor is responsible for OSHA safety practices associated with worker protection. The contractor shall ensure that electrical and fire hazard safety protocols are followed in compliance with typical construction regulations. In addition, the contractor will implement any additional safety rules and required personal protective equipment (PPE) associated with the project areas as established by BISD.

The contractor will comply with applicable NEMA, NECA and UL standards and governing regulations for materials and layout of temporary electric service. The contractor will provide and maintain temporary fire protection during the project in accordance with requirements of the local protection code.

The contractor will provide Type-"A" fire extinguishers for temporary offices and similar spaces where there is minimal danger of electrical, grease, oil or flammable liquid fires. In other locations, provide Type-"ABC" dry chemical extinguishers, or a combination of several extinguishers of NFPA-recommended types for the exposures in each case.

It is the contractor's responsibility to ensure that workers on scaffold platforms or working from ladders or other elevated platforms should be safe and secure from slipping or falling.

2.0 ACCESS TO WORK AREAS

Site access will be limited to areas necessary to accommodate remediation. The contractor will coordinate location of access and placement of the decontamination unit, disposal trailer, etc. with the building owners representative.

A secure work area will be established for the containment location and general work area. Only licensed/registered individuals qualified to wear respiratory protection will enter the secured work area during the project. The contractor will ensure that access to the work area is monitored.

The Contractor will post appropriate warning signs as required by TMARR 295.322 (e).

3.0 MOVEABLE/NON-MOVEABLE OBJECTS

The MRC will clean, and remove contents in the work areas, if present, prior to fungal remediation as described in Section 9.0. Non-moveable objects, as well as environmental surfaces that remain in the work area, including the floor, ceiling and walls will be decontaminated by HEPA vacuuming and/or wet wipe protocols and covered with a layer of six (6) millimeter polyethylene sheeting secured in place with duct tape.

4.0 HEATING, VENTILATION, AIR CONDITIONING (HVAC) SYSTEM

Supply and return air vent openings in the contained work areas shall be covered by critical barriers. The HVAC systems will be turned off during the remediation project.

A sufficient number of dehumidifiers will be operated in the work area as required to maintain relative humidity below 60 %. The MRC will maintain a log of daily relative humidity measurements. The dehumidifiers will be drained daily or soft-plumbed (Tygon® tubing, or equivalent) to the sanitary sewer.

5.0 DECONTAMINATION SYSTEM

A worker decontamination enclosure system shall be installed for entry into each contained work area and shall consist of a two-stage, dry decontamination unit constructed of six (6) millimeter polyethylene sheeting, or equivalent. Disposable clothing worn by remediation workers in the containment will be HEPA vacuumed prior to exit through the two-stage decontamination unit. Except for the doorway and the make-up air provision for the enclosure, the worker decontamination system shall be sealed against leakage of air. Personnel must enter and exit the containment area through the decontamination enclosure system. No fungal contaminated individuals, tools, materials or other items shall enter the clean room.

6.0 CONTAINMENT/CRITICAL BARRIERS

The fungal remediation work area(s) will be separated from the adjacent areas by a layer of six (6) millimeter polyethylene sheeting creating a containment that will be negatively pressurized. The pre-cleaned non-moveable objects will be covered with a layer of six (6) millimeter polyethylene sheeting. The floors in each room and the floor in the main corridor in-

between rooms that comprise a contained work area will be covered by two (2) layers of six (6) millimeter polyethylene sheeting.

The openings between the contained areas and adjacent areas, including but not limited to doorways, corridor entrances, ventilation openings (both supply air and return air), drains, ducts and wall penetrations shall be sealed with a layer of six (6) millimeter polyethylene sheeting. The penetrations that could permit air infiltration or air leaks through the barrier shall be sealed, with exceptions for the make-up air and the decontamination enclosure(s) system entry/exit. A two-stage, dry decontamination unit shall provide entrance to each containment work area as previously described. The containment area will be maintained at a negative pressure differential during active remediation work, as described in Section 7.0. The duration of the fungal remediation project for the purposes of this requirement shall be considered from the time the containment area is established through the time acceptable final clearance air monitoring results are provided by the MAC to the MRC. Containment/critical barriers must remain in place until interim, written notification of post remediation final clearance has been received from the MAC.

7.0 VENTILATION

HEPA filtered negative air machines (NAM's) will be operated continuously within the contained work area during fungal remediation. The containments will be maintained at a negative pressure differential of 5 Pascal, or, 0.02 inches of water column, during active remediation. Negative pressure should not exceed 10 Pascal, or, 0.04 inches of water column. Negative pressure will be monitored with a manometer to confirm the specified pressure differential. NAM's will be exhausted to the outdoor environment through window(s) within the contained work area during active remediation. A sufficient number of NAMS will be staged and exhausted directly to the outdoor environment to achieve the required pressure differential for the defined containment. The containment should have a minimum of four (4) air changes per hour, and shall be operated continuously for the duration of the project as previously defined. Due to security issues associated with the building use and operation, the containment may be sealed and placed on re-circulation air "scrubbing" during non-working hours and prior to final air clearance sample collection.

8.0 PPE DURING FUNGAL REMEDIATION

Workers will wear personal protective equipment consisting of, at a minimum, half face dual cartridge air purifying respirators with HEPA cartridges (N-100) and full body disposable coveralls before beginning fungal remediation. However, it is the Contractor's responsibility to ensure that his employees are afforded the respiratory protection as required by the OSHA standard for respiratory protection (29 CFR 1910.134, December, 2008) or the respiratory protection requested by the employee. Safety glasses and work gloves must be worn while working in the containment. It is the contractor's responsibility to ensure that workers on

scaffold platforms or working from ladders or other elevated platforms should be safe and secure from slipping or falling.

9.0 CLEANING/DECONTAMINATION OF AFFECTED BUILDING MATERIALS

The exposed wall system components that will not be removed including metal framing and adjacent building components will be cleaned and decontaminated. Metal framing that exhibits severe rust/deterioration may be cleaned, treated with rust inhibitor and shored or replaced where necessary. Cleaning and decontamination procedures shall use HEPA vacuuming and wet wiping. An appropriately labeled and EPA registered disinfectant/biocide may be used on non-porous or semi-porous surfaces in accordance with the manufacturers label instructions. The environmental surfaces within the work area, including floors, walls and other environmental surfaces, should be cleaned prior to the Post Remediation Verification (PRV) evaluation.

Approved biocides/disinfectants include Fosters 40/80® (quaternary ammonium chloride), Shockwave® (quaternary ammonium chloride), or equivalent, as approved by the MAC prior to application. Material Safety Data Sheets for the chemicals used during the remediation must be maintained onsite by the MRC.

10.0 REMOVAL OF AFFECTED BUILDING MATERIALS

The perimeter wall systems indicated in the diagram in Appendix A will be removed from floor level to a minimum height of 4 vertical feet. Removal of the referenced wall systems will extend horizontally and/or vertically 1 foot past visible fungal growth or water damage.

The insulation materials within the wall systems, if present, will be removed. Building materials that are removed should not be allowed to accumulate on the floor of the containment. The wall system and insulation materials removed will be immediately double bagged. Disposal bags will be cleaned by HEPA vacuum/wet wipe prior to removal from the containment and the bagged building materials discarded as construction debris.

After the work area has passed the final visual clearance, exposed surfaces may be treated with an EPA registered anti-microbial encapsulant.

The total quantity of building materials to be removed is currently estimated at 1,465 square feet.

11.0 PROJECT MODIFICATION

The MAC, on an individual basis, will consider modifications designed to expedite or enhance the fungal remediation procedure. **The MAC must approve deviations from the fungal remediation procedure described.**

12.0 POST REMEDIATION VERIFICATION CRITERIA

- i. The project will be cleared by: 1) visual inspection; and, 2) total bioaerosol analysis. The post remedial inspection and air sample collection will be conducted while the containment is in place and properly depressurized. The containment must be on direct exhaust ventilation to the outdoor environment or in air scrub mode for a cumulative of 48 hours after final cleaning and prior to the PRV final clearance air sample collection. The containment(s) may not be removed or depressurized until final clearance criteria has been achieved and written, interim notice provided by the MAC to the MRC.
- ii. The visual evaluation criteria will consist of an evaluation of the remediation area to determine if the remediation has been properly conducted in accordance with the project specifications and procedures, applicable state regulations, and visible fungal growth and extraneous debris within the work areas has been properly removed.
- iii. Representative air samples shall be collected from within the containment, the outdoor environment, and analyzed by standard optical light microscopy methods. Total bioaerosol analysis must be conducted by a licensed Mold Analysis Laboratory. Any area whose air test does not meet post remediation criteria will be re-tested following cleaning and air scrubbing of those areas.
- iv. Total bioaerosol analytical clearance criteria will be based on qualitative and quantitative similarity between the indoor samples and the ambient outdoor control samples collected contemporaneously. Air samples will be collected and analyzed in a manner that provides a minimum detection limit of 43 spores/m³. Fungal aerosols in the indoor environment should not exceed the contemporaneously collected outdoor control samples by more than 650 spores/m³ ⁽¹⁾. The consultant may make numeric exceptions for frequently isolated genera such as *Cladosporium* or other typical phylloplane fungi.

13.0 WASTE DISPOSAL

Waste materials will be double bagged or wrapped in opaque six (6) millimeter polyethylene unlabeled disposal bags. Disposal bags will be HEPA vacuumed prior to removal from the work areas. Debris will be disposed as construction waste and placed in an enclosed, secured dumpster provided by the contractor unless otherwise noted.

¹ "Post Remedial Assessment and Clearance Criteria for Mold Remediation Projects" L. D. Robertson, H. L. Horner, Mycological Society of America Annual Conference, Louisiana State University, August 9, 2007.

14.0 CONTRACTOR RESPONSIBILITIES

In the work areas the remediation contractor will assume full responsibility and liability for compliance with all applicable federal, state and local regulations pertaining to work practices, transport, disposal, and protection of workers, visitors to the site and persons occupying areas adjacent to the site. The Contractor will hold the Owner, the General Contractor and the Consultant harmless for failure to comply on the part of himself, his employees or his subcontractors. Federal, state and local regulations include, but are not limited to, the following:

- 14.1** U.S. Department of Labor, Occupational Safety and Health Administration, (OSHA), including but not limited to:
- Respiratory Protection: Title 29, Part 1910, Section 134 of the Code of Federal Regulations
 - Access to Employee Exposure and Medical Records: Title 29, Part 1910, Section 2 of the Code of Federal Regulations
 - Hazard Communication: Title 29, Part 1910, Section 1200 of the Code of Federal Regulations
 - Specifications for Accident Prevention Signs and Tags: Title 29, Part 1910, Section 145 of the Code of Federal Regulations.
- 14.2** Texas Department of State Health Services (TDSHS): Texas Mold Assessment and Remediation Rules, 2004 (TMARR).

15.0 PROJECT SUBMITTALS

Prior to start of work, as a minimum, one copy of the following is to be provided to Terracon by the MRC:

- TDSHS 5-Day (or emergency) notification.
- Contractor's TDSHS license (corporate and supervisor).
- Worker documentation, including evidence that all workers have received proper training and are accredited and registered as required by regulations; respiratory fit test for each worker who will enter containment.
- Material Safety Data Sheets (MSDS) to be utilized on this project.
- Mold Remediation Work Plan

At the conclusion of the remedial project the MRC will submit the following:

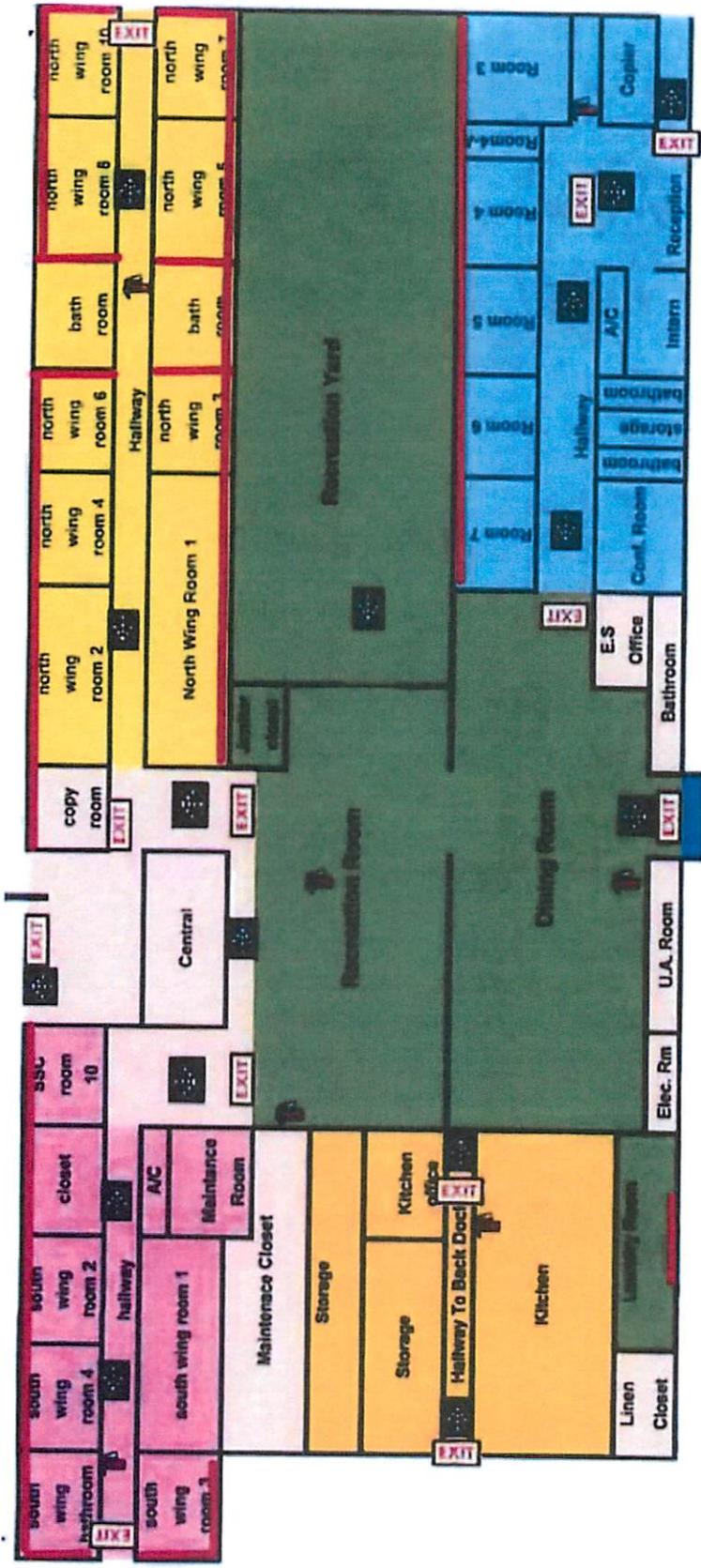
- A Certificate of Mold Remediation Damage in accordance with TDSHS regulations contained in the TMARR (25 TAC §295.301-295.338).

16.0 MITIGATION OF MOISTURE

The moisture damage and fungal growth appeared to be associated with restroom plumbing leaks, current/historical roof leaks, current/historical roof flashing leaks, window leaks and

air/moisture intrusion through the building envelope. Restroom plumbing, inclusive of shower drain pan systems, should be evaluated and repaired/installed as required. The roof, roof flashing, windows and building envelope should be evaluated and repaired as required.

APPENDIX A
FUNGAL REMEDIATION DIAGRAM



Approved
 11/11/11
 [Signature]

— = Fungal Remediation Location

Not to Scale/Administration Wing Not Properly Aligned with Recreation Yard at Southeast Corner

Terracon

8901 Carpenter Freeway,
 Suite 100
 Dallas Texas 75247
 214-630-1010

CRTC Building 215 W. Industrial Midland, Texas	Fungal Remediation
Project #: 94147043	Drawing: #1
Drawn by: RG	Date: 2-13-2014