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# **BioMax Environmental**

*Environmental Consulting and Industrial Hygiene Services*

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December 10<sup>th</sup>, 2007

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

**Revised Containment Procedures for Floor 23 South Side**  
**Department of General Services Board of Equalization Building**  
**450 N. Street**  
**Sacramento, California**

Dear Mr. Button,

As per your request, BioMax Environmental, LLC (BioMax) is pleased to provide you with the following recommendations for revised containment procedures pertaining to the establishment and maintenance of microbial abatement containment systems on Floor 23 (South) of 450 N. Street, Sacramento, California (subject building) as currently occupied by the Board of Equalization (BOE). BioMax understands that these procedures have been requested by your offices at the specific direction of the Department of General Services, in an effort to outline the requirements necessary in establishing and maintaining the preliminary containment system criteria prior to the forthcoming microbial mitigative efforts anticipated within the noted area. These revised procedures have been developed in response and recognition of the comments provided by Hygientech in a letter addressed to Mr. David Gau of BOE entitled Review of Containment Procedures for Floor 23 South Side, dated December 7<sup>th</sup>, 2007.

Hence, BioMax proposes the following revised and supplemental procedures for consideration and appropriate implementation at the direction and approval of the Department of General Services:

1. Prior to the performance of microbial mitigative measures, BioMax recommends that a qualified and experienced microbial abatement contractor be selected to develop and erect critical containment barriers which isolates the affected interior areas located within the south side of the 23<sup>rd</sup> floor of the subject building. The selected contractor must utilize workers who are specifically trained in the field of microbial abatement and containment techniques as well as maintain demonstrated proficiency in the establishment and use of appropriate barriers, personal protective equipment, abatement techniques and methods in the removal and decontamination of microbial affected and impacted materials. Critical containment barriers shall be established at all stairwell entries leading to the noted 23<sup>rd</sup> floor containment

areas. Elevator lobby areas (excluding the freight elevator) shall also be isolated and sealed within a critical barrier system as a secondary measure in the unlikely event that the primary containment system is compromised and/or proper negative pressure is temporarily not maintained.

2. Due to the identification of known microbial contamination currently present on various building material surfaces and isolated furnishings current located within the subject area, the selected contractor should be directed to install a fully enclosed negative pressure environmental containment system designed to isolate the water damaged and mold affected materials within the identified south side of the 23<sup>rd</sup> floor prior to and during all forthcoming destructive inspection and/or testing, physical removal, and subsequent treatment of the impacted materials. These containment systems shall be designed for the specific purposes of containing and controlling possible fugitive emissions of airborne fungal spore contaminants and particulates generated during all forthcoming mitigative activities within the identified containment areas isolated to each floor. Once established, all containment systems shall remain in place and fully functional until the areas of concern have been appropriately re-inspected and ultimately deemed acceptable for reconstruction and forthcoming reoccupancy. Based on our current understanding, preliminary containment barriers shall be generally established along the "L" parallel indicated on the 23<sup>rd</sup> floor site map which generally delineates the currently identified primary impacted areas along the southern facing side of the building from other less impacted areas. Specific locations and delineations of containment systems shall be based upon site specific physical requirements and determined on an area and material specific basis. BioMax is prepared to provide your selected contractor with additional and ongoing consultation, information, and detailed direction pertaining to the establishment, location, and maintenance of appropriate critical containment barriers, as necessary. Once containment barriers are established, inspected, and functionally verified, a detailed site map indicating the physical locations of such systems (as established) shall be prepared and distributed. DGS will also provide appropriate opportunity for additional third-party review, inspection, and comment from BOE's environmental consultants prior to initiation of mitigative efforts within such established control systems.
3. Specifically, all critical containment systems shall be constructed of plastic and/or otherwise airtight materials so as to create an adequate negative pressure system within the noted areas of concern. Negative air pressure shall be maintained within all critical areas (for the duration of this scope of work) utilizing High Efficiency Particulate Aerosol (HEPA) filtered "negative air machine" equipment vented to the outside environment whenever possible. An adequate supply of filtered intake air shall also be established to allow an adequate supply of "clean" HEPA filtered make-up air into the critical containment. As a performance criteria goal, negative air pressure will be established and maintained within the established containment system areas at a performance goal level of -0.02 inches of water pressure for the duration of mitigative activities, whenever possible and feasible. At the direction of DGS, all inspection and containment system assessment activities may also include other third party professional environmental consultant review, as necessary. Following the satisfactory implementation and review of such containment systems, and upon DGS approval, microbial mitigative measures may proceed in accordance with project specific

mitigative procedures established herein. Wherever possible, clear translucent plastic observation windows shall also be placed on the critical containment barrier system within direct sight of the affected work areas for the purposes of facilitating non-entry inspection during the performance of prescribed mitigative measures

4. A series of similar plastic and/or otherwise impermeable zippered entry chambers shall also be erected at the entrance of each containment system area for the purpose of establishing controlled worker entrance/exit points. Controlled areas shall also be established outside of the working area so as to provide workers with clean personal protective equipment (PPE) storage, donning, and decontamination areas. HEPA filtered vacuum equipment capable of the effective removal of particulate contaminants from tools and personal protective equipment shall be placed and maintained within each of the zippered entry/exit chambers closest to the working area. During the performance the forthcoming mitigative measures, appropriate signage and warnings must be posted on the exterior of containment entrances to record entry access and 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 this process where functional critical barriers are established and in use. Such pressure monitoring devices shall utilize paper strip chart records so as to allow routine and regular inspection of pressure readings by DGS project management personnel.
5. All Heating Ventilation and Air Conditioning (HVAC) supply vents, ceiling penetrations, and non critical ceiling or wall mounted recessed lighting/ fan penetrations within the containment systems shall be deactivated and covered within similar plastic barrier systems wherever possible. All appropriate wall, floor, and ceiling penetrations identified present within the containment systems shall be sealed and/or otherwise rendered airtight and inoperable so as to minimize unfiltered particulate intrusion into and/or out of the established containment systems. Any smoke detectors and/or fire suppression systems shall NOT be covered nor rendered inoperable within the subject building due to existing building code requirements, unless specifically authorized to do so under the direction and supervision of DGS.
6. The containment system shall be designed in a manner wherein the existing work area ceiling is sealed in a critical barrier system designed to isolate the current ceiling tile materials and ceiling plenum areas from the working containment system. At this time, it is anticipated that a supplemental assessment intended to evaluate the current microbial spore deposition potential within the ceiling plenum areas is forthcoming. BioMax understands that this additional assessment will entail the collection and evaluation of additional surface and air samples within the existing ceiling and ceiling plenum areas so as to determine an appropriate mitigative cleaning strategy if necessary. Any additional mitigative recommendations based on these forthcoming findings shall be amended to these recommended procedures, as necessary.
7. Upon contractor completion of the containment barrier system, an inspection shall be performed by BioMax's Certified Industrial Hygienist (CIH) whereby a detailed review of all

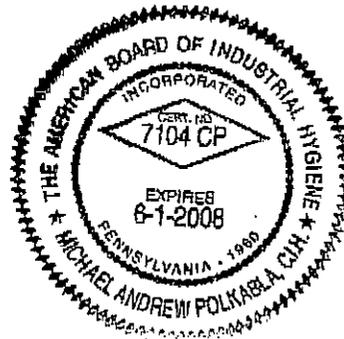
established barriers and containment systems shall be thoroughly assessed and verified. At the direction of DGS, this inspection and containment assessment activity may also include other third party professional environmental consultant review, as necessary. Following the satisfactory review and achievement of such containment systems, and upon DGS approval, microbial mitigative measures may proceed in accordance with project specific mitigative procedures (which shall supplement these preliminary procedures). Upon establishment of satisfactory critical containment barriers, BioMax recommends that the selected microbial abatement contractor also places and utilizes appropriate HEPA filtered air-scrubbing units within all working areas during forthcoming physical removal and mitigative activities.

BioMax believes that the proposed recommended procedures outlined above are consistent with standard industry microbial mitigative practices and prudent industrial hygiene hazard control methods. Please do not hesitate to contact our offices directly at (510) 724-3100 if you have any additional questions, comments about these recommendations, or require further assistance regarding this important matter.

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 the California State Department of General Services (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 communication is 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 anticipation, identification, evaluation and control of elevated and/or unnecessary health of physical 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. The management of acceptable health and safety is criteria dependent and situation specific in nature, therefore requiring extensive knowledge and prudent value assessments so as to be properly determined and maintained.

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.

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# **BioMax Environmental**

*Environmental Consulting and Industrial Hygiene Services*

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December 10<sup>th</sup>, 2007

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

**Recommended Mitigation Procedures for Floor 23 South Side  
Department of General Services Board of Equalization Building  
450 N. Street  
Sacramento, California**

Dear Mr. Button,

As per your request, BioMax Environmental, LLC (BioMax) is pleased to provide you with the following recommendations for procedures pertaining to the microbial abatement activities proposed for the 23<sup>rd</sup> Floor (South) of 450 N. Street, Sacramento, California (subject building) as currently occupied by the Board of Equalization (BOE). BioMax understands that these procedures have been requested by your offices, at the specific direction of the Department of General Services, in an effort to establish the necessary criteria under which the forthcoming microbial mitigative efforts will be planned and performed. These recommended mitigation procedures are intended as a means of setting performance criteria goals during the mitigative effort and sequentially supplement the previously developed containment procedures which were prepared by BioMax for the 23<sup>rd</sup> Floor South area under a prior letter report dated December 4<sup>th</sup>, 2007, as subsequently amended through discussions with Hygientech.

Pursuant to an ongoing agreement between the BOE and DGS, these recommended procedures will be reviewed, commented upon and approved by BOE's representative Industrial Hygienist, Hygientech, prior to implementation. Any revisions to these recommended procedures and/or significant deviations performed by the selected mitigation contractor with the procedures noted herein may only be performed under the review, guidance, and approval of the Project CIH, DGS and BOE representative.

Hence, BioMax proposes the following mitigative procedures for consideration, review, and appropriate implementation at the direction and approval of the Department of General Services:

1. Upon contractor completion of the containment barrier system (as approved under the procedures previous referenced), an inspection shall be performed by the Project Certified

Industrial Hygienist (Project CIH) whereby a detailed review of all established barriers and containment systems shall be thoroughly assessed and verified. As a performance criteria goal, negative air pressure will be established and maintained within the established containment system areas at a performance goal level of -0.02 inches of water pressure for the duration of mitigative activities, whenever possible and feasible. At the direction of DGS, all inspection and containment system assessment activities may also include other third party professional environmental consultant review, as necessary. Following the satisfactory implementation and review of such containment systems, and upon DGS approval, microbial mitigative measures may proceed in accordance with project specific mitigative procedures established herein.

2. The containment system shall be designed in a manner wherein the existing work area ceiling is sealed in a critical barrier system designed to isolate the current ceiling tile materials and ceiling plenum areas from the working containment system. At this time, it is anticipated that a supplemental assessment intended to evaluate the current microbial spore deposition potential within the ceiling plenum areas is forthcoming. BioMax understands that this additional assessment will entail the collection and evaluation of additional surface and air samples within the existing ceiling and ceiling plenum areas so as to determine an appropriate mitigative cleaning strategy if necessary. Any additional mitigative recommendations based on these forthcoming findings shall be amended to these recommended procedures, as necessary.
3. Supplementing the existing negative air machines (designed to establish and maintain negative air pressure within the containment systems) a series of HEPA filtered air scrubbing machines shall also be located within of each of the affected work areas during all forthcoming mitigative activities. Such air scrubbing machines shall be oriented within active working areas and portable in their design so as to be readily relocated to additional work areas as necessary. Supplemental air scrubbing machines may also be placed within areas outside of the working and/or containment areas as an additional precautionary measure as necessary.
4. BioMax recommends that all interior office furniture, wall divider structures, etc. within the containment system be sealed in plastic or otherwise airtight materials and physically removed from the affected containment area. Special precautions must be made to isolate, contain, and segment the existing office furnishings into manageable sized units so as to effectively remove the materials while precluding fugitive particulate emissions during such removal. It is anticipated that the single existing "freight" elevator shall be utilized on this building floor for these removal activities. Once removed from the premises, these materials shall be stored by secure means until they are ultimately destroyed and/or otherwise rendered unusable so as to preclude unauthorized salvage. Physical disposal of all such materials shall be performed in accordance with federal, state, and local waste disposal regulations. General itemization and documentation of all waste materials shall be performed by the mitigation contractor on a daily basis. Records of all general waste materials will be made available for DGS review, upon request.

5. Following the physical removal of all interior office furnishings, the mitigation contractor shall remove all interior carpeting and carpet pad underlayment utilizing appropriate dust suppression and material extraction methods. All carpeting shall be similarly sealed in manageable sized units so as to effectively remove the materials while precluding fugitive particulate emissions. Carpet and flooring materials will also be destroyed and/or otherwise rendered unsalvageable prior to disposal and documentation as noted above. Following all flooring material removal, a reassessment of floor penetrations shall be performed to identify and seal any newly identified floor penetrations and associated areas of potential airflow intrusion/egress.
6. BioMax specifically recommends that all perimeter wallboard material and wallboard covering systems be removed for inspection of the interior and adjacent wall cavities/underlayment from floor to ceiling level wherever possible. The extent of preliminary wallboard material shall include physical removal of exterior walls within rooms 2337, 2338, 2339, 2304 2305, 2309, 2310, and 2311 located along the southern portions as well as western and eastern segment portions of the subject building as noted. Any affected interior wallboard and flooring materials shall also be removed, wherever feasible, to the extent of any visible staining, and at a minimum and an additional two (2) linear feet wherever practicable.
7. Removal of potentially moisture impacted and mold damaged materials may employ the use of appropriate item-specific containment methods and systems (such as sealed plastic glove-bag containment systems, or equivalent) applicable to the materials being removed at the direction of the Project CIH. BioMax currently anticipates that all perimeter wall board materials and insulation shall be removed for interior inspection of the physical condition of all exterior wall cavities and underlayment materials within the identified affected areas. Any additional underlayment materials exhibiting visible signs of moisture staining shall also be identified, decontaminated, and/or removed as noted below.
8. Other potentially affected areas and building materials encountered during these deconstructive and investigative stages, such as adjacent interior walls, flooring, flooring underlayment, etc., must be thoroughly inspected during these deconstructive stages to identify any potential signs of additional microbial related materials and water damage indicators. **In the event that additional moisture/mold damaged materials are encountered, the Project CIH shall be contacted for review of such findings and to obtain additional material specific direction.** In general, all microbial impacted materials shall be removed to the extent of visible staining and at least 2 feet beyond such identified perimeters, wherever possible.
9. All remaining moisture/mold affected porous and non-porous building materials deemed infeasible for removal and/or disposal (due to physical constraints and/or structural integrity concerns) shall be inspected and receive a series of decontamination treatment measures designed to minimize and control the presence of microbial related substances. Decontamination methods employed shall, at a minimum, include treatment of all identified surfaces with a series of thorough mildicide solution (such as 20 parts water to 1 part chlorine

soln. or similar commercial grade mildicide products) used in accordance with manufacturer's published information and guidelines. Depending on specific level of visible staining/deposition, wet treatment applications may be preceded and shall be followed by a series of thorough HEPA filtered vacuuming procedures using power sanding and/or bristle brush agitation. The duration and frequency of mildicide and HEPA sanding/brushing applications employed may vary depending on condition of local material contamination but shall be sufficient in removing and decontaminating all visible surface staining to levels deemed by the Project CIH to be consistent with representative background levels. Reasonable additional mitigative measures and controls may be required, as necessary, upon discovery of additional contaminated materials as well as review of site inspection findings and observations performed at regular and periodic intervals during this scope of work. BioMax anticipates that a goal of one site visit/inspection per week (at minimum) shall be accomplished during active mitigative procedures and shall be performed by the Project CIH, and/or site representative. BioMax would certainly be happy to provide regular and ongoing consultation with the selected mitigation contractor and BOE's industrial hygiene consultant pertaining to these measures and site/material specific decontamination measures as needed and upon request.

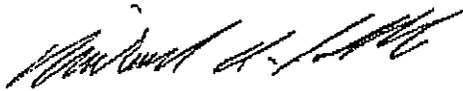
10. Upon completion of mitigation efforts performed by the selected microbial abatement contractor, BioMax recommends the performance of a detailed visual inspection conducted the Project CIH to verify the absence of significant mold related staining and/or moisture indicators within the remaining physical structures and to visually assess that all prescribed mitigative efforts and measures have been appropriately achieved. Additional "punch-list" action items may be provided to the contractor following the performance of this preliminary site clearance inspection as deemed necessary. Once completed, it is recommended that the Project CIH collect a series of airborne microbial "clearance" samples to verify that all affected interior areas have been appropriately decontaminated to acceptable background airborne levels (to be determined through consultation with DGS and BOE representatives) and that the affected areas within the subject building are verified as "cleared" for reconstruction, forthcoming reoccupancy, and reuse. During this period, the provision of appropriate access shall be provided for the review and inspection of previously affected areas and materials prior to final reconstruction.
11. Following the performance of these mitigative measures, the designated site reconstruction contractor is strongly encouraged to verify that repairs to any faulty and/or deficient architectural detail design, building penetration, and/or building envelop sealing systems have been appropriately inspected, reconfigured, replaced/repared, and function tested prior to the reconstruction of the affected interior structures and cavities. 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.
12. Upon completion, reconstruction of interior structural materials should only be undertaken utilizing visibly clean (hand selected) construction grade materials in accordance with

applicable building codes and requirements. The reconstruction contractor should be mandated to only select materials which are obtained from reputable commercial sources and which are believed and visually verified to be free from elevated microbial contamination and/or elevated moisture content. New building materials, which are notably moist and/or visibly stained, should NOT be used during the reconstruction of the subject structure.

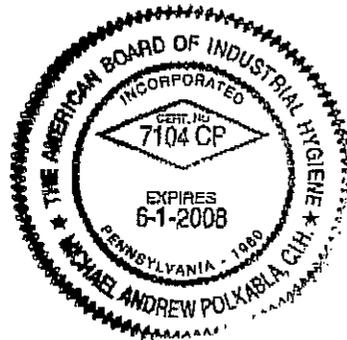
- 13. Reasonable additional assessment and mitigative measures may also be required upon the identification of new or previously undiscovered materials and/or information related to moisture/microbial impacts, as necessary. Any reoccurrence of moisture intrusion following reconstruction should certainly be reviewed and addressed through further professional consultation, as necessary. BioMax is certainly prepared to provide such additional consultation pertaining to these and any follow-up investigative measures upon request.

BioMax believes that the proposed recommended procedures outlined above are consistent with standard industry microbial mitigative practices and prudent industrial hygiene hazard control performance criteria methods. Please do not hesitate to contact our offices directly at (510) 724-3100 if you have any additional questions, comments about these recommendations, or require further assistance regarding this important matter.

Sincerely,



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



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