MARTIN AND WILLIAMSON HALL BUILDINGs
Eastern Washington University, Cheney, Washington

INDOOR AIR QUALITY SAMPLING PLAN

Prepared for

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INTRODUCTION

There have been several complaints from the facility/occupants of the Martin and Williamson Halls brought to the attention of the EWU Facilities staff over the last several months. After a site inspection conducted by the Facilities and Administration representatives on May 29, 2018; it was decided that an independent IAQ Assessment by an outside consultant would be warranted.

Mountain Consulting Services was contacted and met with the Facilities and Administration representatives and asked to provide a services/cost proposal to conduct a thorough assessment of the Martin and Williamson Halls to determine the potential for indoor contamination within the combined buildings facility.

Based on the scope of the work discussed, Mountain Consulting Services has teamed with a Certified Industrial Hygienist of NV5 Global of Richland, Washington. A site walk was conducted on June 12, 2018 by involved parties from both the consultant and the EWU Facilities and Environmental departments to clarify the scope of the sampling necessary within both of these buildings.

1.0 ASBESTOS

During the site walk, Mountain Consulting was informed that a complete abatement of asbestos containing ceiling tiles had been conducted on the third-floor of the Williamson Hall Building by an outside contractor. However, there was still some concerns from the staff in this area of the building. Mountain Consulting agreed to collect ambient air quality control samples from within the third-floor area of the Williamson Hall Building.

1.1 ASBESTOS AIR SAMPLING, AND ANALYSIS

Four (4) Phase Contrast Microscopy (PCM) air samples will be collected at various locations within the third-floor of the Williamson Hall Building. The asbestos air sampling will be conducted by an EPA accredited building inspector/Industrial Hygienist/NIOSH 582 accredited individual.

The field team will record:

- sample locations;
- photo locations; Digital photos of sampling locations may be collected at the discretion of the technician, and
- other information appropriate for data interpretation.

1.2 ANALYSIS

All asbestos Air Samples will either be analyzed by Mountain Laboratories, Inc. of Spokane Valley, Washington. PCM Air samples will be collected and analyzed according to the following EPA method:

NIOSH Method 7400, "Fibers", May 15, 1989 revision.

Both Mountain Consulting Services and Mountain Laboratories successfully participates in the AIHA Proficiency Analytical Testing Program (PAT).

2.0 MOLD/FUNGI

There have been some historic water leak problems associated with both of the buildings. There have also been several complaints from the facility of both the buildings. As standards are not available for acceptable mold spores within buildings, the results will be compared to standard industry practice and to the ambient outside background levels on each day of sampling.

Therefore, we will perform mold sampling utilizing air-o-cell cassettes to validate the sampling that was performed previously by the EWU Environmental Department. This will sample in the occupied *offices* (and one conference room) where personnel have complained of exposure to/symptoms of mold concerns. The rooms we will obtain samples from include the following:

Martin Hall Building-

- 114A
- 152 D & E
- 158
- 249
- 247
- 151G
- 228
- 237
- 253
- 254
- 254H

Williamson Hall Building-

- 232
- 310
- 311B
- 314
- Third floor women's room
- Stairway between Martin and Williamson Hall

We also propose to obtain 4 samples per floor of general hallway/lecture hall areas (including one in the custodial area where mold remediation had been conducted and one in the room with the brown indoor/outdoor carpet) for comparison. We will also obtain no more than 3 outdoor air samples for comparison to indoor levels, each day mold sampling is conducted. We will not obtain tape or swab samples as nothing noted in the walk through would indicate active mold growth and the need for culturable sampling.

COLLECTION OF FUNGAL SAMPLES

Air-o-Cell Samples: Airborne fungal spore samples will be collected using the following equipment:

- Gast Model 1532 High Volume Sample Pump;
- EMS Field Rotometer - Secondary Calibration Source;
- Air-o-Cell Sampling Cassettes.

Air-o-Cell sampling cassettes will be exposed to the ambient air within the identified areas of the building, as well as collecting an exterior outdoor comparison samples to establish the current ambient environmental airborne fungal spore levels.

All samples will be collected for a period of 5 minutes at a rate of 15 liters of air per minute. An adhesive is used to collect airborne fungal spores and particulate on a microscope cover slip. After exposure, the sampling cassettes were sealed in an air tight zip lock bag, numbered with a unique sampling number, and submitted to EMLab P&K (*TestAmerica Environmental Microbiology Laboratory, Inc.*) of Bothell, Washington, following proper chain of custody procedures.

Samples are analyzed using an optical microscopy at 400X magnification with the entire trace (100%) of the sample being analyzed. The results will be reported as total spores, meaning that both viable (*living*) and non-viable fungal spores are counted. This technique does not allow the mycologist to differentiate between *Aspergillus* and *Penicillium* spores. Additionally, depending on morphology, other non-distinctive spores will be reported in categories such as Ascospores (produced in an ascus) or Basidiospores (including the mushrooms and other microfungi).

3.0 BUILDING THERMOGRAPHY

As part of the IAQ investigation, Mountain Consulting Services will conduct a Thermography survey of both the Martin and Williamson Hall Buildings.

Mountain Consulting will utilize FLIR Systems Inferred camera. Exterior walls and wet walls within the buildings will be scanned in an attempt to identify significant temperature differentials, which may indicate possible water intrusion issues and/or possible fungal activities.

Any areas with significant temperature differentials will be photo documented and included in the final report.

4.0 VENTILATION

Ventilation is a very important aspect of indoor air quality. During the site walk it was noted that many of the room/hall ventilation ceiling supply vents had discharge surface areas that were discolored, which is a usual indication of ventilation system disorders. Several of the areas were also noted to be "stuffy" when the room was entered.

A hot wire anemometer will be utilized to determine air speed through the vent, to the room. A full ventilation survey will be conducted throughout both buildings. This information will be compared between readings and also to the *ASHRAE 62.1, Ventilation for Acceptable Indoor Air Quality.*

We will need a representative familiar with the ventilation System to be available during our field survey.

5.0 LIGHTING

Several of the offices were noted to have what appears to be less than adequate lighting for an office environment. It has been documented that besides the factors that *directly impact the levels of pollutants* to which people are exposed, a number of environmental and personal factors can affect how people *perceive* air quality. Some of these factors affect both the levels of pollutants *and* perceptions of air quality. One such factor is lighting. Therefore, light measurements will be obtained in offices where mold complaints have been received, as well as those areas where it appears to be low lighting, and the results will be compared to the lighting levels cited in the IESNA Lighting Handbook.

6.0 OTHER SAMPLING

If other potential hazards are identified during the field survey, then Mountain Consulting Services will notify the University prior to collecting any necessary samples to determine the extent of the potential hazard.

7.0 REPORT PREPARATION

Using the information collected during the IAQ survey, Mountain Consulting/ NV5 Global Dade Moeller will prepare a comprehensive report for the Martin/Williamson Hall Buildings to summarize, quantify, and assess the Indoor Air Quality issues identified during the field survey and provide recommendations for elimination of the identified issues.