



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

**Mold Remediation – 20th Floor**  
**August 9, 2010 – September 30, 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 – September 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

Prior to Floor 20 being released to the DGS Mold Remediation Project Team for remediation, BOE staff currently and previously working on Floors 20 and 21 were interviewed regarding historic events on the floors. Many of the interviewed BOE staff members have worked on the same floor since the building was placed in operation in 1993. BOE staff participation in the interviews was strictly voluntary. The interviews were performed by LCD staff on August 10, 2010. Table 1 in the Table Section summarizes the 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 20 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 20 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 20 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 arise 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 microbial growth, or any assessment thereof, such microbial 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 microbial growth at any given site. LCD does not remediate or remedy sources of microbial 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,

Report reviewed by,

Chris Corpuz, MS, CIH  
Senior Manager  
LaCroix Davis LLC

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 – September 2010**

**KEYED SHEET NOTES**

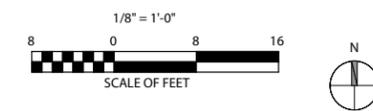
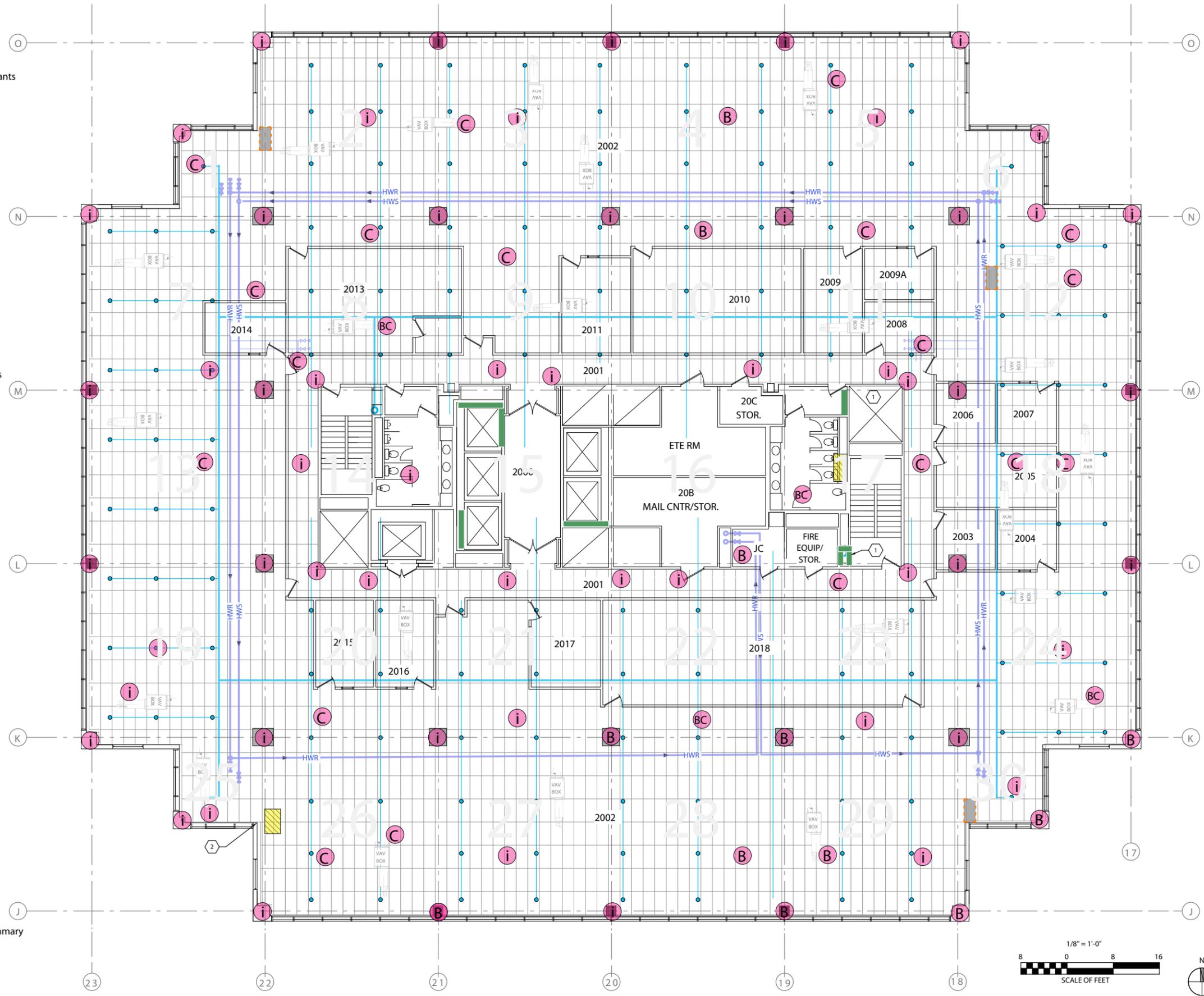
- ① 10 sq. ft. visible mold growth
- ② Floor stain from over-watered plants without drip pans

**GENERAL NOTES**

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

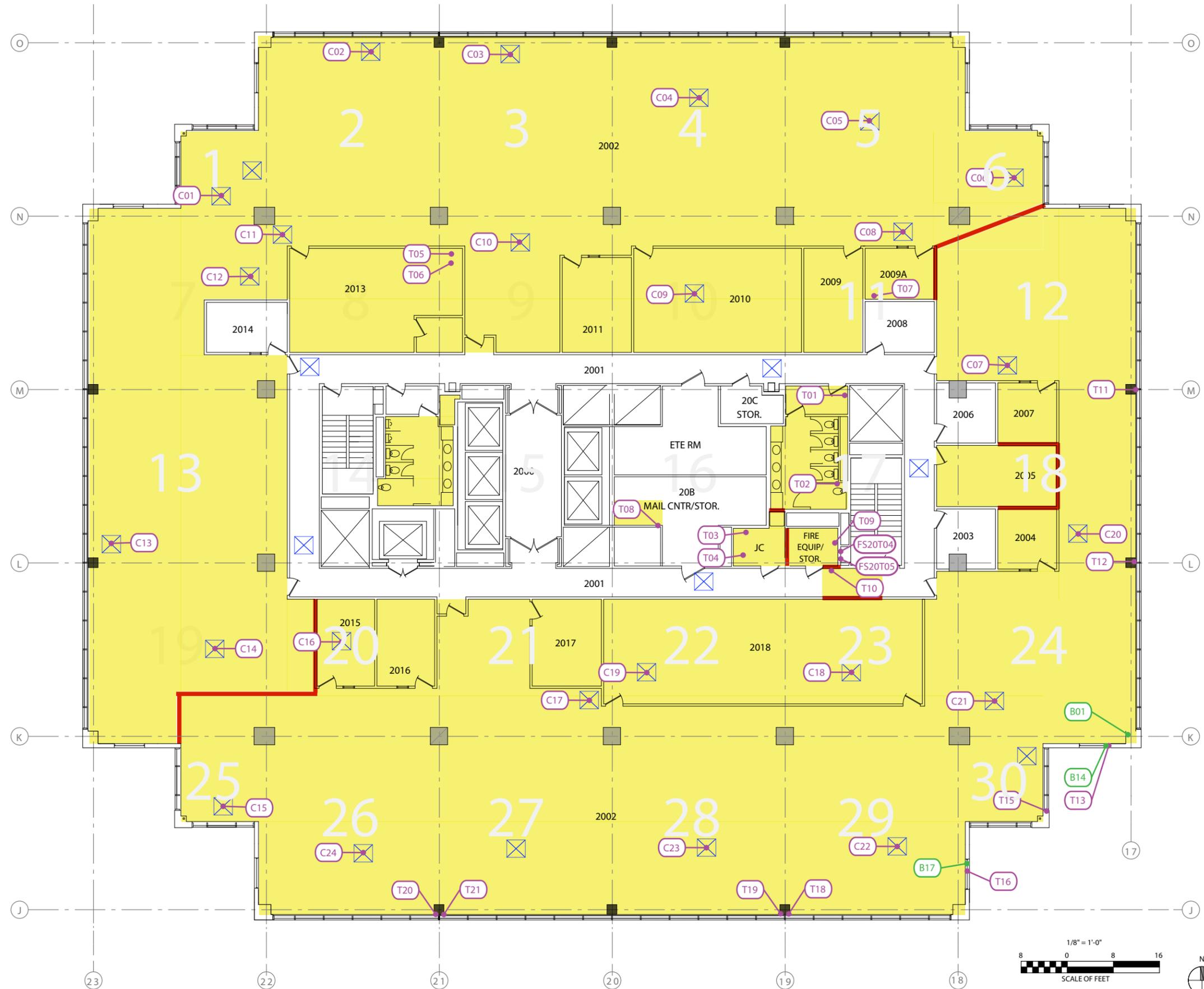
**LEGEND**

-  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
-  Bulk sample location
-  Tape lift sample location
-  Containment location
-  Containment barrier



State of California  
 Department of General Services  
 (DGS No. 125828)  
 (AGMT. No. 3126150)  
 (LCD No. 2372.02-572)

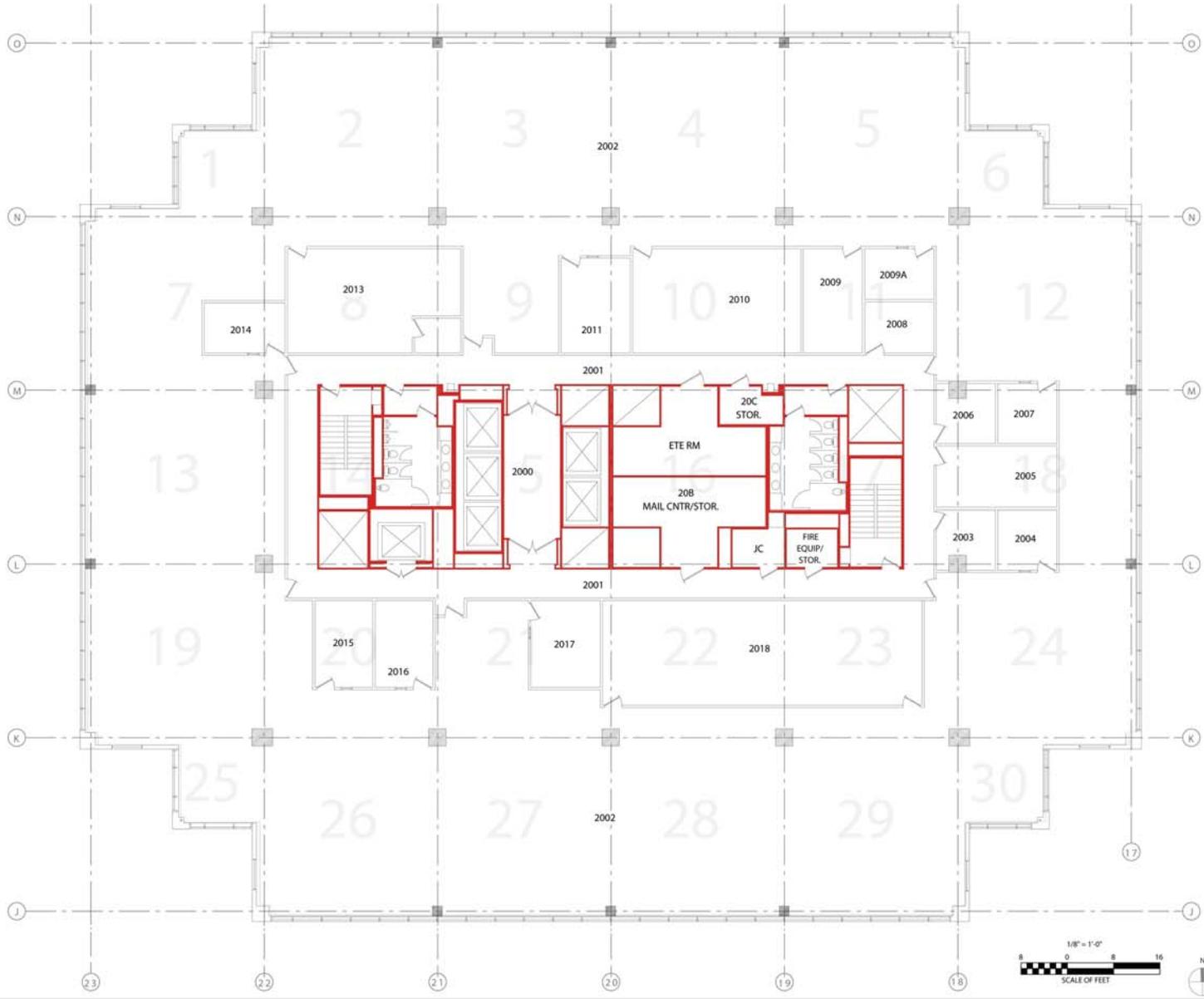
**Containment and Sample Locations**  
 Board of Equalization Building, Mold Remediation  
 450 N Street, Sacramento, California

20th Floor

Figure 2

**LEGEND**

 Suspect mold location



State of California  
Department of General Services  
(DGS No. 1.25828)  
(AGMT. No. 3126150)  
(LCD No. 2372.02-572)

**Suspect Mold - September 2010**  
Board of Equalization Building, Mold Remediation  
450 N Street, Sacramento, California

20th Floor

Figure 3

## **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 20**  
**Conducted by Ted Ice on August 10, 2010**

LCD No. 2372.02-572  
BOE Mold Remediation

Name	Position	Time with BOE	Time on Floor	Event Date	Location on Floor	Observations	Other Floors Worked on	Other Comments Related to this Floor
Mark Sutter						No observations		No comments











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

LCD No. 2372.02-572  
BOE Mold Remediation

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 20</b>									
20	1	2002	N	Y	N	<1 SF fiberglass	GWB		
20	1	2002	N	N	N		TMI		
20	2	2002	N	N	N		GWB		
20	3	2002	N	N	N		GWB		
20	3	2002	Y	N	N		TMI		
20	4	2002	N	N	Y	200 SF water stains on FP deck and beams.	GWB		
20	5	2002	N	N	N		GWB		
20	5	2002	N	N	N		GWB		
20	5	2002	N	Y	N		TMI		
20	6	2002	N	N	N		GWB		
20	6	2002	N	N	N		TMI		
20	7	2002	N	N	N		GWB		
20	7	2002	N	Y	Y	Medium dust and debris on top of ceiling including fiberglass.	TMI		
20	8	2002	Y	N	N		GWB	VMG at cove base on wall behind mop sink in Room 2013	TMI
20	8	2013	Y	N	Y	Stained ceiling tiles, medium dust and debris including ceiling tiles.	TMI	Stained wall at cove base, VMG at mop sink.	TMI
20	8	NW hallway	N	N	Y	FP Debris on ceilings.	GWB		
20	8	NW hallway	N	N	N		TMI		
20	9	2002	N	N	Y	Pipe elbow fiberglass insulation removed onto ceiling.	GWB		
20	9	N hallway	N	N	N		GWB		
20	9	N hallway	N	N	N		TMI		
20	10	2002	N	N	Y	6 LF Streak on FP possibly secondary application of FP with darker pigment and different texture.	GWB		
20	10	N hallway	N	N	N		GWB		
20	11	2002	N	Y	N		GWB		
20	11	2008	N	Y	N		TMI		
20	11	2009	N	Y	N	Visible from 2002	GWB		
20	11	2009A	NA	NA	NA			Stain at GB wall at cove base, behind break room (Room 2008) sink.	TMI
20	11	NE Hallway	N	N	N		GWB		

**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
20	11	NE hallway	N	N	N		TMI		
20	12	2002	Y	Y	N		GWB		
20	13	2002	Y	N	N		GWB		
20	14	W Hallway	N	N	N		GWB		
20	16	Mail Room	NA	NA	NA			VMG behind cove base at SW wall.	TMI
20	16	Janitor Room	N	N	Y	Stained FP and GB on ceiling. VMG on GB ceiling.	TMI		
20	17	Women's Restroom	N	N	Y	Water stain on GB ceiling, VMG on side wall.	TMI		
20	17	2005	N	Y	N	Dark stains on fire sprinkler pipe compression fitting.	GWB		
20	17	20A	NA	NA	NA			Water stain behind cove base on wall.	TMI
20	17	E Hallway	N	N	N	Ceiling tile damage, duct impedes visibility	GWB		
20	18	2002	N	N	N	1 1/2 SF plywood	GWB		
20	18	2003					GWB		
20	18	2004							
20	18	2005	N	Y	N	Dark stains on fire sprinkler pipe compression fitting.	GWB		
20	19	2002	N	N	N		GWB		
20	19	2002	N	N	N		TMI		
20	20	2002	N	Y	N		GWB		
20	20	SW Hallway	N	N	N		GWB		
20	20	SW Hallway	N	N	N		TMI		
20	21	2002	N	N	N		GWB		
20	21	S Hallway	N	N	N		GWB		
20	22	2002	N	N	Y	Light water staining. Dark FP sprayed over light FP.	GWB		
20	22	S Hallway	N	N	N		TMI		
20	23	2002	N	N	N		GWB		
20	23	SC Hallway	N	N	N		GWB		
20	23	SE Hallway	N	Y	N	Ceiling tile damage	GWB		
20	23	S Hallway	N	N	N		TMI		
20	24	2002	N	N	N		GWB		
20	25	2002	N	N	N		GWB		
20	25	2002	N	N	N		TMI		



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

LCD No. 2372.02-572  
BOE Mold Remediation

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
20	26	2002	Y	N	N		GWB	Overwatered plants without drip pan, floor stained.	TMI
20	26	2002	Y	Y	N		TMI		
20	27	2002	N	N	N		GWB		
20	28	2002	N	N	Y	80 SF Water stains on FP deck and beam.	GWB		
20	29	2002	N	N	N		GWB		
20	29	2002	N	N	Y	Stained FP.	TMI		
20	30	2002	N	N	N		GWB		
20	30	2002	N	N	Y	Stained GB in central small column between windows.	TMI		
20	30	2002	N	N	Y	Water stain on FP and GB.	TMI		
20	O22	2002	N	N	N		TMI		
20	O21	2002	N	N	N		TMI		
20	O20	2002	N	N	N		TMI		
20	O19	2002	N	N	N		TMI		
20	O18	2002	N	N	N		TMI		
20	N23	2002	N	N	N		TMI		
20	N22	2002	N	N	N		TMI		
20	N21	2002	N	N	N		TMI		
20	N20	2002	N	N	N		TMI		
20	N19	2002	N	N	N		TMI		
20	N18	2002	N	N	N		TMI		
20	N17	2002	N	N	N		TMI		
20	M23	2002	N	N	N		TMI		
20	M22	2002	N	N	N		TMI		
20	M18	2006	N	N	N		TMI		
20	M17	2002	N	N	N		TMI	Water stain on East side of column.	TMI
20	L23	2002	N	N	N		TMI		
20	L22	2002	N	N	N		TMI		
20	L18	2003	N	N	N		TMI		
20	L17	2002	N	N	N		TMI	Water stain on East side of column.	TMI
20	K23	2002	N	N	N		TMI		
20	K22	2002	N	N	N		TMI		
20	K21	2002	N	N	N		TMI		
20	K20	2002	N	N	Y	Water stain on FP SW of column.	TMI		
20	K19	2002	N	N	Y	Water stain on FP SW of column.	TMI		



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

LCD No. 2372.02-572  
BOE Mold Remediation

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
20	K18	2002	N	N	N		TMI		
20	K17	2002	N	N	Y	Water stain on FP and GB near punch-out window.	TMI		
20	J22	2002	N	N	N		TMI		
20	J21	2002	N	N	Y	Stain on S side of column GB.	TMI	Stain on south side of column GB.	TMI
20	J20	2002	N	N	N		TMI		
20	J19	2002	N	N	Y	Stain on S side of column GB.	TMI	Stain on south side of column GB.	TMI
20	J18	2002	N	N	Y	Water stain on FP and GB near punch-out window.	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