



**California State Board of Equalization**  
450 N Street, Sacramento, California

**Mold Remediation – Second Floor**  
**August 30 – October 26, 2010**  
**Closure Report**  
*Project No. 2372.02-572*



**Prepared for:**  
State of California Department of General Services  
707 Third Street, 3-305  
Sacramento, California 95605

**Prepared by:**  
Chris Corpuz, MS, CIH  
Senior Associate  
LaCroix Davis LLC

**Report Date:**  
November 30, 2010



## TABLE OF CONTENTS

1.0	INTRODUCTION .....	1
2.0	BOE STAFF INTERVIEWS .....	1
3.0	PHOTOGRAPH REVIEW – MCA SPANDREL PANEL SURVEY .....	1
4.0	SUPPLEMENTAL WATER DAMAGE ASSESSMENT .....	2
5.0	ONSITE PROJECT MONITORING .....	3
6.0	CLOSURE REPORT DOCUMENTS.....	3
7.0	LIMITATIONS AND QUALIFICATIONS .....	3

## LIST OF FIGURES

Figure 1	Water Damage Assessment – Revised
Figure 2	Containment and Sample Locations
Figure 3	Suspect Mold – October 2010

## LIST OF TABLES

Table 1	BOE Staff Interviews – Historical Observations
Table 2	Photograph Review – McGinnis-Chen Associates Spandrel Panel Survey
Table 3	Revised BOE Water Damage Assessment Summary

## APPENDICES

Appendix A	Protocols
Appendix B	Daily Logs
Appendix C	Laboratory Reports
Appendix D	Correspondence
Appendix E	Meeting Minutes

## 1.0 Introduction

On July 2, 2008, LaCroix Davis LLC (LCD) was contracted by the State of California, Department of General Services (DGS), Real Estate Services, Project Management Branch (RES, PMB) to provide building and environmental forensic services at the Board of Equalization (BOE) building located at 450 N Street, Sacramento, California. The BOE building was substantially completed in December 1992 and has experienced a variety of water-related events throughout its history.

On October 29, 2009 LCD's original contract was amended to include the following activities to support the Mold Remediation Project for the BOE Building:

- Designate a project team;
- Conduct BOE staff interviews;
- Review photographs taken during the McGinnis-Chen Associates (MCA) Spandrel Panel Survey in 2005;
- Perform a supplemental water damage assessment (WDA);
- Provide onsite monitoring for the project;
- Compile all relevant project documents in a closure report for each floor.

Under the project management of Mr. Chris Corpuz, Senior Manager, the LCD field project team was staffed by personnel from various LCD offices:

- Stephen Davis, Principal;
- Benjamin Heckman, Senior Manager;
- Theodore Ice, Senior Associate.

## 2.0 BOE Staff Interviews

Typically, prior to a floor being released to the DGS Mold Remediation Project Team for remediation, BOE staff currently and previously working on the floor would be interviewed regarding historic events on the floors. Many of the events that have potentially impacted Floor 2 over the years had already been identified during interviews from earlier floors. BOE Floor 2 staff interviews were not performed, but Floor 3 interview data from March 9, 2010 was used to identify areas on Floor 2 that may have been impacted by past water events. Table 1 in the Table Section does therefore not show any interview findings. Water and mold-related findings are depicted in Figure 1 in the Figure Section.

## 3.0 Photograph Review – MCA Spandrel Panel Survey

LCD reviewed photographs taken by MCA during their 2005 Spandrel Panel Survey. There are approximately 15-25 photographs for each spandrel panel. The north and south sides of the building each have 30 spandrel/vision glass panels. The east and west sides of the building each have 24 spandrel/vision glass panels. Floor M has no spandrel panels; and Floors 22, 23, and 24 have fewer panels because the floor size decreases for these upper floors. LCD reviewed photographs of only the spandrel panels on each floor to determine whether these photographs

showed evidence of water staining, mold growth, or no issues on the exterior side of the building perimeter wall. A summary of these conditions is shown in Table 2, Photograph Review – McGinnis-Chen Associates Spandrel Panel Survey.

The Spandrel Panel Survey information was used to help interpret any water staining or material damage that was observed during the supplemental WDA of the curtain wall and punch-out windows. When interior wall surface water staining was corroborated by similar water staining in the spandrel panel photographs for the same wall area, the area was subjected to additional investigation and testing. This was done to ensure that no visible mold growth (VMG) had developed as a result of the observed historical water staining.

#### **4.0 Supplemental Water Damage Assessment**

LCD performed a supplemental WDA to inspect areas of the building that had been visually obscured during LCD's initial assessment by a variety of furniture, wall hangings, cubicle walls, personal belongings, supplies, and equipment. The WDA for Floor 2 included a more detailed assessment of the carpet found on this floor that was performed in accordance with the Carpet Removal Remediation Protocol (Appendix A). The protocol was developed during the assessment and removal of carpet on Floor 21.

JLS Environmental Services Inc. (JLS) prepared the floor by moving furniture and cubicle components away from walls, taking supplies out of storage rooms, and removing sections of carpet and cove base. The preparation allowed LCD to visually inspect areas that were obscured from view during LCD's initial assessment in late 2008 and early 2009.

On receiving Floor 2 for remediation from the BOE Management Team, LCD conducted a walk-through of the floor to locate areas of concern. The findings were used to corroborate the information compiled from the BOE staff interviews and the MCA photograph review. This process allowed the LCD team to identify areas to be addressed by additional investigation, mold mitigation, or remediation work.

Identified areas were subjected to sampling. Using a combination of surface tape lift and bulk samples, LCD tested stains on walls and other building materials to determine if the stains were indicative of VMG. The sample locations are depicted in Figure 2.

Surface tape lift and bulk samples were submitted to EMLab P&K (EMLab) for direct microscopic examination. EMLab is accredited by the American Industrial Hygiene Association for mold analyses. The laboratory reports were reviewed by the LCD team. Laboratory findings of "mold growth, minimal mold growth, and mold growth in vicinity" were classified as mold growth and the tested surfaces/areas were considered actionable.

Areas and materials that were identified to contain mold growth were subsequently placed under containment and subjected to an appropriate mitigative or remedial action. These actions were taken to eliminate or minimize potential exposures to VMG by personnel that may later access the subject area. The containment locations are shown in Figure 2.

## 5.0 Onsite Project Monitoring

On behalf of DGS, the LCD team of industrial hygienists provided on-site monitoring of the mold remediation activities in the form of:

- Testing and identifying areas for subsequent mold mitigation or remediation;
- Inspecting JLS-constructed containment structures prior to disturbance of any mold-contaminated materials by JLS;
- Providing periodic area air monitoring to confirm the protective efficacy of JLS containment structure and work practices;
- Inspection of the mitigated/remediated areas, prior to collecting final clearance air samples to confirm that the contaminated areas/materials within the containment had been adequately cleaned.

## 6.0 Closure Report Documents

The Closure Report was compiled from site monitoring and testing data prepared and accumulated during the mold remediation activities for this floor. Figures 1 through 3 identify findings from a revised WDA, carpet inspection locations, sample and containment locations, and areas where mold growth may potentially exist. Figure 3 should be consulted before walls or ceilings in these areas are penetrated for any reason in the future. Tables 1 through 3 summarize findings from BOE staff interviews, a review of photographs from the MCA Spandrel Panel Survey, and the revised WDA.

The following documents, as applicable to Floor 2 are included in the Closure Report appendices:

- **Protocols** – Provide the procedures for conducting mold-related activities on the subject floor (Appendix A);
- **Daily Logs** – Summarize the daily mold-related activities pertaining to the subject floor (Appendix B);
- **Laboratory Reports** – Present the analytical results for mold-related samples collected on the subject floor (Appendix C);
- **Correspondence** – Document communications between the LCD and the DGS project teams (Appendix D);
- **DGS Meeting Minutes** – Summarize the progress of scheduled and unplanned project activities as discussed in weekly meetings (Appendix E).

## 7.0 Limitations and Qualifications

The assessment performed by LCD does not include or cover the following matters: Matters that are subsequently discovered that could not have been reasonably foreseen or detected, using industry standards, during the performance of the assessment; matters that could not have been discovered by LCD because of barriers, lack of access or other matters affecting accessibility; matters that were not disclosed to LCD prior to, during, or after the performance

of the assessment; any new deficiency that arose after the completion of the assessment by LCD.

To the extent that additional information becomes available to LCD, LCD reserves the right (without any obligation to do so) to modify its evaluation and/or this report at any time, based upon further review and analysis of any such additional information or data.

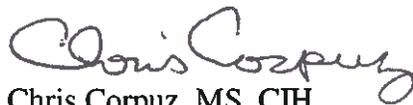
Certain items mentioned in the report were performed by others not involving the supervision of, or management by, LCD, but were relied upon by LCD in making its evaluation and assessment.

The assessment performed by LCD is not meant or intended to supplement, modify, or extinguish any warranty or representation made or given by third parties performing any of the recommended corrective work.

When consultation involves microbiological growth, or any assessment thereof, such microbiological growth may reoccur if the source of the growth is not remedied. All remediation of fungi in indoor environments can be inherently limited in the sense that conclusions are drawn and recommendations developed from information obtained from limited research and site evaluation. Except as may be noted in the assessment performed by LCD, subsurface areas, latent defects, or non-accessible areas and conditions were not field investigated and may differ from the conditions implied by the surface observations. Additionally, the passage of time may result in a change in the environmental characteristics at the subject property and the surrounding properties. No investigation or assessment can absolutely rule out the existence of any microbiological growth at any given site. LCD does not remediate or remedy sources of microbiological growth.

This Report and the assessment/survey conducted by LCD is prepared, and was performed, solely for the use and benefit of the client identified at the beginning of this report. No other party may rely on this report for any other purpose.

Report prepared by,



Chris Corpuz, MS, CIH  
Senior Manager  
LaCroix Davis LLC

Report reviewed by,



Stephen C. Davis, MPH, CIH  
Principal  
LaCroix Davis LLC

## **FIGURES**

**Figure 1**    **Water Damage Assessment Revised**

**Figure 2**    **Containment and Sample Locations**

**Figure 3**    **Suspect Mold – October 2010**

**KEYED SHEET NOTES**

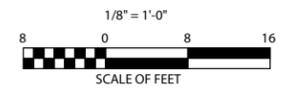
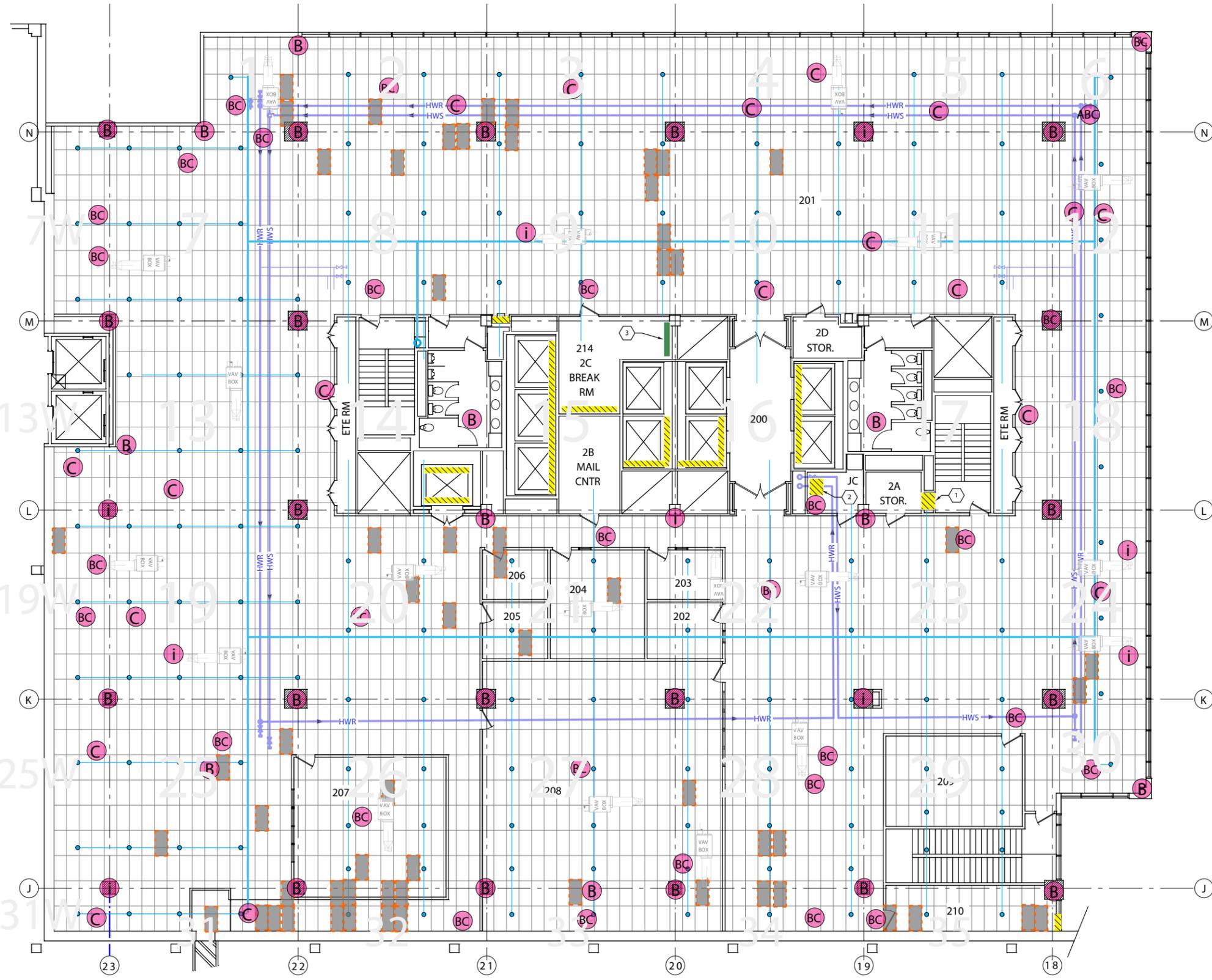
- ① Water stain at standpipe
- ② Stain below pipe
- ③ Visible mold growth 10 sq.ft. above ceiling

**GENERAL NOTES**

- ① LCD inspection locations are approximate.
- ② The location of VAVs (terminal units) is approximate.

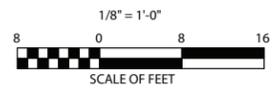
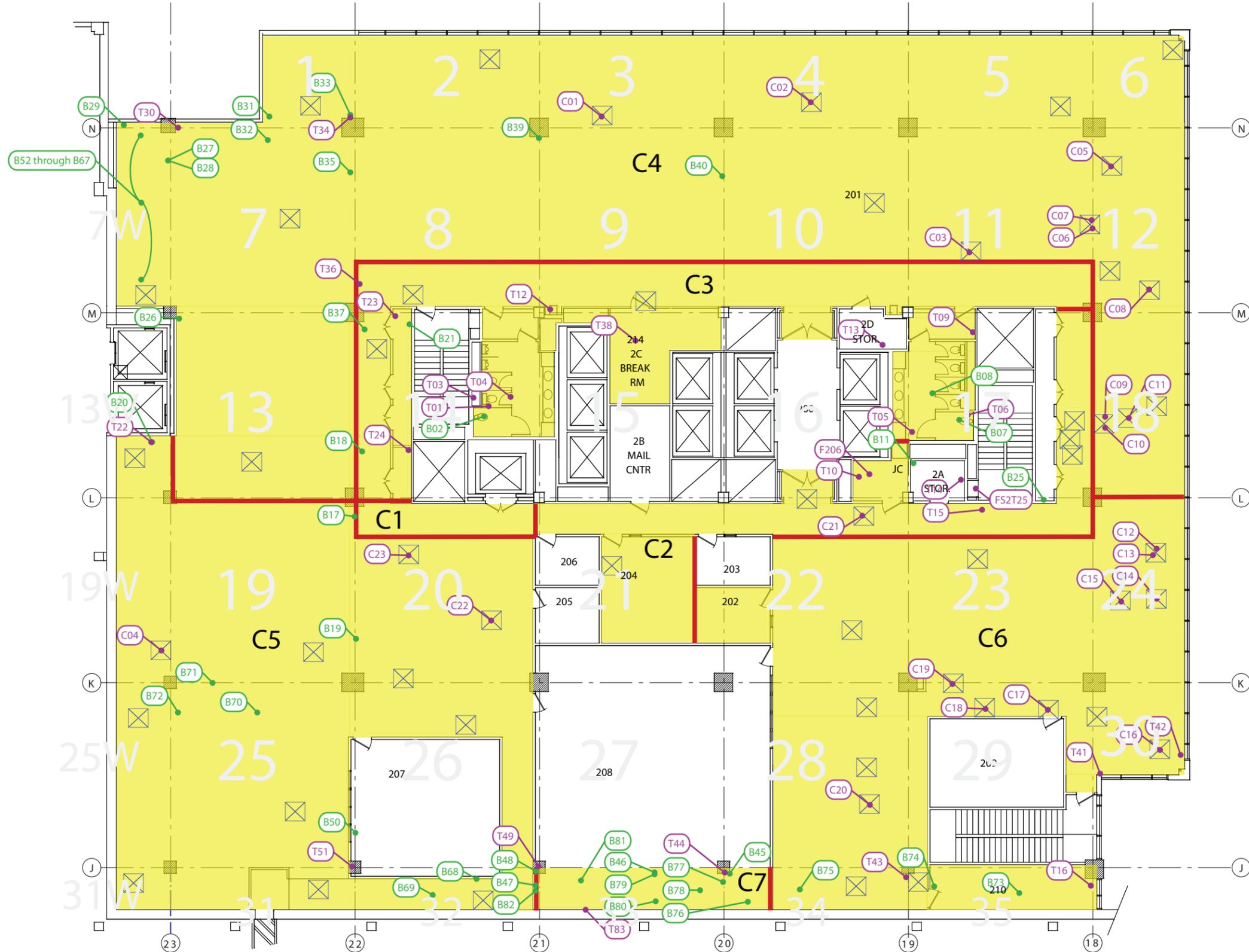
**LEGEND**

-  Active water leak
-  Current water stained surface
-  Historic water leak/stained surface
-  Current mold growth
-  Historic mold growth
-  Current water on floor
-  Historic water on floor
-  Destructive testing location (historic)
- 325 Room number
-  LCD inspection location no findings
-  LCD inspection location active leak
-  LCD inspection location water stain
-  LCD inspection location other notation See WDA summary
-  LCD inspection location with multiple findings "A", "B", or "C" as indicated



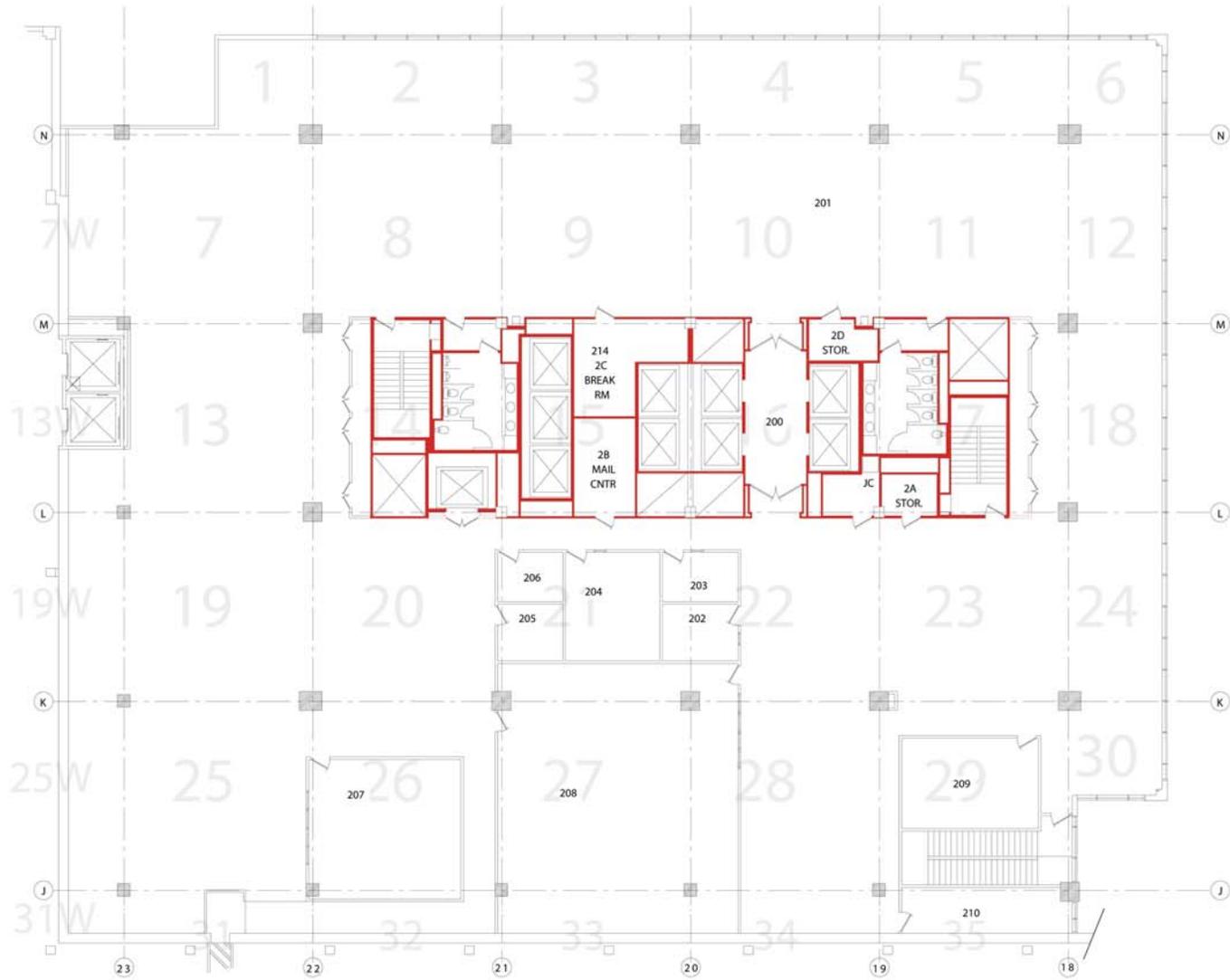
**LEGEND**

-  Carpet inspection location
-  Containment location
-  Bulk sample location
-  Tape lift sample location
-  Containment Barrier



**LEGEND**

■ Suspect mold location



## **TABLES**

- Table 1**      **BOE Staff Interviews – Historical Observations**
- Table 2**      **Photograph Review – McGinnis-Chen Associates  
Spandrel Panel Survey**
- Table 3**      **Revised BOE Water Damage Assessment Summary**



**Table 1: BOE Staff Interviews - Historical Observations Floor 2**

LCD No. 2372.02-572  
BOE Assessment

Name	Position	Time with BOE	Time on Floor	When	Location on Floor	Observations	Other Floors Worked on	Other Comments Related to this Floor
Interviews were limited to Floor 3 above, conducted on March 9, 2010 by Chris Corpuz.								









**Table 3: Revised BOE Water Damage Assessment Summary**

Location			Above Ceiling Tiles				Below Ceiling Tiles / Room Area		
Floor	Grid / Column	Room	Tiles (left above ceiling)	Fiberglass insulation (left above ceiling)	Ceiling (visible issues)	Comments	Observer	Comments	Observer
<b>Floor 2</b>									
2	1W	201				Building N-wall between N-23 and NW building corner. No location to open ceiling.			
2	1	201	N	Y	Y	Water stains on FP in several locations. Clumps of fiberglass and balls of dust. Fiberglass exposed at perimeter wall.	TMI		
2	1	201	N	N	Y	Stain on FP. Medium to heavy dust and debris.	TMI		
2	2	201	N	Y	Y	Water stained FP visible on decking and at Column N-22. Exposed fiberglass insulation on ducting.	TMI		
2	2	201	N	N	Y	Oil stains on thermal system insulation and on ceiling tile. Medium dust and debris.	TMI		
2	2	201	N	N	Y	Stained FP. Medium dust and debris.	TMI		
2	3	201	N	Y	N	Clumps of fiberglass. Rodent droppings on tops of ceiling tiles.	TMI		
2	4	201	N	Y	N	Clumps of fiberglass. Exposed fiberglass insulation on ducting and piping. fiberglass insulation in soffit. (True for entire soffit.) Rodent droppings on top of ceiling tiles.	TMI		
2	4	201	N	N	Y	Stained thermal system insulation.	TMI		
2	5	201	N	Y	N	Exposed fiberglass insulation on ducting. Rodent droppings.	TMI		
2	6	201	N	Y	Y	Water stain on bottom of tile on east side of column N-18. This is below, near drain pipe. Active, very slow water drip on fire sprinkler pipe elbow just east of column N-18. Rodent droppings. Exposed fiberglass insulation on ducting and at perimeter wall.	TMI		
2	6	201	N	N	Y	Stained ceiling tiles and feces.	TMI		
2	7W	201	N	Y	Y	Fiberglass insulation attached to deck (open, not sealed). Lots of water staining from above on perimeter walls, deck, and drain piping.	TMI		
2	7W	201	N	N	Y	Stained fiberglass, FP, and ceiling tiles. Medium to heavy debris.	TMI		

**Table 3: Revised BOE Water Damage Assessment Summary**

Location			Above Ceiling Tiles				Below Ceiling Tiles / Room Area		
Floor	Grid / Column	Room	Tiles (left above ceiling)	Fiberglass insulation (left above ceiling)	Ceiling (visible issues)	Comments	Observer	Comments	Observer
2	7	201	N	Y	Y	Water stains on FP in several locations. Clumps of fiberglass insulation and dust balls. fiberglass insulation exposed at perimeter wall. Pipe fitting stored loose on top of ceiling tile.	TMI		
2	7	201	N	N	Y	Stained FP and fiberglass.	TMI		
2	8	201	Y	Y	Y	Water stains on bottom of ceiling tiles in two locations. Stained tile on east side is under drain piping that shows water stain. Stained tile to west is near a VAV box. Tiles tested dry by moisture meter. Water staining also on FP. Rodent droppings.	TMI		
2	9	201	N	Y	Y	Waterstains on FP. VAV box in vicinity of historic leak. Rodent droppings. Clumps of fiberglass and exposed fiberglass insulation on ducting.	TMI		
2	9	201	N	N	N		TMI		
2	10	201	N	N	N	Various types of debris (wires, etc.) on top of tiles. Rodent droppings. Exposed Fiberglassinsulation on ducting seams. VAV box in vicinity of historic leak.	TMI		
2	11	201	N	Y	N	Rodent droppings. Exposed fiberglass insulation on ducting.	TMI		
2	11	201	N	Y	Y	Oil stain on ceiling tile. Some fiberglass and thermal system insulation left on top of ceiling.	TMI		
2	12	201	N	Y	N	Rodent droppings. Drain pipe contact and vibration is eroding fiberglass insulation on pipe below it creating debris. Exposed fiberglass over soffit and on piping and ducting.	TMI		
2	12	201	N	N	Y	Oil stain on ceiling tile. Medium dust and debris above ceiling.	TMI		
2	13W	201	N	Y	N	Exposed fiberglass insulation installed over FP. Rodent droppings. Clumps of fiberglass and dust balls.	TMI		

**Table 3: Revised BOE Water Damage Assessment Summary**

Location			Above Ceiling Tiles				Below Ceiling Tiles / Room Area		
Floor	Grid / Column	Room	Tiles (left above ceiling)	Fiberglass insulation (left above ceiling)	Ceiling (visible issues)	Comments	Observer	Comments	Observer
2	13	201	N	Y	N	Exposed fiberglass insulation on ducting. Limited visual access.	TMI		
2	13	201	N	N	Y	Stained fiberglass, GB, and FP.	TMI		
2	14	Men's Restroom	N	N	Y	Stained FP and GB.	TMI		
2	15	N Hallway						Stain on wall at cove base beneath water fountain.	TMI
2	16	Janitor Room	N	Y	Y	Stains on thermal system insulation and ceiling GB. Debris of fiberglass, GB, and thermal system insulation left above ceiling. Heavy dust and debris (gypsum dust).			
2	17	Women's Restroom	N	N	Y	Stained FP and GB.	TMI		
2	17	Storage Room 2A						Stain on wall at cove base.	TMI
2	18	201	N	Y	N	Waterstaining on FP. Exposed fiberglass insulation on ducting.	TMI		
2	19W	201	N	Y	Y	Exposed fiberglass insulation on ducting, dust balls. Water stain on bottom of tile over cubicle 49, near column.	TMI		
2	19W	201	Y	N	Y	Stain on ceiling tile. Medium dust and debris.	TMI		
2	19	201	Y	Y	N	Exposed fiberglass insulation on ducting, dust balls.	TMI		
2	19	201	N	N	N		TMI		
2	20	201	N	Y	Y	Waterstains on FP. Clumps of fiberglass and dust balls. Exposed fiberglass insulation on decking.	TMI		
2	21	201	N	Y	Y	Fiberglass insulation over ceiling. Water stains on FP. Limited view due to fiberglass.	TMI		
2	22	201	N	Y	Y	Clumps of loose fiberglass and exposed fiberglass insulation on ducts. Waterstains on FP.	TMI		

**Table 3: Revised BOE Water Damage Assessment Summary**

Location			Above Ceiling Tiles				Below Ceiling Tiles / Room Area		
Floor	Grid / Column	Room	Tiles (left above ceiling)	Fiberglass insulation (left above ceiling)	Ceiling (visible issues)	Comments	Observer	Comments	Observer
2	23	201	Y	N	Y	Waterstaining on top and bottom of ceiling tile near fire sprinkler in front of door to stairway. Drain pipe in vicinity. No clear source for stain. Waterstaining on FP. Rodent droppings. Exposed fiberglass insulation on ducting.	TMI		
2	24	201	N	Y	N	Exposed fiberglass insulation on ducting and deck. Dust balls.	TMI		
2	24	201	N	N	N		TMI		
2	24	201	N	N	N		TMI		
2	25W	201	N	Y	N	Exposed fiberglass insulation on decking. Can see corrosion on drain lines over Grid 25.	TMI		
2	25	201	Y	Y	Y	Waterstains on FP in three different locations. Exposed fiberglass insulation on ducting and decking.	TMI		
2	25	201	N	N	Y	Stained FP and fiberglass.	TMI		
2	26	207	N	Y	Y	Stains on FP. Exposed fiberglass insulation on ducting. Dust balls. Debris.	TMI		
2	27	208	Y	Y	Y	Stains on FP. Exposed fiberglass insulation on ducting. Dust balls.	TMI		
2	28	201	N	Y	Y	Waterstains on FP. Exposed fiberglass insulation on ducting. Dust balls. Debris (cigarette pack) that shows signs of rodents.	TMI		
2	28	201	Y	N	Y	Stained ceiling tile left above ceiling. Medium dust and debris.	TMI		
2	28	201	N	N	Y	Stained FP. Medium dust and debris.	TMI		
2	29	201	Y	Y	Y	Fiberglass insulation above interior office. Waterstaining on FP. Rodent droppings. Dust balls.	TMI		
2	30	201	Y	Y	Y	Clumps of fiberglass. Exposed fiberglass insulation on perimeter wall. Staining on FP. Dust balls.	TMI		
2	30	201	N	N	Y	Stained ceiling tile and GB.	TMI		
2	31W	201	N	N	Y	Exposed fiberglass insulation on decking, dust balls. Rust on metal angle bars attached to beams.	TMI		

**Table 3: Revised BOE Water Damage Assessment Summary**

Location			Above Ceiling Tiles				Below Ceiling Tiles / Room Area		
Floor	Grid / Column	Room	Tiles (left above ceiling)	Fiberglass insulation (left above ceiling)	Ceiling (visible issues)	Comments	Observer	Comments	Observer
2	31	201	N	Y	N	Exposed fiberglass insulation on ducting and deck.	TMI		
2	32	201	Y	Y	Y	Dust balls. Rust on perimeter beam flange angle iron attachments. Exposed fiberglass insulation. Drains come through the deck and show considerable corrosion on the pipes. Staining on FP.	TMI		
2	33	201	N	Y	Y	Water staining on perimeter GB and on FP. Poly belly pan with water hose. Exposed fiberglass insulation on decking and ducting.	TMI		
2	33	208	N	N	Y	Stained fiberglass and FP.	TMI		
2	34	208	Y	Y	Y	Fiberglass insulation attached to deck. Rust on angle iron attachments. water stained FP above GB. water stained FP on drain lines.	TMI		
2	35	201	N	Y	Y	Fiberglass insulation attached to FP. Water stains above GB wall and on FP. Water staining on drain pipes and K-19 column GB.	TMI	Stain on wall at cove base.	TMI
2	N23	201	N	N	Y	Stain on FP on beams and column.	TMI		
2	N22	201	N	N	Y	Stain on FP on beams and column.	TMI		
2	N21	201	N	N	Y	Stain on FP on beams and column.	TMI		
2	N20	201	N	N	Y	Stain on FP on beams and column.	TMI		
2	N19	201	N	N	N		TMI		
2	N18	201	N	N	Y	Stain on FP on beams and column.	TMI		
2	M23	201	N	N	Y	Stain on FP on beams and column and stained fiberglass.	TMI		
2	M22	201	N	N	Y	Stain on FP on beams and column.	TMI		
2	M18	201	N	N	Y	Stained ceiling tile and feces.	TMI		
2	L23	201	N	N	N		TMI		
2	L22	201	N	N	Y	Stain on FP on beams and column.	TMI		
2	L21	201	N	N	Y	Stained FP on beam.	TMI		
2	L20	201	N	N	N		TMI		
2	L19	201	N	N	Y	Stained FP on beam.	TMI		
2	L18	201	N	N	Y	Stained FP on beam.	TMI		
2	K23	201	N	N	Y	Stained FP.	TMI		
2	K22	201	N	N	Y	Stained FP.	TMI		

**Table 3: Revised BOE Water Damage Assessment Summary**

Location			Above Ceiling Tiles					Below Ceiling Tiles / Room Area	
Floor	Grid / Column	Room	Tiles (left above ceiling)	Fiberglass insulation (left above ceiling)	Ceiling (visible issues)	Comments	Observer	Comments	Observer
2	K21	208	N	N	Y	Stained FP.	TMI		
2	K20	208	N	N	Y	Stained FP.	TMI		
2	K19	201	N	N	N		TMI		
2	K18	201	N	N	Y	Stained FP.	TMI		
2	J23	201	N	N	N		TMI		
2	J22	207	N	N	Y	Stained FP, GB, and fiberglass.	TMI		
2	J21	208	N	N	Y	Stained FP, GB, and fiberglass.	TMI		
2	J20	208	N	N	Y	Stained FP and fiberglass.	TMI		
2	J19	201	N	N	Y	Stained GB and FP.	TMI		
2	J18	201	N	N	Y	Stained GB and FP.	TMI		

**Abbreviations:** FP = Fireproofing GB = Gypsum Board LF = Linear Feet NA = Not Applicable for WDA NC = North Core NSC = No Suspended Ceiling  
SC = South Core SF = Square Feet VAV = Variable Air Volume

**Directions:** N = North NE = Northeast NW = Northwest E = East S = South SE = Southeast SW = Southwest W = West