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# **BioMax Environmental**

*Environmental Consulting and Industrial Hygiene Services*

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October 7<sup>th</sup>, 2008

Mr. Doug Button  
Deputy Director  
Real Estate Services Division  
707 Third Street - 8th Floor  
West Sacramento, CA 95605

**22<sup>nd</sup> Floor Fire Proofing Removal Procedures**  
**Department of General Services Board of Equalization Building**  
**450 N. Street**  
**Sacramento, California**

Dear Mr. Button,

BioMax Environmental, LLC (BioMax) is pleased to provide the Department of General Services (DGS) with this letter summary report detailing recommended material specific procedures pertaining to the localized removal of spray-on fire proofing material identified within the plenum spaces of the 22<sup>nd</sup> Floor of the BOE building located at 450 N Street (subject building) Sacramento, California. BioMax understands that such recommended material removal procedures and methods have been requested by DGS in an effort to establish standard procedural requirements during the identification, area preparation, and forthcoming remove of localized areas of existing fireproofing materials within the 22<sup>nd</sup> Floor plenum where evidence of moisture staining and previous moisture related damages and/or physical impacts have been identified.

A previous sampling assessment activity was performed within the southern quadrant of the 22<sup>nd</sup> floor plenum relative to fire proofing materials and has been summarize within BioMax's previous summary report entitled Microbial Assessment of 22<sup>nd</sup> Floor South Plenum Area, dated June 19<sup>th</sup>, 2008. All historical information and current analytical data pertaining to this previous investigation and assessment may be reviewed for further reference as necessary. Based on the findings presented within this prior report summary, BioMax offered a series of options and recommendations to DGS for appropriate consideration as follows:

- 1) **Option 1** - Management of fireproofing materials in place through continued building management practices designed to identify and mitigate all future water intrusion as well as limit the disturbance of fireproofing materials in place;
- 2) **Option 2** - Application of sealant/encapsulant material onto stained and peeling fireproofing material surfaces with the intent to minimize the potential for particle

dispersion into the occupied spaces. Such measures, if employed must certainly be performed in accordance with those allowed by local and State Fire Codes.

3) **Option 3** - Removal and replacement of stained fireproofing materials as identified.

BioMax's current understanding at this time is that DGS has elected to proceed with Option 3 above, and has directed BioMax to develop material removal procedures and controls wherein all fire proofing materials surfaces which have been identified (through visible inspection) to contain evidence of moisture damages shall be physically removed under the procedures and control measures established herein. As such, these recommended procedures have been developed by Mr. Michael A. Polkabla, CIH, REA, of BioMax at DGS's direction in accordance with prudent protective controls and material removal guideline procedures. Mr. Polkabla has been certified in the Comprehensive Practice of Industrial Hygiene by the American Board of Industrial Hygiene and holds the right to the designation "Certified Industrial Hygienist" (CIH) under certification number CP 7104. Mr. Polkabla is also certified by the California Environmental Protection Agency (Cal/EPA) as a Class I Registered Environmental Assessor (REA) under Cal/EPA certification number 05011. Hence, in response to DGS's specific request, BioMax proposes the following supplemental procedural recommendations for appropriate consideration and implementation as needed.

1. **Selection of Mitigation Contractor:** A mitigation contractor shall be selected and contracted to perform the activities specified in these procedures. Such activities shall include all set up and physical removal of fire proofing materials which have been identified (through visible inspection) to contain evidence of significant prior and/or current moisture staining and/or otherwise physical water related damages. The selected mitigation contractor must be specifically trained in the field of microbial abatement techniques and containment methods as well as maintain demonstrated proficiency in the establishment and use of appropriate barriers, personal protective equipment, abatement techniques and methods in the removal of moisture affected and impacted materials.
2. **Identification of Materials for Removal:** The mitigation contractor, in conjunction with the Project Certified Industrial Hygienist (Project CIH), shall identify and delineate areas wherein fire proofing materials contain evidence of significant prior and/or current moisture staining and/or otherwise physical water related damages. As indicated above, DGS has elected to remove and replace all such impacted fire proofing materials as identified above as a precautionary mitigative measure. Fiberglass batting materials and/or other areas wherein insulation materials exist (e.g. fiberglass batting) shall be physically removed so as to allow unhindered visible access for inspection of underlayment fire proofing materials. A detailed physical record of such visible indicators both prior to and following insulation removal shall be documented by the mitigation contractor as reviewed by the Project CIH.
3. **Isolation of 22<sup>nd</sup> Floor During Activity:** Isolation of the 22<sup>nd</sup> Floor shall be achieved during all set-up, physical removal, and clean-up activities performed by the mitigation contractor. To this end, critical barriers shall be established at all lobby elevator areas and containment

chambers designed for entrance and egress to and from the 22<sup>nd</sup> floor working spaces shall be erected at the freight elevator and east and western staircases. As such, a series of similar plastic and/or otherwise impermeable zippered entry chambers shall also be erected at the freight elevator (primary entrance to floor) and the staircase entry areas as noted above. The purposes of the primary worker entrance shall be to establish a controlled worker entrance/exit area as well as to maintain a clean area for personal protective equipment donning and decontamination. Chambers erected at the noted stairway areas shall be utilized only for emergency access and egress onto the 22<sup>nd</sup> Floor area. HEPA filtered vacuum equipment capable of the effective removal of particulate contaminants from tools and personal protective equipment shall be placed within the zippered chamber of the freight elevator closest to the working area. During such measures, appropriate signage and warnings must be posted on the exterior of containment entrances to preclude uninformed access from unauthorized personnel. Data logging monitoring equipment employed to record pressure differentials on a 24-hour basis shall be used for the duration of functional barrier use.

4. **Modifications to Barrier Systems:** Any smoke detectors and/or fire suppression systems shall NOT be covered nor rendered inoperable within the subject building unless authorized to do so under the direction and supervision of personnel. BioMax is prepared to provide your selected contractor with additional and ongoing detail pertaining to the establishment maintenance, and specific locations of critical containments and barrier systems, as necessary. Once, containment parameters have been established, the site contractor shall maintain an "as built" record of exact containment locations and materials for further review and reference.
5. **Personal Protective Equipment (PPE):** Personal protective equipment utilized by workers during the performance of fire proofing removal and gross removal activities designated in this scope of work shall include the use of hooded Tyvek coveralls, supplemental nitrile gloves (3-5 mil.), and NIOSH approved HEPA filtered (P100) full face air purifying respiratory protection devices. PPE requirements associated with area and equipment set-up/tear down and post removal final cleaning activities may be downgraded to utilize half face APRs with supplemental ANSI approved eye protection at minimum. Voluntary use of dust mask-type respiratory protection may also be utilized by inspectors and/or subcontractors during non working activities (including inspection and site walks) at their discretion but is not required as part of these recommended procedures.
6. **Scaffolding and Fall Protective Devices:** Worker activities utilizing elevated platforms, ladders and/or elevated scaffold equipment necessary in the physical removal of fire proofing materials shall be accomplished in accordance with all applicable worker protection regulations in accordance with federal, state and local requirements. Such worker protection requirements include (but are not limited to) those requirements provided by the California Department of Occupational Safety and Health (otherwise known as Cal/OSHA).
7. **Protection of Adjacent Materials:** Protection of plenum and floor level furnishings and material surfaces during the process of fire proofing materials shall be achieved through the

establishment and placement of plastic physical barriers and coverings. It is currently anticipated that such barriers shall be localized to the areas in which the physical debris and airborne transmissions may reasonably be expected to travel based on the physical removal methods employed. Following all physical removal activities, follow-up cleaning methods shall be performed utilizing methods, procedures, and equipment applicable to the material surface in question and may include HEPA vacuuming and wet-wiping methods as applicable.

8. **Physical Access Limitations:** All plenum areas where physical access to impacted fire proofing materials has been hindered due to the proximity of existing plenum HVAC equipment shall be addressed through additional area-specific review and consultation. Within such areas, it is currently anticipated that physical access shall be facilitated through the reorientation and/or removal of the plenum equipment in question and shall be achieved through consultation with appropriate building engineering personnel and/or representatives.
9. **Physical Removal of Impacted Fire Proofing:** The physical removal of fire proofing materials shall be achieved through a combination of scraping and stripping techniques applicable to the surface parameters encountered. Such removal activities may or may not include the application of a low volume misting agent prior to physical removal in an effort to minimize the generation and release of friable particulates. All physical removal activities and procedural methods shall be performed by the mitigation contractor under the review and authorization of the Project CIH. BioMax understands through discussions with the fire proofing manufacturer's representative that material removal is required to the extent and level as where bare metal has been visibly exposed and/or otherwise rendered accessible to forthcoming reapplication of replacement material.
10. **Margin Removal:** Wherever possible, a margin of 2 feet shall also be removed surrounding each area where significant staining of fire proofing materials had been identified and removed. Such activity has been recommended as an additional precautionary measure so as to achieve prudent affective removal of visibly impacted fire proofing material as well as potential impacted materials located adjacent to the known moisture source but not readily identified at the surface.
11. **Other Impacted Materials Encountered:** Other potentially affected areas and building materials encountered during these removal activities wherein potential signs of additional microbial related materials and water damage indicators are evident must be reported to the Project CIH for further investigation. The Project CIH shall review each identified area containing such significant moisture impacted materials so as to render a professional opinion regarding the necessary extent of physical removal on a case-by-case basis.
12. **Gross Material Clean-Up:** Following all physical removal activities, a detailed gross material clean up activity shall be performed utilizing methods, procedures, and equipment applicable to the material surface in question. Such procedures and methods may include material specific HEPA vacuuming and wet-wiping methods as applicable in the removal of

all gross visible debris and materials associated with the fire proofing material removal activities.

13. **Final Clean-Up:** Following the performance of gross material clean up methods, all interior barriers shall be removed from protected areas and furnishings. Underlayment equipment, furnishings, and material surfaces shall receive a final cleaning utilizing a combination of HEPA vacuuming and wet-wiping methods as applicable to the surface and materials in question.
14. **Post Removal Activity Assessment:** Upon completion of removal efforts performed by the selected mitigation contractor, BioMax recommends the performance of a visual inspection conducted by the Project CIH to verify that all significant mold related staining and moisture indicators have been removed and/or treated and that all prescribed mitigative efforts and measures have been appropriately achieved. Once established, it is recommended that the Project CIH collect a series of microbial "clearance" air samples to verify that all affected interior areas have been appropriately decontaminated to acceptable background airborne levels and that the affected areas within the area are verified as "cleared" for forthcoming reconstruction activities. Additional "punch-list" action items may be provided to the contractor following the performance of this site clearance inspection prior to receipt of analytical results, as deemed necessary.
15. **Post Removal Inspection:** Following the performance of these removal measures, the designated site reconstruction contractor is strongly encouraged to verify that repairs to any faulty and/or deficient plumbing and/or building sealing systems have been appropriately inspected, replaced/repared, and function tested prior to the reapplication and/or reconstruction of the affected interior structures and surfaces. Certainly, the repair/replacement and/or establishment of any such additional engineering controls (as recommended through additional professional consultation) must be performed and implemented in accordance with applicable standards, building codes, and ordinances, as necessary.
16. **Reapplication of Fire Proofing Materials:** Following successful achievement of acceptable post mitigation criteria, BioMax recommends that the selected fire proofing contractor perform reapplication activities in accordance with applicable standards, building codes, and ordinances, as necessary.
17. **Additional Activities:** Reasonable additional assessment and mitigative measures may also be required upon the identification of new or previously undiscovered materials and/or information related to moisture/microbial impacts, as necessary. Any reoccurrence of moisture intrusion following reconstruction should certainly be reviewed and addressed through further professional consultation, as necessary. BioMax would be happy to provide additional microbial consultative services pertaining to the mitigation of such structures so as to minimize any adverse impacts to the interior environment during the performance of any such activities upon request.

BioMax believes that the proposed supplemental procedures outlined above provide additional precautionary safeguards during the performance of inspection and removal methods associated with the removal of stained and/or otherwise damaged fire proofing materials identified within the 22<sup>nd</sup> Floor plenum spaces. Once again, it has been a pleasure working with DGS on these important matters. If you have any additional questions, comments, or require further assistance, please do not hesitate to contact me directly at (510) 724-3100.

Sincerely,



Michael A. Polkabila, CIH, REA  
Vice President, Principal



**LIMITATIONS**

Please note that the professional opinions presented in this review are intended for the sole use of DGS and their designated beneficiaries. No other party should rely on the information contained herein without the prior written consent of BioMax Environmental and DGS. The professional opinions provided herein are based on BioMax's review and understanding of current site information and observed site conditions present within the areas inspected at the time these services were performed. Professional recommendations provided as part of this limited scope of work are intended for client consideration only and are not intended as a professional or regulatory mandate. Implementation of any of the above measures or recommendations does not, in any way, warrant the day-to-day health and/or safety of building occupants, residents, site workers, nor regulatory or building code compliance status during normal and changing environmental conditions. As microbial contamination, by nature, may change over time due to additional moisture intrusion, favorable growth conditions, and changing environments, the findings of this report are subject to change in the event that such conditions and/or environments arise. Also, the professional opinions expressed here are subject to revision in the event that new or previously undiscovered information is obtained or uncovered.

The information contained in this and any other applicable report communication is intended for consideration purposes only. It is not intended, nor should it be construed as providing legal advice or warranting any level of safety or regulatory compliance. The sole purpose of such information is to assist with the identification, evaluation and control of potential contamination or unnecessary physical, chemical, and/or biological hazards. Any action taken based on this information, including but not limited to opinions, suggestions and recommendations, whether implied or expressed, is the sole responsibility of the individual taking the action. Risk management and safety is criteria dependent and situation specific requiring extensive knowledge and value assessments to be properly determined by competent professionals.

These services were performed by BioMax in accordance with generally accepted professional industrial hygiene principals, practices, and standards of care. Under the existing Industrial Hygiene Definition and Registration Act, all reports, opinions or official documents prepared by a Certified Industrial Hygienist (CIH) constitutes an expression of professional opinion regarding those facts or findings which are subject of a certification and does not constitute a warranty or guarantee, either expressed or implied.