

FLORIDA INTERNATIONAL UNIVERSITY

UNIVERSITY SAFETY COMPLIANCE GUIDE

ENVIRONMENTAL

SECTION 500

ENVIRONMENTAL HEALTH & SAFETY,
INSURANCE & EMERGENCY MANAGEMENT SERVICES

TABLE OF CONTENTS

Section	Page Number
USCG 501 – Environmental Assessment of Real Estate	2
USCG 503 – Environmental Impact Assessment	5
USCG 504 – Mold in the Workplace.....	6
CHECKLIST TO DETERMINE IF A MOLD PROBLEM CURRENTLY EXISTS	11

USCG 501 – ENVIRONMENTAL ASSESSMENT OF REAL ESTATE

Last Update: 06/01/01

PURPOSE

To establish standard guidelines for environmental contamination assessment of real estate prior to acquisition as a gift, purchase by the University or construction of major facilities.

In the absence of such assessments, Florida International University may incur significant liability for environmental hazards present in/on real estate purchased or donated to the University. As a result of the 1980 Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and the 1986 Superfund Amendments and Reauthorization Act (SARA), the University could be liable for environmental contamination that may exist on newly acquired real estate, regardless of whether the property was acquired after it was contaminated. The University's greatest protection against such potential liability is to exercise "due diligence" when acquiring real estate.

AUTHORITY

University policy.

Florida International University shall exercise appropriate levels of care and due diligence prior to the acquisition, and construction of major facilities by conducting environmental assessments.

GUIDELINES

The University will attempt to eliminate, or substantially reduce its liability for environmental contaminations by implementing the following procedures:

1. GENERAL

A preliminary environmental assessment shall be conducted by Facilities Management and the Department of Environmental Health and Safety, this preliminary assessment shall include:

- a. A walk-through site inspection of the property. This inspection shall consist of a physical survey of the property to identify suspicious site characteristics such as liquid breakouts, soil discolorations, odors, vegetation abnormalities, storage tanks, waste handling areas, potential asbestos-containing materials, fill and excavation areas, etc.
- b. A review of the National Priority List (NPL); CERCLA, Underground Storage Tank Registration list and any other pertinent listings of potentially contaminated sites in the area of the subject site.

2. REAL ESTATE ACQUISITION

- a. Obtain a Certificate of Title and an environmental statement prepared by the donor's/seller's attorney. If this is not possible, the project manager for the acquisition should arrange to have an assessment prepared.
- b. The environmental assessment statement must include any known problems, previous owners and uses of the property.

- c. All other representation which were made to the University regarding the condition of the premises documented by the department negotiating the acquisition

3. THE ASSESSMENT

Based on the initial review, the Department of Environmental Health and Safety shall recommend whether the property should be classified as low risk (such as a single family house with no known environmental hazards) or moderate to high risk (such as an agricultural, commercial or industrial property with a history of uses and operations with the potential to contribute to environmental damage) and makes a recommendation for decision as to the need for an environmental audit.

In the event a Phase I Environmental Audit is considered necessary:

- a. The seller should be asked to pay for the audit.
- b. If the real estate is being donated, the University may wish to consider paying for the audit prior to finalizing the transfer of title.

If Phase I of an environmental audit is approved, the University will contract with an environmental firm or environmental engineer certified by an established professional group issuing those certifications. The environmental company or environmental engineer will then generate a Phase I Environmental Property Assessment Report that will raise questions, provide evidence, or identify any potential problems that become evident.

The Phase I Audit will include at least the following:

- a. A walk-through site inspection of the property. The inspection shall consist of a physical survey of the property to identify suspicious site characteristics such as liquid breakouts, soil discolorations, odors, vegetation abnormalities, underground storage tanks, waste handling areas, potential asbestos-containing materials, fill and excavation areas, etc.
- b. The compilation and examination of available records or documents revealing historic uses of the property. This shall include deed, record map and aerial photography and historical records search.
- c. An examination of records of relevant federal, state, and local agencies in an effort to determine whether those agencies have identified known environmental concerns at the site or in the vicinity of the site.
- d. A review of the National Priority List (NPL); CERCLA's, Underground Storage Tank Registration list and other pertinent listings of potentially contaminated sites in the area of the subject site.
- e. A review of the geology and hydrology of the property.
- f. A description of surrounding properties and an assessment as whether their operations can negatively impact the property.

If, upon completion of the Phase I Audit, the Audit Report indicates that further investigation is justified, the Department of Environmental Health and Safety will evaluate such justifications and will provide endorsement as may be appropriate to the project manager or department involved in the acquisition or construction.

All efforts and activities shall include the joint and cooperative efforts of the Facilities Planning and Construction Department, Environmental Health & Safety, the Office of General Counsel and the University department coordinating the acquisition or construction.

If you have any questions regarding this guideline, please contact the Department of Environmental Health & Safety at (305) 348-2621.

USCG 503 – ENVIRONMENTAL IMPACT ASSESSMENT

Last Update: 05/01/01

PURPOSE

The primary purpose for preparing an EIA (Environment Impact Assessment) is to determine the environmental consequences of a proposed action, thereby alerting the University Executive Committee and primary decision makers to the environmental risks and possible consequences of proposed actions.

SCOPE

The premise is that in order to utilize natural resources in an environmentally compatible way, and to protect and enhance the environment, it is necessary to explore how our operations and research activities will affect the environment. The intended outcome of such disclosure is to generate conscious environmental decision-making, and should be undertaken for reasons other than mere regulatory and legal compliance.

GUIDELINES

Some standard review questions that should be used to evaluate the possible environmental impact of a proposed project are:

- To what extent are both the beneficial and adverse environmental effects clearly understood?
- How were the risks of adverse consequences evaluated and what are they?
- What is the scope of the EIA in terms of external factors and time-lag effects?
- What (if any) are the impacts of environmentally sensitive areas, endangered species and their habitats, and recreational/ aesthetic areas?
- What alternatives are considered: Choose other sites? Choose other technologies? Choose other method?
- What lessons from previous similar projects are incorporated?
- How do the environmental effects change the costs and benefits of the project?
- What adverse affects are unavoidable?
- What public participation and review of project plans or the EIA have occurred?
- What mitigation measures are proposed, and who is responsible for implementing them?
- What are the parameters to be monitored so that the state of the environment can be studied throughout the project?
- Is a Public Relations campaign required?

For more information regarding this guideline, contact the Department of Environmental Health and Safety at (305) 348-2621.

USCG 504 – MOLD IN THE WORKPLACE

Last Update: 12/17/04

PURPOSE

Concern about indoor exposure to mold has increased along with public awareness that exposure to mold may be linked to a variety of health effects and symptoms, including allergic reactions. This guidance document provides recommendations for the prevention of mold growth in occupied buildings and describes measures to protect the health of building occupants and workers.

BACKGROUND

Currently, there are no federal standards or recommendations, (e.g., OSHA, NIOSH, EPA) for airborne concentrations of mold or mold spores. Scientific research on the relationship between mold exposures and health effects is ongoing.

There are many types of mold. Most typical indoor air exposures to mold do not present a risk of adverse health effects, however, molds have been linked to adverse effects. These potential health concerns are important reasons to prevent mold growth and to remediate existing problem areas.

PREVENTION GUIDELINES

- Moisture control is the key to mold control. When water leaks or spills occur indoors - act promptly. Any initial water infiltration should be stopped and cleaned as quickly as possible. A prompt response (within 24-48 hours) and thorough clean-up, drying, and/or removal of water-damaged materials will usually prevent or limit mold growth.
- Report plumbing leaks and leaks in the building structure to Work Management at (305) 348-4600 for University Park & CEAS facilities and (305) 919-5565 for Biscayne Bay Campus.
- Look for condensation and wet spots. Report source(s) of moisture intrusion problem to Work Management.
- Vent moisture-generating appliances, such as dryers, to the outside when possible. Assure compliance with local code requirements.
- Dry and clean wet or damp spots as soon as possible, but no more than 48 hours after discovery.
- Assure there is adequate drainage around buildings and sloping of the ground away from building foundations. Follow all local building codes.
- Pinpoint areas where leaks have occurred, identifying the causes, and taking preventive action to ensure that they do not reoccur.
- To determine whether a mold problem currently exists in your area please complete the checklist (addendum 503A) and fax to Environmental Health & Safety at (305) 348-3574

REMEDICATION OF MOLD IN OCCUPIED BUILDINGS

Small Isolated Areas (10 sq. ft or less) - e.g., ceiling tiles, small areas on walls

1. Remediation can be conducted by regular building maintenance staff. Such persons should receive training on proper clean up methods, personal protection, and potential health hazards.
2. Respiratory protection (e.g., N95 disposable respirator), in accordance with the OSHA respiratory protection standard (29 CFR 1910.134), is recommended. Gloves and eye protection should be worn.
3. The work area should be unoccupied. Vacating people from spaces adjacent to the work area is not necessary but is recommended in the presence persons recovering from recent surgery, immune suppressed people, or people with chronic inflammatory lung diseases (e.g., asthma, hypersensitivity pneumonitis, and severe allergies).
4. Containment of the work area is not necessary. Dust suppression methods, such as misting (not soaking) surfaces prior to remediation, are recommended.
5. Contaminated materials that cannot be cleaned should be removed from the building in a sealed plastic bag. There are no special requirements for the disposal of moldy materials.
6. The work area and areas used by remedial workers for egress should be cleaned with a damp cloth and/or mop and a detergent solution.
7. All areas should be left dry and visibly free from contamination and debris.

Level II: Mid-Sized Isolated Areas (10 - 30 sq. ft.) - e.g., individual wallboard panels.

1. Remediation can be conducted by regular building maintenance staff. Such persons should receive training on proper clean up methods, personal protection, and potential health hazards.
2. Respiratory protection (e.g., N95 disposable respirator), in accordance with the OSHA respiratory protection standard (29 CFR 1910.134), is recommended. Gloves and eye protection should be worn.
3. The work area should be unoccupied. Vacating people from spaces adjacent to the work area is not necessary but is recommended in the presence of persons having undergone recent surgery, immune suppressed people, or people with chronic inflammatory lung diseases (e.g., asthma, hypersensitivity pneumonitis, and severe allergies).
4. The work area should be covered with a plastic sheet(s) and sealed with tape before remediation, to contain dust/debris.
5. Dust suppression methods, such as misting (not soaking) surfaces prior to remediation, are recommended.
6. Contaminated materials that cannot be cleaned should be removed from the building in sealed plastic bags. There are no special requirements for the disposal of moldy materials.
7. The work area and areas used by remedial workers for egress should be HEPA vacuumed (a vacuum equipped with a High-Efficiency Particulate Air filter) and cleaned with a damp cloth and/or mop and a detergent solution.
8. All areas should be left dry and visibly free from contamination and debris.

Level III: Large Isolated Areas (30 - 100 square feet) - e.g., several wallboard panels.

A health and safety professional with experience performing microbial investigations should be consulted prior to remediation activities to provide oversight for the project.

The following procedures at a *minimum* are recommended:

1. Personnel trained in the handling of hazardous materials and equipped with respiratory protection, (e.g., N95 disposable respirator), in accordance with the OSHA respiratory protection standard (29 CFR 1910.134), is recommended. Gloves and eye protection should be worn.
2. The work area and areas directly adjacent should be covered with a plastic sheet(s) and taped before remediation, to contain dust/debris.
3. Seal ventilation ducts/grills in the work area and areas directly adjacent with plastic sheeting.
4. The work area and areas directly adjacent should be unoccupied. Vacating of people from spaces near the work area is not necessary but recommended in the presence of persons having undergone recent surgery, immune suppressed people, or people with chronic inflammatory lung diseases (e.g., asthma, hypersensitivity pneumonitis, and severe allergies).
5. Dust suppression methods, such as misting (not soaking) surfaces prior to remediation, are recommended.
6. Contaminated materials that cannot be cleaned should be removed from the building in sealed plastic bags. There are no special requirements for the disposal of moldy materials.
7. The work area and surrounding areas should be HEPA vacuumed and cleaned with a damp cloth and/or mop and a detergent solution.
8. All areas should be left dry and visibly free from contamination and debris.

If abatement/remediation procedures are expected to generate a lot of dust (e.g., abrasive cleaning of contaminated surfaces, demolition of plaster walls) or the visible concentration of the fungi is heavy (blanket coverage as opposed to patchy), then it is recommended that the remediation procedures for Level IV are followed.

Level IV: Extensive Contamination (greater than 100 contiguous square feet in an area)

A health and safety professional with experience performing microbial investigations should be consulted prior to remediation activities to provide oversight for the project. The following procedures are recommended:

1. Personnel trained in the handling of hazardous materials equipped with:
 - a. Full-face respirators with high efficiency particulate air (HEPA) cartridges
 - b. Disposable protective clothing covering both head and shoes
 - c. Gloves
2. Containment of the affected area:
 - a. Complete isolation of work area from occupied spaces using plastic sheeting sealed with duct tape (including ventilation ducts/grills, fixtures, and any other openings)
 - b. The use of an exhaust fan with a HEPA filter to generate negative pressurization
 - c. Airlocks and decontamination room
3. Vacating people from spaces adjacent to the work area is not necessary but is recommended in the presence of persons having undergone recent surgery, immune suppressed people, or people with chronic inflammatory lung diseases (e.g., asthma, hypersensitivity pneumonitis, and severe allergies).

4. Contaminated materials that cannot be cleaned should be removed from the building in sealed plastic bags. The outside of the bags should be cleaned with a damp cloth and a detergent solution or HEPA vacuumed in prior to their transport to uncontaminated areas of the building. There are no special requirements for the disposal of moldy materials.
5. The contained area and decontamination room should be HEPA vacuumed and cleaned with a damp cloth and/or mop with a detergent solution and be visibly clean prior to the removal of isolation barriers.
6. Air monitoring should be conducted prior to occupancy to determine if the area is fit to reoccupy.

Level V: Remediation of HVAC Systems

Small Isolated Area of Contamination (<10 square feet) in the HVAC System

1. Remediation can be conducted by regular building maintenance staff. Such persons should receive training on proper clean up methods, personal protection, and potential health hazards.
2. Respiratory protection (e.g., N95 disposable respirator), in accordance with the OSHA respiratory protection standard (29 CFR 1910.134), is recommended. Gloves and eye protection should be worn.
3. The HVAC system should be shut down prior to any remedial activities.
4. The work area should be covered with a plastic sheet(s) and sealed with tape before remediation, to contain dust/debris.
5. Dust suppression methods, such as misting (not soaking) surfaces prior to remediation, are recommended.
6. Growth supporting materials that are contaminated, such as the paper on the insulation of interior lined ducts and filters, should be removed. Other contaminated materials that cannot be cleaned should be removed in sealed plastic bags. There are no special requirements for the disposal of moldy materials.
7. The work area and areas immediately surrounding the work area should be HEPA vacuumed and cleaned with a damp cloth and/or mop and a detergent solution.
8. All areas should be left dry and visibly free from contamination and debris.
9. A variety of biocides are recommended by HVAC manufacturers for use with HVAC components, such as, cooling coils and condensation pans. HVAC manufacturers should be consulted for the products they recommend for use in their systems.

Areas of Contamination (>10 square feet) in the HVAC System

A health and safety professional with experience performing microbial investigations should be consulted prior to remediation activities to provide oversight for remediation projects involving more than a small isolated area in an HVAC system. The following procedures are recommended:

1. Personnel trained in the handling of hazardous materials who have been equipped with:
 - a. Respiratory protection (e.g., N95 disposable respirator), in accordance with the OSHA respiratory protection standard (29 CFR 1910.134), is recommended.
 - b. Gloves and eye protection Full-face respirators with HEPA cartridges and disposable protective clothing covering both head and shoes should be worn if contamination is greater than 30 square feet.
 - c. The HVAC system should be shut down prior to any remedial activities.

2. Containment of the affected area:
 - a. Complete isolation of work area from the other areas of the HVAC system using plastic sheeting sealed with duct tape.
 - b. The use of an exhaust fan with a HEPA filter to generate negative pressurization.
 - c. Airlocks and decontamination room if contamination is greater than 30 square feet.
3. Growth supporting materials that are contaminated, such as the paper on the insulation of interior lined ducts and filters, should be removed. Other contaminated materials that cannot be cleaned should be removed in sealed plastic bags. When a decontamination area is present, the outside of the bags should be cleaned with a damp cloth and a detergent solution or HEPA vacuumed prior to their transport to uncontaminated areas of the building. There are no special requirements for the disposal of moldy materials.
4. The contained area and decontamination room should be HEPA vacuumed and cleaned with a damp cloth and/or mop and a detergent solution prior to the removal of isolation barriers.
5. All areas should be left dry and visibly free from contamination and debris.
6. Air monitoring should be conducted prior to re-occupancy with the HVAC system in operation to determine if the area(s) served by the system are fit to reoccupy.
7. A variety of biocides are recommended by HVAC manufacturers for use with HVAC components, such as, cooling coils and condensation pans. HVAC manufacturers should be consulted for the products they recommend for use in their systems.

HAZARD COMMUNICATION

When fungal growth requiring large-scale remediation is found, the FM project manager should notify occupants in the affected area(s) of its presence and the Department of Environmental Health & Safety. Notification should include a description of the remedial measures to be taken and a timetable for completion. Full disclosure of plans and results is recommended. Individuals with persistent health problems that appear to be related to bioaerosol exposure should be advised to see their physicians for a referral to practitioners who are trained in occupational/environmental medicine or related specialties and are knowledgeable about these types of exposures.

Prompt communication and the timely remediation of contaminated material and infrastructure repair must be the primary response to fungal contamination in buildings. The simplest and most expedient remediation that properly and safely removes fungal growth from buildings should be used. ***In all situations, the underlying cause of water accumulation must be rectified or the fungal growth will recur.*** Emphasis should be placed on preventing contamination through proper building maintenance and prompt repair of water damaged areas.

Widespread contamination poses much larger problems that must be addressed on a case-by-case basis in consultation with the department of Environmental Health & Safety and the IAQ Taskforce. Continuous communication with EH&S and building occupants is an essential component of all remedial efforts. Individuals with persistent health problems should see their physicians for a referral to practitioners who are trained in occupational/environmental medicine or related specialties and are knowledgeable about these types of exposures.

For more information regarding this guideline, contact the Department of Environmental Health and Safety at (305) 348-2621.



CHECKLIST TO DETERMINE IF A MOLD PROBLEM CURRENTLY EXISTS

Building: _____ **Room #:** _____

Location Contact Name: _____

Telephone: _____ **Email:** _____

- Are building materials or furnishings visibly moisture damaged? Yes No
- Have building materials been wet more than 48 hours? Yes No
- Are there existing moisture problems in the building? Yes No
- Are occupants reporting musty or moldy odors? Yes No
- Are occupants reporting health problems that they think are related to mold in the indoor environment? Yes No
- Has the building been recently remodeled or has the building use changed? Yes No
- Is there visible evidence of mold growth? Yes No

Additional Comments: _____

Please complete and return to EH&S at CSC 162 or fax at 3574 for evaluation