LABORATORY VENTILATION MANAGEMENT PROGRAM

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Formal EHS review of the Laboratory Ventilation Management Program for the Ithaca and Geneva campuses was completed on 2013. This plan outlines the control banding process for assigning general room ventilation rates to campus labs. Implementation of the program continued throughout the year. Performance Metrics will be reported during calendar year 2014 based on the indicators assigned to assess the programs performance. In addition, Energy Conservation Project Support included Control Banding in Corson/Mudd, Baker Institute, BTI, Hollister, and Barton Geneva. Overall, 700(?) laboratories were visited and assigned general ventilation rates.

A second area of work was development of laboratory design standards for laboratory ventilation on campus, updating standard last reviewed in 2007. As part of this work, opportunities for reducing face velocity in specific fume hoods were researched and criteria for this change identified. As a pilot program, 4 hoods were reduced from 100 to 80 fpm. In addition, a number of hoods were identified as candidates for hibernation.

A process for quantitative review of general laboratory ventilation effectiveness was developed and used in AAA labs. This process acts as a quality control step for the control banding decisions.

Finally, presentations describing this work were made at Labs-21, NERM, (on-campus), UCLA meeting to enable peer review of these efforts and assure that our work is prudent. These presentations have established Cornell as a leader in addressing the ventilation aspects of developing a sustainable labs program.

### 2013 PROJECT ACCOMPLISHMENTS OVERVIEW

<table>
<thead>
<tr>
<th>TASK</th>
<th>QUARTER OF COMPLETION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal acceptance of program by reviewers</td>
<td>Q1</td>
</tr>
<tr>
<td>Publication of manuscript describing the LVMP in Journal of Chemical Health and Safety</td>
<td>Q3</td>
</tr>
<tr>
<td>Training videos included into Lab Safety trainings</td>
<td>Q2</td>
</tr>
<tr>
<td>Control Banding of ventilation in labs developed and included in process of energy studies for ECI projects and also for retro-commissioning of Cornell buildings</td>
<td>Q2</td>
</tr>
<tr>
<td>Control banding assessments conducted with new inspection platform- LabCliq</td>
<td>Q3</td>
</tr>
<tr>
<td>Paper describing control banding logical was accepted for publication in JCHAS</td>
<td>Q4</td>
</tr>
<tr>
<td>Revision of SOP’s, forms, and design Standards related to the program</td>
<td>All year</td>
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</tbody>
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### BUDGET OVERVIEW

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>EHS FTE HOURS</th>
<th>PROJECT</th>
<th>EHS FTE HOURS</th>
<th># OF LABS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fume Hood Mgmt-Safety</td>
<td>63</td>
<td>ECI Support</td>
<td>200</td>
<td>336</td>
</tr>
<tr>
<td>Standards Revisions/Program Mgmt</td>
<td>105</td>
<td>Wing Complex retrocommission</td>
<td>18</td>
<td>40</td>
</tr>
<tr>
<td>Ventilation Effectiveness Planning/Testing</td>
<td>59</td>
<td>BioTech retrocommission</td>
<td>40</td>
<td>193</td>
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<tr>
<td>Training</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAVINGS</td>
<td># HOODS OR LABS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hood hibernation candidates identified</td>
<td>21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Banding</td>
<td>682</td>
<td></td>
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</tbody>
</table>
2013 was the first full year that the Lab Ventilation Program was managed as a management system. The program was in continuous development to reach the goals of having stakeholders aligned and the performance of the program measurable. It is expected that in 2014 the forms of communication with stakeholders about aspects of the program and its performance will be reported.

The expected involvement of the Lab Ventilation Specialist with Energy Conservation Initiative (ECI) projects is to be similar as in 2013. The Control Banding of labs in support of additional savings for each project will remain active 2014. Peer collaboration with other campuses will continue at the ASHRAE meeting, Labs-21 and ACS national meeting in SF. In addition, involvement in the Green Labs program will improve outreach to lab workers around ventilation issues and allow for more identification of energy conservation opportunities in general.