



FINAL DRAFT

**TECHNICAL PROTOCOL FOR
MOLD REMOVAL AND CLEAN-UP**

PREPARED FOR:

**CLASSIC RESIDENCE BY HYATT AT LAKESIDE VILLAGE
2792 DONNELLY DRIVE
LANTANA, FL 33462**

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TECHNICAL PROTOCOL FOR MOLD REMOVAL AND CLEAN-UP AT CLASSIC RESIDENCE BY HYATT AT LAKESIDE VILLAGE

This protocol applies to the cleaning, removal and/or disposal of mold-colonized materials and associated dusts from individual residential apartments and common corridor areas in the Classic Residence by Hyatt at Lakeside Village community located at 2792 Donnelly Drive, Lantana, FL 33462.

Air Quality Sciences – Building Consulting, Inc. (AQS-BC) conducted a site evaluation on November 4, 2005 to determine the extent of mold colonization in five residential units identified by the Client as having been affected by Hurricane Wilma. Additionally, AQS-BC inspected one common corridor area that reportedly had mold growth on above-ceiling chilled water pipe insulation. AQS-BC's findings were reported in draft form on November 23, 2005 (see AQS-BC report #S01909-01, confidential copy attached).

Visible mold growth was observed in the following area (with additional information described as obtained during a pre-bid walk-through conducted on March 15, 2006):

- 2nd floor corridor near the engineering office – pipe insulation on the chilled water line located above the ceiling had an extensive amount (> 100 ft²) of visible mold growth. AQS-BC also observed five water stained ceiling tiles in this corridor area. Additional information was obtained during a pre-bid walk-through conducted on March 15, 2006 through community management representatives and visual observations, as follows: removal will include two water lines of approximately 270 linear ft each, removing the paper insulation jacket and then further examining the insulation for any additional damage (may require additional remediation of insulation material). This area will also require the expertise of a mechanical contractor (on behalf of Classic Residence by Hyatt) to determine and repair the source of the water / condensation damage.

In areas where no visible mold was observed during the site visit but the presence of hidden mold is likely (e.g. moderate to elevated relative moisture content [RMC] or water staining present), the remediation contractor should be prepared to remove any affected materials as a Source or Local (as applicable) removal of mold growth as described below and be prepared to implement additional dust control measures if needed or as directed by AQS-BC. Such suspect areas are as follows:

- One of the residential areas observed, Unit 322, had moderate RMC on gypsum wallboard below the window in the den. No visible mold was observed. However, the elevated moisture content in this area suggests that some amounts of visible mold are likely present within wall cavities or between baseboard and gypsum wallboard in the affected areas.
- In addition, Villa #701 was inaccessible for inspection during AQS-BC's site visit; however, Client site representative reported a relatively small (< 4 ft²) area of water staining in this home (additional information may be found in the attached confidential draft report).

General

It is imperative that any water intrusion and/or moisture problems are repaired in order to prevent continued mold growth as well as help prevent future mold growth after mold removal and clean-up.

Mold-colonized materials are to be physically removed from the subject area whenever possible. Any dusts generated during mold removal or clean-up should be removed from the work space and surrounding areas. Any person performing this work should have appropriate training, knowledge, experience, and equipment. Personnel removing mold-colonized materials must follow appropriate precautions (including use of personal protective equipment [PPE] and attention to dust control) for the removal of moldy materials and follow procedures such as those found in the following consensus documents:

ACGIH (1999). Bioaerosols Assessment and Control. American Conference of Governmental Industrial Hygienists. Cincinnati. Available for purchase via Internet at www.acgih.org

NYC (2000). Assessment and Remediation of Fungi in Indoor Environments, New York City Department of Health, New York City Human Resources Administration, and Mount Sinai – Irving J. Selikoff Occupational Health Clinical Center, New York. Available via Internet at <http://www.nyc.gov/html/doh/html/epi/moldrpt1.shtml>

EPA (2001). Mold Remediation in Schools and Commercial Buildings. United States Environmental Protection Agency. Washington, D.C. Available via Internet at <http://www.epa.gov/iaq/molds/index.html>

USDOL-OSHA (2003) “A Brief Guide to Mold in the Workplace”, Safety and Health Information Bulletin SHIB 03-10-10, Washington, DC. Available via Internet at: <http://www.osha.gov/dts/shib/shib101003.html>

IICRC (2003) S520 Standard and Reference Guide for Professional Mold Remediation. Institute of Inspection, Cleaning and Restoration Certification, Vancouver, Washington. Available for purchase via Internet at <http://www.iicrc.org/>

Canadian Construction Association (2004) Mould Guidelines for the Canadian Construction Industry (CCA 82-2004), Ottawa. Available via Internet at <http://www.cca-acc.com/documents/electronic/cca82/cca82.pdf>

At all times throughout the course of the mold remediation work, the remediation contractor will comply with all applicable federal, state, and local safety and health rules, regulations and/or guidelines.

At all times throughout the course of the remediation work, the remediation contractor will provide adequate security measures (including, but not limited to, appropriate warning signs) to prevent unauthorized entry into remediation work areas.

Any equipment used for the mold remediation work shall be maintained in proper operating condition. All filtration equipment must contain new filters and be free of any dust or debris.

The remediation contractor should use best professional judgment in remediation work procedures. The following are general practices and procedures for mold removal and cleanup. Note that discovery of larger areas of visible mold (e.g., additional, hidden mold) may require further procedures as found in the above referenced guidelines. At a minimum, the following actions are to be performed for the cleaning and removal of visibly moldy materials from the subject building, as applicable. Additional work practices and/or procedures may be required during the course of the project based on the best professional judgment of the remediation contractor or AQS-BC's on-site representative.

Source Removal of Small Amounts of Mold-colonized Building Materials ($\leq 10 \text{ ft}^2$)

This type of removal is used when small (less than 10 ft^2 contiguous) visible growth (colonization) of fungi (mold) occurs or is suspected on interior surfaces. Techniques for dust control should be used. These may include mini-enclosures or glove bags, or, at a minimum, the colonized portion of a wallboard surface may be entirely covered by polyethylene sheeting (tightly secured at the edges with duct tape) and the covered portion extracted (cut out) in one piece, sealed in a disposal bag, and removed from the subject building. Alternatively, sticky sheeting (self adhesive plastic) or a non-spray-applied encapsulant may be applied to the entire colonized wallboard surface in order to minimize potential aerosolization of spores prior to extraction from the wall. The nozzle of an operating HEPA vacuum cleaner should be used to capture the majority of dust and debris generated by material cutting. Additionally, a HEPA filter equipped air filtration devices (AFDs) may be required as an air scrubber to capture dusts aerosolized when moldy materials are removed from components without the presence of a negatively pressurized containment barrier. When mold growth occurs on non-porous materials such as metal components, local use of damp wiping (tap water) is permitted for cleaning purposes. At a minimum, workers performing source removal of a minimal amount of mold should wear N95 respirators and disposable gloves and be trained in the proper use of this PPE. Respirators fitted with high efficiency filter cartridges and disposable protective clothing may be required.

Any debris or dust in the work area or surrounding areas should be removed with a HEPA equipped vacuum cleaner. Surfaces within the work area and surrounding areas should be damp-wiped using tap water to remove any fine dusts. Upon completion of the work, the area should be left dry and visibly free from contamination and debris.

During source removal care should be taken to anticipate the presence of mold that may be uncovered on hidden surfaces in wall cavities. Discovery of hidden mold will require investigation by AQS-BC and determination if additional containment construction is necessary.

Local Removal of Moderate Amounts of Mold-colonized Building Materials (10 - 100 ft^2)

This type of removal is recommended when moderate amounts (10 to 100 ft^2) of visible growth (colonization) of fungi (mold) occurs or is suspected on interior surfaces. A single layered polyethylene containment barrier is generally used to isolate work areas where mold colonized materials are being removed. The enclosure is used to keep dusts and spores from entering spaces outside the barrier. Containment construction (including full containments and

decontamination units, where applicable) may consist of a single layer of 6-mil flame retardant polyethylene sheeting, with supports such as wooden 2 x 4's, polyvinyl chloride (PVC) piping, or other suitable framing materials. All materials used in construction of containments must be visibly clean (absence of dirt, dust, debris, stains, etc., and any wood materials must be free of visible "lumber-yard" mold). Use any combination of: duct tape (minimum 2-inch width), spray adhesives (only low-VOC emitting spray chemicals are permitted), and/or staples to ensure the integrity of the containment barrier for the duration of the work. HEPA filter equipped AFDs should be used to negatively pressurize the mold-remediation work area from zones outside of containment barriers. A differential pressure of not less than -0.02 inches water column (inside containment relative to outside of containment) should be continuously maintained throughout the remediation and cleaning. All exhaust air from containment work areas should be discharged to the outdoors, so as to prevent re-entrainment. A single chamber airlock decontamination unit is acceptable for local removal.

Professional judgment is required with regard to the dust suppression methods used for removal of moderate amounts of visual fungal colonization. For example, sticky tape or sticky sheeting may be applied to 10 or 20 square feet of colonized material, and the colonized material may be cut out (use HEPA vacuum nozzles to capture dusts released during cutting) and removed in large pieces. Care should be taken to anticipate the presence of mold that may be uncovered on hidden surfaces in wall cavities. Prior to exiting the containment, all personnel must remove disposable coveralls and equipment and debris bags must be thoroughly HEPA vacuumed. Persons performing local removals should, at a minimum, wear respirators fitted with high efficiency filter cartridges and full body disposable protective clothing and be trained in the proper use of this PPE.

Extensive Removal of Mold-colonized Building Materials (100 ft² or greater)

These control techniques are recommended when extensive amounts (≥ 100 ft²) of visible mold growth occurs on surfaces. Double layered polyethylene containments are used to isolate the work area where mold colonized materials are being removed. These double-layered barriers are used to keep dusts and spores from entering adjacent areas, HVAC system components, and any other interior space (e.g., return air plenum, risers, wall cavities, etc). AFDs should be used to negatively pressurize the mold-remediation work area from zones outside of containment barriers at a differential pressure of not less than -0.02 inches water column. Sound materials such as wallboard and flooring that may be within the confines of the containment should be covered by polyethylene (protective barriers). Full containments are characterized by maximum isolation of the containment work area from areas outside containment barriers, by use of tri-chambered airlocks, HEPA filtration of all air exhausted from the containment work area, and by provision of at least four (4) air changes per hour in the containment work area.

Personnel working within the containment should wear (at a minimum) full-face respirators with high efficiency filter cartridges, one or two layers of disposable coveralls, and gloves, and be trained in the proper use of this PPE.

Removal of Fine Dusts from Surfaces and Contents

Upon completion of mold remediation, all surfaces and contents in living spaces adjacent to areas where mold remediation has occurred should be cleaned using the following procedures:

1. Workers performing fine dust cleaning should wear (at a minimum) N95 respirators and disposable gloves, and must be trained in the proper use of this PPE.
2. Any visible moldy or water damaged contents should be disposed of by placing the moldy contents in plastic bags or wrapped in plastic and disposed of in a sealed container.
3. Cleaning of non-porous surfaces or materials with no visible mold will involve the removal of fine dusts from all surfaces of the items. Non-porous materials may be cleaned by a combination of damp wiping and HEPA vacuuming.
4. Porous contents: Multiple passes with a HEPA filter equipped vacuum cleaner should be made over surfaces in two different directions (e.g., N-S; E-W) until dust is no longer drawn to the surface after vacuuming.
5. Non-porous contents: A damp cloth should be used to remove settled dust from all surfaces (plain tap water – small amount of surfactant may be added but no chemical disinfectants and/or biocides; use clean, damp cloth – not wet or saturated). A HEPA filter equipped vacuum cleaner can be used to remove dust from surfaces inaccessible to damp wiping.

Quality Assurance

The goal of mold remediation is to successfully remove visible molds and moldy materials, along with associated dusts and debris. Through project oversight, AQS-BC will provide quality assurance services to help ensure that this goal is achieved. AQS-BC will review the remediation contractor's overall work plan and visually inspect the containment, remediation equipment and work procedures and practices at the start of the remediation work. In addition, AQS-BC may visually inspect and provide mycological sampling during the course of the remediation work. Upon completion of the removal and clean-up work (as reported by the remediation contractor), AQS-BC will determine whether remediation clearance is achieved.

Determination of clearance of a subject space will include: (a) visual inspection by AQS-BC to ensure that all moldy materials have been removed from the subject space and fine dusts have been removed from all surfaces within the subject space; (b) upon successful visual inspection, measurement of airborne particulate within the work area and (c) at the discretion of AQS-BC, collection and analysis of air samples (spore trap and/or culturable fungi) to determine if the airborne fungal mixtures (types and rank order) in the subject space are normal and typical. Clearance failure will necessitate further cleaning followed by re-inspection and/or sampling. Containment, critical barriers and/or filtration equipment may not be dismantled or removed until clearance is achieved.

Reconstruction (Build-back construction)

Once clearance is achieved, the remediation contractor may be asked to provide a bid to perform build back of removed materials. Build-back construction shall be performed in accordance with applicable industry standards and regulatory requirements using new materials to match the immediately surrounding area(s). The work shall be completed in a workmanlike manner by a licensed Florida contractor.

FINAL DRAFT

ATTACHMENT A:

**AQS-BC DRAFT REPORT OF WATER DAMAGE / MOISTURE AND FUNGAL
EVALUATION
(CONFIDENTIAL)**