# TABLE OF CONTENTS

## VOLUME II - BUILDING ANALYSIS

### SECTION SUMMARY

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>OVERVIEW</td>
<td>7</td>
</tr>
<tr>
<td>BUILDING CONDITION</td>
<td>8</td>
</tr>
<tr>
<td>BUILDING AGE</td>
<td>9</td>
</tr>
<tr>
<td>ACCESSIBILITY</td>
<td>10</td>
</tr>
<tr>
<td>BUILDING RATING &amp; RECOMMENDATION CATEGORIES</td>
<td>11</td>
</tr>
<tr>
<td>CONCLUSIONS</td>
<td>12</td>
</tr>
</tbody>
</table>

### GENERAL BUILDING DATA & SYSTEMS RATING MATRIX

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL BUILDING DATA &amp; SYSTEMS RATING MATRIX</td>
<td>13</td>
</tr>
</tbody>
</table>

### BUILDING RATING CRITERIA

<table>
<thead>
<tr>
<th>Category</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL</td>
<td>19</td>
</tr>
<tr>
<td>ARCHITECTURAL</td>
<td>19</td>
</tr>
<tr>
<td>ELECTRICAL</td>
<td>21</td>
</tr>
<tr>
<td>HVAC</td>
<td>23</td>
</tr>
<tr>
<td>PLUMBING</td>
<td>25</td>
</tr>
<tr>
<td>FIRE PROTECTION</td>
<td>25</td>
</tr>
</tbody>
</table>

### BUILDING EVALUATIONS

<table>
<thead>
<tr>
<th>Building</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>002 - ARNOLD HOUSE</td>
<td>29</td>
</tr>
<tr>
<td>107 - BARTLETT HALL</td>
<td>35</td>
</tr>
<tr>
<td>080 - CHAPEL</td>
<td>41</td>
</tr>
<tr>
<td>083 - CLARK HALL</td>
<td>45</td>
</tr>
<tr>
<td>132 - DICKINSON HALL</td>
<td>49</td>
</tr>
<tr>
<td>087 - DRAPER HALL</td>
<td>55</td>
</tr>
<tr>
<td>417 - DUBOIS LIBRARY</td>
<td>61</td>
</tr>
<tr>
<td>420 - FINE ARTS CENTER</td>
<td>67</td>
</tr>
<tr>
<td>100 - FLINT LABORATORY</td>
<td>73</td>
</tr>
<tr>
<td>289 - FURCOLO HALL</td>
<td>79</td>
</tr>
<tr>
<td>171 - GOODELL BUILDING</td>
<td>85</td>
</tr>
<tr>
<td>172 - GOODELL BUILDING ADDITION</td>
<td>89</td>
</tr>
<tr>
<td>655 - H. ALFOND MANAGEMENT CENTER</td>
<td>95</td>
</tr>
<tr>
<td>317 - ISENBERG SCHOOL OF MANAGEMENT</td>
<td>101</td>
</tr>
<tr>
<td>008 - HAMPSHIRE HOUSE</td>
<td>107</td>
</tr>
<tr>
<td>406 - HERTER HALL</td>
<td>111</td>
</tr>
<tr>
<td>037 - HILLS HOUSE</td>
<td>117</td>
</tr>
<tr>
<td>111 - MACHMER HALL</td>
<td>123</td>
</tr>
<tr>
<td>329 - MAHAR AUDITORIUM</td>
<td>129</td>
</tr>
<tr>
<td>009 - MIDDLESEX HOUSE</td>
<td>135</td>
</tr>
<tr>
<td>029 - MILLS (NEW AFRICA) HOUSE</td>
<td>139</td>
</tr>
</tbody>
</table>
As part of the Comprehensive Academic and Classroom Facilities Plan, Burt Hill evaluated the condition of 27 buildings on the UMass Amherst campus, totaling just over 2 million gross square feet. The survey was used to identify building deficiencies that impede use and have bearing on decisions of whether to, or how and when to, invest in future rehabilitation or renovation to best serve the long and short term needs of the University.

Information was gathered from a variety of sources including original and renovation drawings, various conditions reports, building walkthroughs and meetings with UMass Facilities and Physical Plant personnel.

System Summary Scores: Each building’s major architectural and mechanical/electrical systems were rated on a scale of 0 to 5, 0 being excellent and 5 being failing or non-existent. Consideration was also given to characteristics, such as architectural style, floor plate configurations, floor to floor height limitations, historic significance, accessibility, and the fit of current utilization to the space. System scores were totaled and averaged and the buildings were ranked according to their scores for multiple purposes. A full description of the ratings can be found on pages II-1-18 through II-1-24.
BUILDING CONDITION

Systems summary scores were generally followed to divide the buildings into three common categories of good, fair, and poor providing a general measure of the condition of the building stock in the study. These categories are defined as follows:

- **GOOD** - Systems are sound and in need of only general maintenance and refurbishment. (Systems rating between 0 & 1.9)
- **FAIR** - Limited systems are at or near the end of their expected useful life and need restoration or replacement. (Systems rating between 2 & 3.9)
- **POOR** - Multiple systems are in danger of (or are) failing, requiring significant renovation of an entire building. (Systems rating between 4 & 5)

### BUILDING TABLE SORTED BY CONDITION

<table>
<thead>
<tr>
<th>BLDGNAME</th>
<th>GSF</th>
<th>Building Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>H. ALFOND MGMT CTR</td>
<td>49,500</td>
<td>G</td>
</tr>
<tr>
<td>MAHAR AUDITORIUM</td>
<td>7,640</td>
<td>G</td>
</tr>
<tr>
<td><strong>Total “Good” Condition</strong></td>
<td><strong>57,140</strong></td>
<td><strong>G</strong></td>
</tr>
<tr>
<td>TOBIN HALL</td>
<td>112,076</td>
<td>F</td>
</tr>
<tr>
<td>HERTER HALL</td>
<td>113,000</td>
<td>F</td>
</tr>
<tr>
<td>SCHOOL OF MANAGEMENT</td>
<td>75,019</td>
<td>F</td>
</tr>
<tr>
<td>DUBOIS LIBRARY</td>
<td>406,480</td>
<td>F</td>
</tr>
<tr>
<td>GOODELL BUILDING</td>
<td>34,323</td>
<td>F</td>
</tr>
<tr>
<td>FINE ARTS CENTER</td>
<td>220,094</td>
<td>F</td>
</tr>
<tr>
<td>GOODELL BLDG ADDITN</td>
<td>95,442</td>
<td>F</td>
</tr>
<tr>
<td>THOMPSON HALL</td>
<td>87,908</td>
<td>F</td>
</tr>
<tr>
<td>ARNOLD HOUSE</td>
<td>43,292</td>
<td>F</td>
</tr>
<tr>
<td>DICKINSON HALL</td>
<td>29,699</td>
<td>F</td>
</tr>
<tr>
<td>TOTMAN PHYS ED BLDG</td>
<td>110,505</td>
<td>F</td>
</tr>
<tr>
<td>FURCOLO HALL</td>
<td>101,329</td>
<td>F</td>
</tr>
<tr>
<td>STOCKBRIDGE HALL</td>
<td>70,929</td>
<td>F</td>
</tr>
<tr>
<td>MACHMER HALL</td>
<td>72,556</td>
<td>F</td>
</tr>
<tr>
<td>WILDER HALL</td>
<td>10,534</td>
<td>F</td>
</tr>
<tr>
<td><strong>Total “Fair” Condition</strong></td>
<td><strong>1,583,186</strong></td>
<td><strong>F</strong></td>
</tr>
<tr>
<td>NEW AFRICA HOUSE (MILLS)</td>
<td>36,323</td>
<td>P</td>
</tr>
<tr>
<td>BARTLETT HALL</td>
<td>113,748</td>
<td>P</td>
</tr>
<tr>
<td>DRAPER HALL</td>
<td>31,731</td>
<td>P</td>
</tr>
<tr>
<td>SOUTH COLLEGE</td>
<td>31,093</td>
<td>P</td>
</tr>
<tr>
<td>CLARK HALL</td>
<td>20,203</td>
<td>P</td>
</tr>
<tr>
<td>CHAPEL</td>
<td>14,200</td>
<td>P</td>
</tr>
<tr>
<td>FLINT LABORATORY</td>
<td>29,851</td>
<td>P</td>
</tr>
<tr>
<td>HILLS HOUSE</td>
<td>87,634</td>
<td>P</td>
</tr>
<tr>
<td>MIDDLESEX HOUSE</td>
<td>21,637</td>
<td>P</td>
</tr>
<tr>
<td>HAMPSHIRE HOUSE</td>
<td>17,747</td>
<td>P</td>
</tr>
<tr>
<td><strong>Total “Poor” Condition</strong></td>
<td><strong>404,167</strong></td>
<td><strong>P</strong></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>2,044,493 GSF</td>
<td></td>
</tr>
</tbody>
</table>

### FULL BUILDING CONDITION SUMMARY CHART

**Total - 2,044,493 GSF**

**Poor, 404,167, 20%**

**Fair, 1,583,186, 77%**

**Good, 57,140, 3%**

### FINDING

While a familiar and useful benchmark, the good, fair, poor categories do not take into account considerations that influence decisions as to whether to renovate or how to use a building in the future. An historic buildings, for example, may be in poor condition but be a good candidate for renovation while a building in fair condition, but not configured to provide spaces of a scale or shape that supports the current need, may not.
As another useful indicator, buildings have also been sorted by their age. It should be noted that all buildings in academic use were not included in the study, somewhat skewing the summary by not including two new or newly renovated academic buildings (Skinner Hall and the Studio Arts Building).

FINDING
A notable trend can be seen in building larger scale buildings starting in the late 1950s. 1,499,569 gsf of academic space has been added to the campus since 1960.

TOTAL - 2,044,493 GSF
ACCESSIBILITY

Additionally, the survey rated buildings on their accessibility in the following categories:

- Y - Accessible - Building appears to meet current accessibility standards.
- N - Not Accessible - Building does not meet accessibility standards.
- P - Partially Accessible - Building has an accessible entrance, but access is limited to a main or portion of a main floor.

BUILDING TABLE SORTED BY ACCESSIBILITY

<table>
<thead>
<tr>
<th>BLDGNAME</th>
<th>GSF</th>
<th>NSF</th>
<th>Handicap Accessibility</th>
<th>Net Usable SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>H. ALFOND MGMT CTR</td>
<td>49,500</td>
<td>41,292</td>
<td>Y</td>
<td>24,122</td>
</tr>
<tr>
<td>Total SF Accessible</td>
<td>49,500</td>
<td>41,292</td>
<td></td>
<td>24,122</td>
</tr>
<tr>
<td>ARNOLD HOUSE</td>
<td>43,292</td>
<td>37,077</td>
<td>P</td>
<td>27,204</td>
</tr>
<tr>
<td>BARTLETT HALL</td>
<td>113,748</td>
<td>101,229</td>
<td>68,413</td>
<td>46,813</td>
</tr>
<tr>
<td>DICKINSON HALL</td>
<td>29,699</td>
<td>25,675</td>
<td>176,495</td>
<td>115,495</td>
</tr>
<tr>
<td>DUBOIS LIBRARY</td>
<td>406,480</td>
<td>369,512</td>
<td>289,911</td>
<td>215,911</td>
</tr>
<tr>
<td>PINE ARTS CENTER</td>
<td>220,094</td>
<td>191,040</td>
<td>115,141</td>
<td>101,141</td>
</tr>
<tr>
<td>PURDUE HALL</td>
<td>101,329</td>
<td>88,459</td>
<td>64,080</td>
<td>44,080</td>
</tr>
<tr>
<td>GODDELL BLDG ADDTN</td>
<td>95,442</td>
<td>84,294</td>
<td>64,495</td>
<td>44,495</td>
</tr>
<tr>
<td>GODDELL BUILDING</td>
<td>34,323</td>
<td>28,256</td>
<td>19,899</td>
<td>12,899</td>
</tr>
<tr>
<td>HERTER HALL</td>
<td>113,000</td>
<td>99,073</td>
<td>60,145</td>
<td>40,145</td>
</tr>
<tr>
<td>HILLS HOUSE</td>
<td>87,634</td>
<td>73,011</td>
<td>55,732</td>
<td>35,732</td>
</tr>
<tr>
<td>MACHMUR HALL</td>
<td>72,555</td>
<td>62,208</td>
<td>42,041</td>
<td>22,041</td>
</tr>
<tr>
<td>MAHAR AUDITORIUM</td>
<td>7,640</td>
<td>7,302</td>
<td>4,160</td>
<td>2,160</td>
</tr>
<tr>
<td>NEW AFRICA HOUSE (MILLS)</td>
<td>36,323</td>
<td>30,130</td>
<td>22,304</td>
<td>14,304</td>
</tr>
<tr>
<td>SCHOOL OF MANAGEMENT</td>
<td>75,019</td>
<td>62,955</td>
<td>44,631</td>
<td>24,631</td>
</tr>
<tr>
<td>STOCKBRIDGE HALL</td>
<td>70,929</td>
<td>62,529</td>
<td>49,731</td>
<td>39,731</td>
</tr>
<tr>
<td>THOMPSON HALL</td>
<td>87,908</td>
<td>73,997</td>
<td>41,227</td>
<td>31,227</td>
</tr>
<tr>
<td>TOBIN HALL</td>
<td>112,076</td>
<td>97,019</td>
<td>56,134</td>
<td>46,134</td>
</tr>
<tr>
<td>TOTMAN PHYS ED BLDG</td>
<td>110,505</td>
<td>94,023</td>
<td>63,204</td>
<td>53,204</td>
</tr>
<tr>
<td>WILDER HALL</td>
<td>10,534</td>
<td>8,171</td>
<td>6,624</td>
<td>5,624</td>
</tr>
<tr>
<td>Total SF Partially Accessible</td>
<td>1,828,531</td>
<td>1,595,896</td>
<td>1,271,571</td>
<td>908,571</td>
</tr>
<tr>
<td>CHAPEL</td>
<td>14,200</td>
<td>13,005</td>
<td>8,573</td>
<td>7,573</td>
</tr>
<tr>
<td>CLARK HALL</td>
<td>20,203</td>
<td>15,981</td>
<td>12,289</td>
<td>9,289</td>
</tr>
<tr>
<td>DRAPER HALL</td>
<td>31,731</td>
<td>26,080</td>
<td>17,470</td>
<td>14,470</td>
</tr>
<tr>
<td>FLINT LABORATORY</td>
<td>29,851</td>
<td>25,839</td>
<td>18,820</td>
<td>15,820</td>
</tr>
<tr>
<td>HAMPShIRE HOUSE</td>
<td>17,747</td>
<td>14,866</td>
<td>10,712</td>
<td>7,712</td>
</tr>
<tr>
<td>MIDDLESEX HOUSE</td>
<td>21,637</td>
<td>18,214</td>
<td>13,175</td>
<td>10,175</td>
</tr>
<tr>
<td>SOUTH COLLEGE</td>
<td>31,093</td>
<td>24,744</td>
<td>20,013</td>
<td>17,013</td>
</tr>
<tr>
<td>Total SF Not Accessible</td>
<td>166,462</td>
<td>138,749</td>
<td>100,852</td>
<td>70,852</td>
</tr>
<tr>
<td>Overall Total</td>
<td>2,044,493</td>
<td>1,775,937</td>
<td>1,396,545</td>
<td>1,096,545</td>
</tr>
</tbody>
</table>

ACCESSIBILITY SUMMARY CHART

- Not Accessible: 166,462, 8%
- Accessible: 49,500, 2%
- Partially Accessible: 1,828,531, 90%

FINDING

The table shows that 92% of the building area in the study is not fully accessible. While a number of buildings were designed to be accessible they do not meet current standards. Most of these buildings, 82%, have some level of (partial) accessibility, but only 8% of the building area (1 building on campus is fully accessible to current standards). The availability of accessible toilet rooms and drinking fountains was evaluated under the Architectural - Entrances, Circulation, and Accessibility category of the Building Conditions Rating Matrix.
Building rating scores have also been used to organize the buildings into five recommendation categories. These categories are directed toward the future use, maintenance strategy and disposition of each building. Consideration was given to historical value and practical limitations that have an impact on the contribution the building may have toward meeting the campus needs.

**BUILDING TABLE SORTED BY RATING**

<table>
<thead>
<tr>
<th>BLDGNAME</th>
<th>GSF</th>
<th>Building Total (Averaged)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H. ALFOND MGMT CTR</td>
<td>49,500</td>
<td>0.3</td>
</tr>
<tr>
<td>MAHAR AUDITORIUM</td>
<td>7,640</td>
<td>1.9</td>
</tr>
<tr>
<td>TOBIN HALL</td>
<td>112,076</td>
<td>2.3</td>
</tr>
<tr>
<td>HERTER HALL</td>
<td>113,000</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>“Keep-Up” Sub-Total</strong></td>
<td><strong>282,216</strong></td>
<td></td>
</tr>
<tr>
<td>SCHOOL OF MANAGEMENT</td>
<td>75,019</td>
<td>3.0</td>
</tr>
<tr>
<td>DUBOIS LIBRARY</td>
<td>406,480</td>
<td>3.2</td>
</tr>
<tr>
<td>GOODELL BUILDING</td>
<td>34,323</td>
<td>3.3</td>
</tr>
<tr>
<td>FINE ARTS CENTER</td>
<td>220,094</td>
<td>3.3</td>
</tr>
<tr>
<td>GOODELL BLDG ADDITN</td>
<td>95,442</td>
<td>3.4</td>
</tr>
<tr>
<td>THOMPSON HALL</td>
<td>87,908</td>
<td>3.5</td>
</tr>
<tr>
<td>ARNOLD HOUSE</td>
<td>43,292</td>
<td>3.5</td>
</tr>
<tr>
<td>DICKINSON HALL</td>
<td>29,699</td>
<td>3.6</td>
</tr>
<tr>
<td>TOTMAN PHYS ED BLDG</td>
<td>110,505</td>
<td>3.7</td>
</tr>
<tr>
<td>FURCOLO HALL</td>
<td>101,329</td>
<td>3.9</td>
</tr>
<tr>
<td>NEW AFRICA HOUSE (MILLS)</td>
<td>36,323</td>
<td>4.1</td>
</tr>
<tr>
<td><strong>“Catch-Up” Sub-Total</strong></td>
<td><strong>1,240,414</strong></td>
<td></td>
</tr>
<tr>
<td>STOCKBRIDGE HALL</td>
<td>70,929</td>
<td>3.5</td>
</tr>
<tr>
<td>MACHMER HALL</td>
<td>72,556</td>
<td>3.8</td>
</tr>
<tr>
<td>WILDER HALL</td>
<td>10,534</td>
<td>3.9</td>
</tr>
<tr>
<td>BARTLETT HALL</td>
<td>113,748</td>
<td>4.2</td>
</tr>
<tr>
<td><strong>“Re-Do” Sub-Total</strong></td>
<td><strong>267,767</strong></td>
<td></td>
</tr>
<tr>
<td>DRAPER HALL</td>
<td>31,731</td>
<td>4.1</td>
</tr>
<tr>
<td>SOUTH COLLEGE</td>
<td>31,093</td>
<td>4.2</td>
</tr>
<tr>
<td>CLARK HALL</td>
<td>20,203</td>
<td>4.2</td>
</tr>
<tr>
<td>CHAPEL</td>
<td>14,200</td>
<td>4.4</td>
</tr>
<tr>
<td>FLINT LABORATORY</td>
<td>29,851</td>
<td>4.5</td>
</tr>
<tr>
<td><strong>“Preserve” Sub-Total</strong></td>
<td><strong>127,078</strong></td>
<td></td>
</tr>
<tr>
<td>HILLS HOUSE</td>
<td>87,634</td>
<td>4.1</td>
</tr>
<tr>
<td>MIDDLESEX HOUSE</td>
<td>21,637</td>
<td>4.5</td>
</tr>
<tr>
<td>HAMPSHIRE HOUSE</td>
<td>17,747</td>
<td>4.5</td>
</tr>
<tr>
<td><strong>“Demolish” Sub-Total</strong></td>
<td><strong>127,018</strong></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>2,044,493</strong></td>
<td><strong>5.04</strong></td>
</tr>
</tbody>
</table>

The full Building Rating Matrix can be found on page II-1-13.

**FINDING**

Significant investment should be made in 62% of built area while the renovations can be accomplished incrementally and (as importantly) to avoid deferring renovations until they reach a point where the building would have to be taken off-line for upgrading.
CONCLUSIONS

The study shows that Hills House, Middlesex House, and Hampshire House are in very poor condition and should be emptied and demolished as circumstances permit. Due to the condition, configuration and the quality of these buildings, investment in improvements should be limited to the minimum necessary to fulfill short term needs.

Flint Laboratory, Draper Hall, South College, Clark Hall, and the Chapel are Legacy Buildings in generally poor condition. Their age and condition place them in a different category than other larger, equally problematic buildings and even other Legacy buildings. Special consideration will be necessary due to their historic significance to the campus. Restoration costs would be high to address preservation issues on one hand while demolition could not be done without extensive review and documentation of the conditions on the other. They also tend to be under utilized but are potential resources if funding can be secured to put them to use as special departmental, administrative or function facilities. These buildings could continue to make a significant contribution to the campus environment if properly restored.

Bartlett Hall, Wilder Hall, Machmer Hall and Stockbridge Hall need significant renovation but currently function at a higher level of utilization. While Wilder and Stockbridge are Legacy buildings and should be rehabilitated and kept in the building inventory, Bartlett and Machmer need to be looked at from a somewhat different perspective. These are large, heavily utilized academic buildings with significant infrastructure deficiencies and physical constraints. Renovation may be a relative good value, however, the configuration of the buildings was shaped to meet an academic program which has become outmoded. The decision on whether to renovate or eliminate these buildings should be informed by the Comprehensive Plan and a demonstrated need for classrooms and office facilities that fit within these frameworks.

The School of Management, Dubois Library, Goodell and Goodell Addition, Fine Arts Center, Thompson Hall, Arnold House, Dickinson Hall, Totman Physical Education Building, Furcolo Hall and New Africa House are all highly utilized facilities that comprise the bulk of the academic space in the study. These buildings need significant upgrades to targeted components and systems to avoid eventual decline to where gut renovation would become necessary. In the case of Goodell, Dickinson, possibly parts of the Fine Arts Center and perhaps Furcolo Hall, a better and higher use might be considered. This would involve deeper and more comprehensive renovations than could be done while the building is operational. The objective in general for this category would, nonetheless be, to upgrade them in stages, making improvements without taking the building out of commission for significant periods of the academic year.

H. Alfond Management Center, Mahar Auditorium, Tobin Hall, and Herter Hall also are among the most highly utilized buildings on campus. They are in generally good condition and need to be maintained to avoid future limitation of use or heavy levels of renovation. Tobin Hall and Herter Hall could be thought of as a sub-set of this group, as there are more substantial needs in these buildings, particularly in HVAC equipment and systems and full accessibility compliance.
## General Building Data & Systems Rating Matrix

<table>
<thead>
<tr>
<th>Building Name</th>
<th>GSF</th>
<th>Year</th>
<th>Accessibility</th>
<th>Architectural Heating Ventilation &amp; Air Conditioning</th>
<th>Electrical</th>
<th>Plumbing &amp; Fire Protection</th>
<th>Building Systems Scores Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Architectural</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Building Condition Rating Matrix 11/24/2009</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sub-Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Keep-Up</strong> Sub-Total</td>
<td>282,216</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>School of Management</strong></td>
<td>75,019</td>
<td>1963</td>
<td>P</td>
<td>2.5</td>
<td>2.5</td>
<td>2</td>
<td>2.3</td>
</tr>
<tr>
<td><strong>Kodak Library</strong></td>
<td>406,410</td>
<td>1972</td>
<td>P</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>Goodell Buildings</strong></td>
<td>34,523</td>
<td>1934</td>
<td>P</td>
<td>1.5</td>
<td>3</td>
<td>1</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Fire Arts Center</strong></td>
<td>201,080</td>
<td>1973</td>
<td>P</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Kodak Building A</strong></td>
<td>94,742</td>
<td>1961</td>
<td>P</td>
<td>1.5</td>
<td>3</td>
<td>2</td>
<td>2.9</td>
</tr>
<tr>
<td><strong>Thompson Hall</strong></td>
<td>37,506</td>
<td>1968</td>
<td>P</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>3.0</td>
</tr>
<tr>
<td><strong>Arboretum House</strong></td>
<td>43,260</td>
<td>1954</td>
<td>P</td>
<td>2.5</td>
<td>3</td>
<td>1</td>
<td>2.8</td>
</tr>
<tr>
<td><strong>Dowd Hall</strong></td>
<td>29,599</td>
<td>1960</td>
<td>P</td>
<td>2.5</td>
<td>4</td>
<td>4</td>
<td>3.0</td>
</tr>
<tr>
<td><strong>Trotman Physical Building</strong></td>
<td>10,340</td>
<td>1960</td>
<td>P</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>3.5</td>
</tr>
<tr>
<td><strong>Forrest Hall</strong></td>
<td>101,329</td>
<td>1962</td>
<td>P</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>3.0</td>
</tr>
<tr>
<td><strong>New Africa House (Mills)</strong></td>
<td>36,323</td>
<td>1948</td>
<td>P</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>&quot;Catch-Up&quot; Sub-Total</strong></td>
<td>1,240,414</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Stockbridge Hall</strong></td>
<td>70,929</td>
<td>1912</td>
<td>P</td>
<td>2.5</td>
<td>3</td>
<td>2</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Mather Hall</strong></td>
<td>72,565</td>
<td>1967</td>
<td>P</td>
<td>2.5</td>
<td>3.5</td>
<td>3</td>
<td>3.7</td>
</tr>
<tr>
<td><strong>Wild Hill</strong></td>
<td>15,534</td>
<td>1906</td>
<td>P</td>
<td>2.5</td>
<td>3.5</td>
<td>3</td>
<td>3.0</td>
</tr>
<tr>
<td><strong>Bartlett Hall</strong></td>
<td>113,748</td>
<td>1960</td>
<td>P</td>
<td>5</td>
<td>3.5</td>
<td>4</td>
<td>4.2</td>
</tr>
<tr>
<td><strong>&quot;Re-Do&quot; Sub-Total</strong></td>
<td>267,767</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Draper Hall</strong></td>
<td>31,731</td>
<td>1903</td>
<td>N</td>
<td>3.5</td>
<td>5</td>
<td>3</td>
<td>3.8</td>
</tr>
<tr>
<td><strong>South College</strong></td>
<td>31,095</td>
<td>1885</td>
<td>N</td>
<td>3.5</td>
<td>5</td>
<td>3</td>
<td>4.5</td>
</tr>
<tr>
<td><strong>Clark Hall</strong></td>
<td>20,320</td>
<td>1907</td>
<td>N</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>4.2</td>
</tr>
<tr>
<td><strong>Chapel</strong></td>
<td>14,200</td>
<td>1884</td>
<td>N</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>4.2</td>
</tr>
<tr>
<td><strong>Lumb Laboratory</strong></td>
<td>28,880</td>
<td>1912</td>
<td>N</td>
<td>3.5</td>
<td>5</td>
<td>3</td>
<td>4.2</td>
</tr>
<tr>
<td><strong>&quot;Preserve&quot; Sub-Total</strong></td>
<td>127,078</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hills House</strong></td>
<td>97,634</td>
<td>1960</td>
<td>P</td>
<td>5</td>
<td>3.5</td>
<td>4</td>
<td>4.5</td>
</tr>
<tr>
<td><strong>McKinley House</strong></td>
<td>21,637</td>
<td>1948</td>
<td>N</td>
<td>4</td>
<td>4.5</td>
<td>4</td>
<td>4.5</td>
</tr>
<tr>
<td><strong>Hampshire House</strong></td>
<td>37,747</td>
<td>1948</td>
<td>N</td>
<td>4</td>
<td>4.5</td>
<td>4</td>
<td>4.5</td>
</tr>
<tr>
<td><strong>&quot;Demolish&quot; Sub-Total</strong></td>
<td>127,018</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2,044,493</td>
<td>GSF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
BUILDING RATING CRITERIA

GENERAL

Existing buildings have been surveyed to assess the general conditions of the major building systems, their suitability for accommodating their current use and the viability of their replacement relative to the building as a whole should extensive renovations be considered. Surveys have not been exhaustive in nature and while focus has been on life safety, accessibility and relevant codes as a standard for Architectural, Plumbing/Fire Protection, HVAC and Electrical Systems, the intent has not been to provide a code compliance report. This survey is intended to identify building deficiencies that impede use and have bearing on decisions of whether to, or how and when to, invest in future rehabilitation or renovation to best serve the long and short term needs of the University.

ARCHITECTURAL

Exterior Envelope
Taking into account condition, age and energy efficiency, the ratings of the primary materials and components that make up the exterior skin system of the building are defined as follows:

- 0 – Excellent: System components are in “like new” condition requiring no immediate maintenance or upkeep. Systems can be expected to perform to energy code standards.
- 1 – Very Good: System components are sound and in good condition with only routine maintenance needed to assure continued high performance and good appearance. Systems are weather-tight and can be anticipated to offer a reasonable degree of energy efficiency.
- 2 – Good: System components are fundamentally sound but in need of maintenance or refurbishment to continue to perform as intended and extend their useful life. Systems are weather tight or can be made so with routine maintenance. Replacement of key elements should be undertaken to improve energy efficiency.
- 3 – Fair: System components are fundamentally sound but have aged or deteriorated to a point were extensive rehabilitation is needed. Limited component replacement would be necessary to restore and extend the serviceable life of the overall system. Systems are basically not energy efficient but improvements could be made in an envelope restoration and upgrade program.
- 4 – Poor: System components have aged and are in need of significant refurbishment or replacement. Water and air infiltration are suspected or in evidence and the nature of the systems and failures make achieving a reasonable degree of energy efficiency unlikely.
- 5 - Very Poor: System components are not of enduring quality or have deteriorated to the point that restoration may no longer be practical. More than one component of the envelope system is failing or a component that can not readily be repaired or replaced is failing.

Entrance, Circulation and Accessibility
Looking at the building’s approach, primary and secondary entrances, toilets and the horizontal and vertical circulation systems, the ratings of these systems are defined as follows:

- 0 – Excellent: The building’s primary entrance is handicapped accessible. Toilets facilities conform to accessibility standards. Accessible toilet facilities are available on all levels. Doors are of sufficient width and are configured to allow necessary clearances and have appropriate hardware. Corridors are of adequate width and are without obstructions. Elevators provide access to all levels with stair and handrails configured to meet life safety and accessibility codes.
- 1 – Very Good: The building was designed around accessibility considerations but does not fully comply with current code standards. Compliance could be reached with modification that would not require extensive renovations. Other aspects of the circulation and egress are generally good and could be improved over time with minimally intrusive renovations and
limited scope upgrades.

2 - Good: The building’s primary entrance is handicapped accessible or could be made so with only minor alteration. Toilet facilities are in general dimensional conformance with only minor adaptations needed to hardware, fixtures or fittings to reach acceptable standards of accessibility. Doors and corridors meet dimensional criteria but may require upgrading to remove obstructions or replace hardware. Elevators provide access to all levels. Stair and handrail systems can be made compliant with minor revision.

3 – Fair: The building’s primary entrance is not accessible but a secondary, accessible entrance is available adjacent to parking, normal pedestrian circulation routes and an elevator serving all levels. A handicap accessible toilet facility is or could be provided on all levels by renovations within the boundary of the current toilet facilities. Stair and handrail systems can be made compliant with moderate upgrades or revisions.

4 - Poor: The building has at-grade entrance(s) with limited accessibility provisions on the primary floor. A program of limited conformance has been implemented based on CMR 34 provisions for limited renovations of existing building allowed in the MAAB. As such, the building lacks an elevator and access to other levels.

5 – Very Poor: The building is deficient in most aspects of accessibility with noted dimensional limitation on general circulation and egress. Structural constraints of the building limit the ability to address problems in cost effective moderate scope renovations. Use is restricted and can only continue as long as no change in occupancy or significant renovations occurs. Renovation or rehabilitation would be extensive and would be shaped by CMR 34 provisions to maintain or improve public safety and welfare without achieving full code compliance for new construction. A strategy for making the building accessible will be needed which may require variances to be sought. A program of compliance alternatives would have to be devised and accepted by local authorities.

Common Areas and Interior Finishes

Looking at the building’s public areas, corridors and toilet facilities for appearance and the condition of finishes, the ratings of these systems are defined as follows:

0 – Excellent: Common areas are bright, inviting, conducive to their intended use and give a sense of identity to the programs. Materials and finishes are durable, well maintained and in good condition. The areas are well furnished and comfortable. Toilet facilities are modern and well maintained.

1 – Very Good: Common areas are fundamentally well proportioned, inviting and appropriately furnished. The spaces support the program’s identity within the building. Finishes and lighting are worn or dated and are in need of routine restoration or replacement. Toilet facilities are modern and in need of only minor cosmetic upgrades.

2 – Good: Common areas lack appeal and distinction for the occupants but could be significantly improved with a reasonable level of upgrading of finishes, furnishings and lighting. Toilet facilities are dated and in need of refurbishment.

3 – Fair: As the programs in the building has evolved, common areas have become not well suited to current uses and do not support the program with a image ore sense of identity. Changes should be considered in how the areas are configured and used. Finishes are worn or inappropriate and should be replaced. Toilet facilities are dated and in need of refurbishment.

4 - Poor: The building lacks common spaces that lend identity to programs and support an environment of academic community. Only by significant renovation of the building could aesthetic and service standards be improved.

5 – Very Poor: The building lacks common spaces that lend identity to programs and support an environment of academic community. Structural constraints of the building or overall building condition make meaningful improvement unlikely.
Main Electrical Service
0 – Excellent: The Electrical Service Equipment has the capacity to accommodate the existing mechanical loads and any other anticipated requirements. It is expected to provide satisfactory performance for over 30 years with minimal need for repairs. Electrical equipment is modern in the aspect that replacement circuit breakers and parts are available. The installation and equipment is in compliance with all applicable codes and recent University Design Guidelines.

1 – Good: The Electrical Service Equipment has been replaced within the last 20 years and it has the capacity to accommodate the existing mechanical loads and any other anticipated requirements. It is modern in the aspect that replacement circuit breakers and parts are available and that it complies with the electrical code that was in effect at the time of construction. The equipment is expected to provide safe and satisfactory performance for the foreseeable future with minimal need for repairs.

2 – Fair: The Electrical Service Equipment has the capacity to accommodate the existing mechanical loads and any other anticipated requirements. It is modern in the aspect that replacement circuit breakers and parts are available and that it complies with the electrical code. During testing problems may be expected to appear with increasing frequency.

3 – Poor: The Electrical Service Equipment is considered to be near the end of useful life. More frequent repairs are expected to be necessary. Replacement within the next ten years should be budgeted. It has the capacity to accommodate the existing mechanical loads and other anticipated requirements.

4 – Very Poor: The Electrical Service Equipment may need to be upgraded to provide additional capacity, replace obsolete equipment, or comply with applicable codes. Refer to report.

5 – Replacement will be required to accommodate any major renovation.

Building Wiring
0 – Excellent: Electrical Panelboards are practically new. There is adequate spare capacity, and wiring complies with the most recent electrical code. Electrical Panelboards are primarily located in Electrical Rooms. Almost all wiring in public space is concealed. Workmanship is of high quality. The installation and equipment is in compliance with recent University Design Guidelines.

1 – Good: Existing electrical equipment is serviceable in the aspect that replacement circuit breakers and parts are available. Wiring complies with the electrical code. There appears to be adequate spare capacity.

2 – Fair: Existing electrical equipment is serviceable in the aspect that replacement circuit breakers and parts are available and that it complies with the electrical code. Different types of panelboards may have been added as required over the years, and equipment is of varying ages. Surface raceway may have been used to update wiring. Wiring is showing age.

3 – Poor: Wiring may be old but still suitable for present functions.

4 – Very Poor: Major work is needed to bring the building into compliance with the applicable building codes. Extensive use of surface raceway may be causing a shabby appearance.

5 – Systems non-existent or must be replaced. Refer to report.

Fire Alarm System
0 – Excellent: There are very few, if any, violations of the Massachusetts State Building Code (MSBC), Chapter 34 - Existing Structures (i.e. 780 CMR 34) with respect to life safety requirements. The Fire Alarm System is a modern addressable system in compliance with all modern applicable life safety and accessibility codes.

1 – Good: The Fire Alarm System is a modern addressable system in compliance with most modern applicable life safety and accessibility codes.

2 – Fair: The Fire Alarm System is suitable for the building. Some upgrades may be necessary to be
in compliance with modern applicable life safety and accessibility codes.

3 – Poor: The Fire Alarm System may need significant modifications to comply with applicable codes or to meet building requirements.

4 – Very Poor: The Fire Alarm System is in poor condition or does not meet code requirements.

5 – Systems non-existent or must be replaced. Refer to report.

Lighting

0 – Excellent: Lighting is accomplished primarily by the use of modern light fixtures with acceptable photometrics using energy efficient lamps and ballasts. There are automatic lighting controls, such as occupancy sensors, daylight sensors or lighting relay panels, to promote energy efficiency.

1 – Good: Lighting is accomplished primarily by the use of modern light fixtures with acceptable photometrics using energy efficient lamps and ballasts. Fixtures are in good shape.

2 – Fair: Lighting is accomplished primarily by the use of modern light fixtures using energy efficient lamps and ballasts. Fixtures may be showing age.

3 – Poor: Some lighting is accomplished by the use of modern light fixtures using energy efficient lamps and ballasts. Lighting coverage is poor in areas. Fixtures may be showing age.

4 – Very Poor: Lighting coverage is poor in many areas. Fixtures may be showing age.

5 – Almost all lighting must be replaced to suitable for intended use. Refer to report.

Emergency Power and Lighting

0 – Excellent: There are very few, if any, violations of the Massachusetts State Building Code (MSBC), Chapter 34 - Existing Structures (i.e. 780 CMR 34) with respect to life safety requirements. The emergency lighting and power systems have been recently installed or upgraded and appear to be in top condition. They are not expected to need more than routine service and repairs.

1 – Good: The emergency lighting and power systems appear to be in good condition, comply with applicable codes, and are not expected to need more than routine service and repairs.

2 – Fair: The emergency lighting and power systems appear to be well maintained and comply with applicable codes, but are showing age.

3 – Poor: The emergency lighting and power systems may comply with applicable codes but should be budgeted for replacement with the next five years.

4 – Very Poor: The emergency lighting and power systems are inadequate and may be unreliable. They may need to be partially or entirely replaced.

5 – Systems non-existent or must be replaced. Refer to report.

Low Voltage Systems

0 – Excellent: The Data and Telecommunications systems comply with the latest University Design Guidelines. There are high quality modern Audio-Visual Systems in the classrooms and lecture halls, where applicable. There is a modern Simplex Clock System.

1 – Good: The Data and Telecommunications systems comply with basic University Standards. There are Audio-Visual Systems in the classrooms and lecture halls, where applicable. There is a modern Clock System.

2 – Fair: Each classroom has Data and Telecommunications outlets. There may be Audio-Visual Systems in the classrooms and lecture halls, but equipment may be dated. There is a Clock System.

3 – Poor: Systems are deficient. Refer to the report.

4 – Very Poor: Systems are deficient. Refer to the report.

5 – Systems non-existent or must be replaced. Refer to report.
The HVAC systems for the surveyed buildings were rated based on five criteria:

- Age
- Condition
- Capacity
- Energy Efficiency
- Maintainability

The following summarizes the rating scale for each of the criteria categories:

**Age**
The average life expectancy for HVAC equipment is in the range of 15 to 20 years. Most central equipment has a life of 20 years, while some terminal equipment has a shorter life expectancy of 15 years. There are many buildings where the HVAC equipment has provided useful service well beyond the normal life expectancy, but it is generally agreed that plans should be made for replacing the equipment when it reaches an age of 20 years. Therefore, the rating system for age criteria is:

0 – 0 through 3 years old
1 – 4 through 7 years old
2 – 8 through 11 years old
3 – 12 through 15 years old
4 – 16 through 19 years old
5 – 20 years old, or older

**Condition**
The condition of the entire system was considered in the condition assessment. This includes the condition of the central equipment, the distribution piping and/or duct work, and the terminal equipment.

0 – Excellent: The entire system is in “like new” condition, and no immediate maintenance is required.
1 – Very Good: The entire system is in good serviceable condition with only preventative maintenance required to provide high performance.
2 – Good: The system is providing adequate conditioning, but is in need of some maintenance or replacement to continue to provide good performance. Replacement parts are readily available.
3 – Fair: The system is providing reasonable conditioning, but is in such a condition where significant maintenance and or replacement are required for the system to provide the proper conditioning. Replacement parts may not be available for all equipment, but replacement equipment of similar style and capacity are available.
4 – Poor: System is operating but not providing adequate conditioning, and is in need of significant replacement in order to provide proper service. Replacement parts or even replacement equipment of similar style and capacity may not be available.
5 – Failing: The system is not providing one or more of the heating, ventilating or air conditioning duties which it was intended to provide.

**Capacity:**
Capacity assessment addresses the functions of heating, ventilating and air conditioning. In order for any system to be considered adequate, and therefore to receive a score of “Good” or better, the system must have the ability to provide all three functions.

0 – Excellent: The system has adequate capacity to provide heating and cooling to achieve desired comfort conditions in the building under peak load conditions, and must have the capacity to ventilate the building at peak occupancy conditions in accordance with the latest ASHRAE ventilation standard.
1 – Very Good: The system must have adequate capacity to provide heating and cooling to achieve desired comfort conditions under most load conditions, but may fall short under peak load conditions for cooling, but must have the capacity to ventilate the building at peak occupancy conditions in accordance with the latest ASHRAE ventilation standard.

2 – Good: The system must have adequate capacity to provide heating and cooling to achieve desired comfort conditions under most load conditions, but may fall short under peak load conditions for cooling. Although there is capacity to provide ventilation air to the occupied spaces, it does not have the capacity to ventilate the building at peak occupancy conditions in accordance with the latest ASHRAE ventilation standard.

3 – Fair: The system has heating, ventilating and cooling capabilities with heating capacity sufficient to achieve design conditions under near peak load conditions, but cooling or ventilating capacities may fall short under peak conditions.

4 – Poor: The system has adequate heating capabilities, but is lacking either cooling or ventilating capabilities, or both.

5 – Totally Inadequate: The system is not providing cooling or ventilating, and the heating capacity is inadequate on a heating design day.

Energy Efficiency
Current energy codes for classroom facilities would require occupancy sensors in classrooms and heat recovery for the ventilation systems. For highest efficiency, systems should also be arranged so capacity can be curtailed when spaces are unoccupied, hydronic distribution pumps and air distribution fans should be controlled from variable frequency drives (VFD’s), and distribution systems should be insulated in accordance with energy codes.

0 – Excellent: System has heat recovery, occupancy sensors, VFD’s controlling pumps and fans, provisions for curtailing capacity in unoccupied spaces, and appropriate levels of insulation on equipment and distribution.

1 – Very Good: Systems have heat recovery or occupancy sensors, but not both. Systems also have VFD’s controlling fans and pumps, provisions for curtailing capacity in unoccupied spaces, and appropriate levels of insulation on equipment and distribution.

2 – Good: Systems do not have heat recovery or occupancy sensors. Systems do have VFD’s controlling fans and pumps, provisions for curtailing capacity in unoccupied spaces, and appropriate levels of insulation on equipment and distribution.

3 – Fair: Systems do not have heat recovery or occupancy sensors. Systems also do not have VFD’s controlling fans and pumps. Systems do have provisions for curtailing capacity in unoccupied spaces, and appropriate levels of insulation on equipment and distribution.

4 – Poor: Systems do not have heat recovery, occupancy sensors or VFD’s controlling pumps or fans. Insulation is damaged or lacking from equipment and distribution. Systems do have provisions for curtailing capacity when spaces are unoccupied.

5 – Nonexistent: Systems do not have any of the provisions summarized above for improving overall energy efficiency.

Maintainability:
Systems should be arranged so that all equipment can be properly maintained. There should be adequate clearances around all equipment, and access doors should be provided in the as required at the proper locations. There should be adequate space for coil removal from central air handling systems. Code clearances around electrical devices should be provided. There should be some form of redundancy for critical systems so that equipment can be de-energized for repair without completely interrupting service. Systems should also be arranged to minimize maintenance requirements. Unit ventilators, for example, require a great deal more maintenance than centralized systems because of the fans, filters, outdoor air dampers and return air dampers in each unit.

0 – Excellent: Systems are centralized, requiring minimal terminal unit maintenance. There is redundant equipment for critical equipment items. Adequate service space and access has
been provided for all equipment. Replacement parts are readily available.

1 – Very Good: Systems are decentralized, for instance unit ventilator systems, but there is adequate space and access for maintenance, and there is redundant equipment for critical equipment items. Replacement parts are readily available.

2 – Good: Systems are decentralized, and there is redundant equipment for critical equipment items, but space is tight for maintenance. Replacement parts are readily available.

3 – Fair: Systems can be maintained, although space is tight. Redundant equipment for critical equipment items does not exist. Replacement parts for critical equipment are available.

4 – Poor: System is extremely difficult to maintain. Replacement parts for critical equipment are available.

5 – Not Maintainable: Access to maintain critical equipment is almost impossible. Replacement parts for critical equipment are not available.

PLUMBING

0 – Excellent: The systems have been installed or renovated within the last 10 years and comply applicable codes.

1 – Good: The systems have been installed or renovated within the last 20 years and comply applicable codes.

2 – Fair: The systems have been installed or renovated within the last 30 years and comply applicable codes.

3 – Poor: The systems have been installed or renovated within the last 40 years and comply applicable codes.

4 – Very Poor: The systems have been installed or renovated within the last 50 years. Refer to report.

5 – The plumbing does not comply with code or is at the end of useful life. Total replacement is recommended.

FIRE PROTECTION

0 – Excellent: The system has been installed or renovated within the last 10 years and complies with applicable codes.

1 – Good: The system has been installed or renovated within the last 20 years and complies with applicable codes.

2 – Fair: The system has been installed or renovated within the last 30 years and complies with applicable codes.

3 – Poor: The system has been installed or renovated within the last 40 years and complies with applicable codes.

4 – Very Poor: The system has been installed or renovated within the last 50 years. Refer to report.

5 – The system does not comply with code or is at the end of useful life. Total replacement is recommended.
002 - ARNOLD HOUSE

BUILDING STATISTICS

Year Constructed: 1954
Approx. Gross Area: 43,300 SF
Stories: 4 + Usable Basement
Address: 715 North Pleasant Street
Use Group: B - Business
UMass Utilization: Offices & Classrooms
Historic Significance: Significant

Rating Summary

<table>
<thead>
<tr>
<th>Component</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural</td>
<td>2.8</td>
</tr>
<tr>
<td>Plumbing &amp; FP</td>
<td>5.0</td>
</tr>
<tr>
<td>HVAC</td>
<td>4.2</td>
</tr>
<tr>
<td>Electrical &amp; Alarm</td>
<td>2.0</td>
</tr>
<tr>
<td>Overall Rating</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>Fair</td>
</tr>
</tbody>
</table>

Description

A handsome, well maintained brick masonry building, designed in the Federal Style, Arnold House is an important architectural element along the North Pleasant Street access through the campus. The building was converted from its original dorm use to department offices, public health, and classrooms. It has been determined that the building is not well suited for science and Engineering labs. Nursing has moved to new space and significant portions (8,700 sf) of Arnold house could be reprogrammed.

The building currently serves and could have an expanded function as valuable swing space for short term relocation of departmental offices to facilitate renovations or strategic program movement on campus.

Assessment Summary

Asset building - somewhat under-utilized - space configuration serves current program well - facility’s condition enlivens use - limited accessibility, needs improvement

Recommendation

Current use is well suited to the building- coordinate aggressive maintenance around system upgrades - implement staged upgrades to key building component without taking the building off line - renovation/ improvement investment is a good value

Occupancy

<table>
<thead>
<tr>
<th>Asset Category</th>
<th>NSF</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPITAL ASSET BOARD</td>
<td>1,603</td>
<td>4%</td>
</tr>
<tr>
<td>COLLEGE OF HUMANITIES &amp; FINE ARTS</td>
<td>864</td>
<td>2%</td>
</tr>
<tr>
<td>COMMUNICATION DISORDERS</td>
<td>1,926</td>
<td>5%</td>
</tr>
<tr>
<td>COMPUTING/NETWORKING</td>
<td>140</td>
<td>0%</td>
</tr>
<tr>
<td>GENERAL BUILDING AREAS</td>
<td>9,647</td>
<td>26%</td>
</tr>
<tr>
<td>GROUNDS/CUSTODIAL</td>
<td>226</td>
<td>1%</td>
</tr>
<tr>
<td>NURSING (Currently Available)</td>
<td>8,678</td>
<td>23%</td>
</tr>
<tr>
<td>PUBLIC HEALTH</td>
<td>8,344</td>
<td>23%</td>
</tr>
<tr>
<td>SCHOOL OF PUBLIC HEALTH &amp; HEALTH SCIENCES</td>
<td>3,515</td>
<td>9%</td>
</tr>
<tr>
<td>UMASS CLASSROOMS (Total Seat Count = 123)</td>
<td>2,134</td>
<td>6%</td>
</tr>
<tr>
<td>ARNOLD HOUSE Total</td>
<td>37,077</td>
<td></td>
</tr>
</tbody>
</table>

(Currently Available)
ARCHITECTURAL NARRATIVE

Overview Building Description:
Designed and constructed as a dorm building, Arnold house has a narrow floor plate and cellular layout with two large blocks of space projecting off of the north and south ends of the first floor for what were dining or common space for the dorms. The first floor is raised and the basement receives natural light through shallow windows on the west side and full windows on the east side where the lowest level is fully exposed and has an at grade entrance adjacent to parking. The west, North Pleasant Street entrance is the formal, main entrance. This entrance is raised from the street level and is reachable only by stairs.

The building has been converted to department offices with the large spaces at the ends providing two, moderately scaled classrooms which are lower than the first floor level and thus, inaccessible. The building is well maintained and has recently been renovated to add an elevator, an accessible entrance (to the basement), and an accessible toilet (also at the basement level), in addition to general finish upgrades.

Exterior Building Envelope

The envelope system is composed of sound, enduring materials. The red brick and white mortar walls appear to be in very good condition with isolated concerns where damaged rain leaders and gutters may be exposing walls to high levels of moisture. Window lintels show no extensive deterioration of the internal steel lintels and the walls are generally clean with the exception of notable chalking where window paint has bled and washed across the masonry below.

The windows are wood, single glazed, double hung units in fair condition. The windows have been somewhat compromised by make-shift screens and the extensive placement of window air conditioners, most of which have been installed without damage to the sash. Window replacement should be considered for energy efficiency as part of any moderate scale renovation, contingent upon air conditioning and ventilation upgrades which would preclude the need for window units.

The roof is a sloped, wood framed and slate clad. It appears to be in good condition. Copper gutters and downspouts also appear to be in good condition. These elements of the roof should be diligently maintained and seriously attended to in any moderate scale renovation of the building.

In addition to painted wood windows entrances and some metal railings, the building has a prominent cupola over its central gable. Viewed from ground level only, failing paint and suspect clapboards could be observed, indicating that immediate attention to the maintenance of the cupola is advisable to avoid more extensive repairs or restoration in the future.

Entrances, Circulation and Accessibility

The building has no dedicated service or loading entrance.

As stated above, an accessible entrance has been created off of the back, east side entrance to the basement. The double door has been replaced with a single leaf and fixed side light panel to provide compliant widths. The door is also equipped with an automatic opener.

There are numerous other points of entry or egress. The classrooms at each end require that stairs be negotiated to get to grade. Likewise, the main entrance approximately 4’ – 6” above grade and the door leaves are not of sufficient width to be code compliant. Other at-grade entrances at the north and south ends of the east façade enter into a mid level landing where stairs must be used to get to program spaces.

Requirements for an accessible entry were met for the scale of the recent renovation. Should a more extensive renovation be undertaken in the future, the main entrance should be made accessible via
landscaping and ramps.

Corridors are of adequate width. Stairs are steeper than current code would allow but could remain. Hand rails and guardrails should be altered especially to bring guardrails up to code compliant heights. Spacing between the spindles does comply.

A serious code deficiency exists on the second floor level where the corridor extends past the stair into the building extension over the first floor classroom creating a dead-end corridor nearly 40 feet in length.

The building has a code compliant elevator.

Most doors have the original knob set hardware which is not compliant with current code.

Toilets are not compliant other than where recently renovated on the first floor. All toilet facilities are old and substandard many still having inoperable showers from their dormitory use. These facilities should be fully renovated as part of any moderate renovation and reuse planning for the building.

Common Area Interior Finishes .............................................................................................................. 3

Finishes vary somewhat in the building. Corridor walls are painted block throughout. The basement and first floor flooring has been upgraded to vinyl composite tile, the 2nd floor is carpet and the 3rd and 4th floors are an older material which appears to be vinyl asbestos tile. Ceilings are a hung or adhered, concealed spline acoustic tile system some of which have been painted.

**ELECTRICAL NARRATIVE**

**Overview Building Description:**
The main electrical service has been recently upgraded and is more than adequate for the present load. The building does not have central air conditioning. Window air conditioning units are currently used where air conditioning is desired. The electrical capacity, at approximately 6.65 watts per square foot, is marginal for powering whole building central air conditioning. The Fire Alarm System and Emergency Lighting System both have been recently upgraded to comply with life safety codes.

**Main Electrical Service.......................................................................................................................... 1**

- The Main Switchboard (MSB) is rated 800 amp, 208/120 volt, 3 phase, 4 wire.
- The MSB is modern Siemens equipment with molded case circuit breakers, having been replaced in 2004 during the most recent renovation to add the hydraulic elevator. It is in excellent condition.
- The source of power for the MSB is a new 300KVA dry-type transformer located in an adjacent ventilated, fire-rated room. It is fed from a campus 13.8KV primary feeder. The transformer and feeder were both upgraded during the same renovation and appear to be in excellent condition.
- The electrical usage is metered and recorded by a permanently networked Square D Power Logic digital meter.
- According to the meter, the peak demand is 71 KVA.

**Building Wiring ........................................................................................................................................ 5**

- On each floor, modern circuit breaker panelboards have been added to supplement original branch circuit capacity. Many of the walls date from the original construction and original building wire is still in use.
- Some branch circuits are still fed by the original Trumbull Edison-base fused panelboards.
Surface metal raceway has been used extensively to add wiring where needed.

- It is recommended to replace wiring and panels for any significant renovation.

Fire Alarm
- A new addressable EST Fire Alarm System was installed during the last major renovation and appears to have brought the building into compliance with applicable life safety codes. Smoke detection has been provided throughout the corridors and a new graphical annunciator was provided at the main entrance, exceeding code requirements.

Lighting
- The lighting appears to have been upgraded to modern T8 technology.
- Some fixture lenses have been damaged.

Emergency Power and Lighting
- The emergency lighting system consists of a central battery/inverter system added during the last major renovation that powers exit signs and dedicated emergency fixtures. This system should provide a low maintenance solution for many years. It appears to be in excellent condition.

Low Voltage Systems
- Campus wireless network is present.
- Not all classrooms have basic audio-visual instructional equipment.

Overall Rating

---

HVAC NARRATIVE

Overview Building Description:
- Steam convection; PRV appears to be newer vintage, but the condensate return pumps appear to be older. There is steam metering, and the insulation around the PRV appears to be new. Valve insulation is removable. There is an old meter and some old abandoned piping in the steam room. There are also some very old steam zone valves in the steam supply to some convectors that do not appear to be functional.
- Building is heated via steam convection. Convectors are in very good condition
- There is no ventilation or cooling, although the rooms could be cooled by window AC units.

Prerequisites:
- Ventilation: No
- Cooling: No

Age

Notes: Although system is in good condition, the age is well beyond the normal life expectancy.

Condition

Notes: In general the system is in good condition
Notes: From observations the day of the inspection when outdoor temperatures were very low and the building temperature was in an acceptable range, the heating capacity appears to be adequate.

Notes: The system is very basic, no ventilation or cooling. Self contained thermostatic valves have been provided on the convectors to prevent under and over heating.

Notes: The system components can be easily maintained, although they are very basic in nature.

Since the building does not have any ventilation or cooling, it does not meet the prerequisite requirements, and therefore does not get any score.

PLUMBING & FIRE PROTECTION NARRATIVE

Most of the plumbing was installed in 1954 and is therefore 55 years old. Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation. Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

There is no sprinkler system.
**107 - BARTLETT HALL**

### BUILDING STATISTICS

- **Year Constructed:** 1960
- **Approx. Gross Area:** 113,700 SF
- **Stories:** 4
- **Address:** 130 Hicks Way
- **Use Group:** A-3 - Assembly
- **UMass Utilization:** Academic & Research
- **Historic Significance:** Not Significant

### Rating Summary

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural</td>
<td>4.2</td>
</tr>
<tr>
<td>Plumbing &amp; FP</td>
<td>4.5</td>
</tr>
<tr>
<td>HVAC</td>
<td>4.2</td>
</tr>
<tr>
<td>Electrical &amp; Alarm</td>
<td>3.8</td>
</tr>
<tr>
<td>Overall Rating</td>
<td>4.2</td>
</tr>
<tr>
<td>Description</td>
<td>Poor</td>
</tr>
</tbody>
</table>

### Assessment Summary

Boarder-line asset/ liability building - highly utilized
- space configuration constrains current programs
- deficiencies in facility’s systems limits use - limited accessibility, needs improvement

### Recommendation

Building should be renovated for mixed classroom/department space (demolition and replacement may be advisable) - take building off line for comprehensive renovation/restoration/replacement - cost/value to the long term academic plan is questionable

### Description

Bartlett Hall is a major academic building in the center of campus. It is used primarily as it was originally designed with the North wing predominately office space and the South wing classrooms with some special facilities designed for psychology experimentation and research including a small addition to the south for animal care. The module of the building reflects this use. An theater on the west side of the building has been converted to an auditorium. While the interior of the building is in fair condition, both the wood curtain wall and masonry facades have failed. Provisional measures have been put in place to keep the building serviceable for the time being. Bartlett is also a central link, connected to Herter Hall via a tunnel and Tobin Hall via a bridge.

The decision to reuse or replace Bartlett Hall will hinge on the feasibility of replacing the facades, related upgrade costs, and the need for the scale of rooms that the layout of the building will provide.

### Occupancy

<table>
<thead>
<tr>
<th>Department</th>
<th>NSF</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART HISTORY</td>
<td>5,033</td>
<td>5%</td>
</tr>
<tr>
<td>CAPITAL ASSET BOARD</td>
<td>1,417</td>
<td>1%</td>
</tr>
<tr>
<td>COLLEGE OF HUMANITIES &amp; FINE ARTS</td>
<td>1,447</td>
<td>1%</td>
</tr>
<tr>
<td>COMPUTING/NETWORKING</td>
<td>206</td>
<td>0%</td>
</tr>
<tr>
<td>CONTINUING EDUCATION</td>
<td>13</td>
<td>0%</td>
</tr>
<tr>
<td>ENGLISH</td>
<td>11,810</td>
<td>12%</td>
</tr>
<tr>
<td>ENROLLMENT SERVICES CENTRAL</td>
<td>611</td>
<td>1%</td>
</tr>
<tr>
<td>GENERAL BUILDING AREAS</td>
<td>32,682</td>
<td>32%</td>
</tr>
<tr>
<td>GROUNDS/CUSTODIAL</td>
<td>134</td>
<td>0%</td>
</tr>
<tr>
<td>JOURNALISM</td>
<td>2,746</td>
<td>3%</td>
</tr>
<tr>
<td>LANGUAGE, LITERATURE &amp; CULTURE</td>
<td>973</td>
<td>1%</td>
</tr>
<tr>
<td>LINGUISTICS</td>
<td>321</td>
<td>0%</td>
</tr>
<tr>
<td>MUSIC &amp; DANCE</td>
<td>3,895</td>
<td>4%</td>
</tr>
<tr>
<td>PHILOSOPHY</td>
<td>7,867</td>
<td>8%</td>
</tr>
<tr>
<td>PSYCHOLOGY</td>
<td>2,347</td>
<td>2%</td>
</tr>
<tr>
<td>THEATER</td>
<td>19,749</td>
<td>20%</td>
</tr>
<tr>
<td>UMASS CLASSROOMS (Total Seat Count = 1252)</td>
<td>562</td>
<td>1%</td>
</tr>
<tr>
<td>VICE CHANCELLOR FOR ACADEMIC AFFAIRS &amp; PROVOST</td>
<td>1,783</td>
<td>2%</td>
</tr>
<tr>
<td>WOMEN'S STUDIES</td>
<td>7,633</td>
<td>8%</td>
</tr>
</tbody>
</table>

**BARTLETT HALL Total** 101,229 NSF
ARCHITECTURAL NARRATIVE

Overview Building Description:
Bartlett Hall was originally designed as a liberal arts classroom building with specialty spaces for psychology. The North (office) wing was primarily office and experiment space, while the South (classroom) wing was used for classrooms. There was also a large auditorium with support spaces, a dark room, a library, and 2 sound proof rooms in the basement. Three language labs with a control room and a radio-TV room were on the first floor. All but the library, language labs, and control room are still in use as originally designed. The Animal House that is connected to the classroom wing is also still in use by the psychology department. Today the original layout of the building remains mostly in tact, while room use has changed. Many of the experiment rooms have been converted to offices or conference rooms, but the partition layouts remain unchanged. The most significant changes are found in the South wing where 27 (23 UMass classrooms and 4 departmental class-labs) of the original 44 classrooms remain. The other 17 classrooms have been divided up for offices or alternate uses. There are 3 basic size classrooms found in Bartlett. Classrooms are laid out on a 19'-0" wide by 24'-7" deep module. A single 19'-0" module is roughly 467 sf. A module and a half (28'-6" wide) is roughly 700 sf. A two module classroom (38'-0" wide) is roughly 934 sf.

Floor to floor heights in the office wing are: Bsmt. to 1st, 11’-3”; 1st to 2nd, 11’-3”; 2nd to 3rd, 8’-9”; 3rd to 4th, 8’-9”; 4th to Roof, 8’-7 1/2”. Floor to floor heights in the classroom wing are: Bsmt. to 1st, 11’-3”; 1st to 2nd, 11’-3”; 2nd to 3rd, 11’-3”; 3rd to Roof, 11’-1 1/2”. Most of these would appear to be adequate for potential upgrades to the HVAC and other antiquated or missing systems. However, the 3rd and 4th floor of the office wing may be challenging for any HVAC upgrades.

Exterior Building Envelope

There are two distinct wall systems in use on Bartlett Hall. Both systems are discussed in detail in the Bartlett Hall Facade Study - Part 1 by Symmes Main & McKee Associates (SMMA) issued in November 2005. The exterior walls on the office wing are a double white face brick with no back-up wall system or cavity. Dampproofing, two inches of rigid insulation and a layer of plaster form the inside of the brick wall assembly. Continuous membrane flashing is called for at relieving angles and lintels, although it is noted in the SMMA report that it was cut too short to be effective. Due to this, and other reasons outlined in the SMMA report, these walls are failing. Measures were taken in 2006 to secure the facade using steel channels until further renovations could be completed. This is a temporary solution and will only last for approximately ten years. The brick facades on the classroom wing and auditorium have not undergone any remedial work. They are constructed with face brick, dampproofing, rigid insulation, and cinder block. They are not cavity wall assemblies, but do not exhibit the same failures as the office wing. They also use continuous membrane flashing at relieving angles and lintels.

The South classroom wing wood curtain wall has single glazing and non-thermally broken steel sashes. The wood is rotting, causing air and water infiltration. Epoxy sealant has been used to try to reduce the amount of infiltration. Unfortunately these windows are no longer functioning as intended, are extremely energy inefficient, and need to be completely replaced in conjunction with an entirely new curtain wall assembly.

Bartlett has a flat roof with a metal fascia. A combination of roof drains, that run along the corridor line, and scuppers allow water to drain. The original tar and gravel roof over sloped fill has been replaced completely at least twice, three times over the South classroom wing, and specific areas have had various repairs. The building’s high roofs were replaced most recently in 2008 with a thermoplastic roof membrane over tapered insulation. The low roofs of the auditorium etc. were replaced in the spring of 2008. A roof of this quality should have a 15 to 20 year life expectancy.

Entrances, Circulation and Accessibility

Most entrances are accessible or can be easily made accessible with short ramps to deal with 6” bluestone
door steps. The entrance under the Tobin connector and on the North side of the classroom wing has a few stairs. Ramps could be added to these entrances. There is one elevator that allows access to the entire classroom wing. The third and fourth floors of the office wing do not connect to the classroom wing where the elevator is located and are therefore not accessible. Additional elevator service is needed for these floors.

Corridors are wide and dimensionally adequate. There are columns that protrude into the hallway, but do not cause an obstruction. The stairs are steeper than code allows, but a case could be made to keep them if upgrades to related hand rails and guard rails are made. Hand rails need to be replaced to provide adequate guardrail protection and to meet code standards for height and spacing between vertical members.

The women’s toilet room on the 3rd floor of the classroom wing had an accessible stall added to it, but it does not appear to be fully compliant. All other toilet rooms are not accessible. Drinking fountains are not accessible.

There are several dead end corridors that exceed the maximum length from a continuous path of egress allowed by the current code. If the building is extensively renovated an alternative layout would have to be sought.

Lastly, many of the offices still have door knobs. These would have to be replaced with lever handles that meet current accessibility standards.

Common Area Interior Finishes ................................................................. 4

Bartlett is well suited to the use and scale of the rooms it was designed to contain. The floors are a combination of VCT and VAT. Some specialty areas use other finishes such as granolithic concrete or ceramic tile. The walls are predominantly cinder block, both painted and exposed. Other wall finishes include structural facing tile and plaster. The ceiling is acoustic ceiling tile, much of it adhered directly to the underside of the slab. Some abatement has been done already, but there is likely still some that remains. Replacement and upgrade of the finishes and lighting could bring the space back to a high level as part of a major building renovation.

ELECTRICAL NARRATIVE

Overview Building Description:
Any major renovation should include a new main switchboard, new branch circuit panelboards, and a new fire alarm system, all of which are considered to be at or near the end of useful life. The main transformer, while new and in excellent condition, is insufficient for powering whole building central air conditioning (4.4 watts per square foot) and would need to be upgraded with the other equipment.

Main Electrical Service......................................................................................... 5

- The Main Switchboard (MSB) is rated 3000 amp, 208/120 volt, 3 phase, 4 wire.
- The MSB is original 1960 Westinghouse equipment utilizing Air Circuit Breakers. It is considered near the end of useful life and should be budgeted for replacement.
- The source of power for the MSB is a newer 500 KVA dry type transformer in an adjacent transformer room. It is fed from a campus 2.4 KV feeder.
- The electrical usage is metered and recorded by a permanently networked Square D Power Logic digital meter.
- According to the meter, the peak demand is 210 KVA.
Building Wiring ........................................................................................................................................ 5

- Most of the panelboards are original Westinghouse circuit breaker panels. Replacement circuit
  breakers are still available but are becoming more expensive to obtain. The original panelboards
  and wiring should be replaced.
- Most of the building wiring is original.

Fire Alarm ........................................................................................................................................ 5

- The original hard-wired fire alarm system is still in use. There are no strobes and the height of the
  manual pull stations does not comply with code. The system should be replaced.

Lighting ............................................................................................................................................... 3

- Much of the lighting appears to have been upgraded to modern fluorescent fixtures utilizing energy
  efficient T8 or compact fluorescent lamps. The fluorescent lighting is in fair condition.
- Incandescent downlights are still utilized in the auditorium throughout the audience seating area.

Emergency Power and Lighting ....................................................................................................... 3

- The emergency lighting system consists of a central battery/inverter system powering emergency
  light fixtures and exit signs. The emergency lighting may not be sufficient to comply with applicable
  life safety codes.

Low Voltage Systems ........................................................................................................................... 2

- Campus wireless network is present.
- Not all classrooms have basic audio-visual instructional equipment.
- There is a Simplex clock system.

Overall Rating .................................................................................................................................... 3.8

HVAC NARRATIVE

Overview Building Description:
Systems are mostly very old. There are central air systems with what appears to be constant volume reheat
for some classrooms. There are also unit ventilators serving some classrooms.
- Room # 20 MER
  o Steam to DHW immersion heater in horizontal tank
  o Two control air compressors
  o Large ventilation AHU (really old Buffalo Model VPC, Size G183A)
  o Two steam PRV’s with counterweights for pressure control
  o Exhaust fan EB – 4 (old Buffalo size 660)
- Room # 27 MER
  o Carrier AHU; 100% OA; appears to be newer (could not find drawings); steam heat and
    chilled water cooling coil
  o Two chilled water pumps; newer (could not find drawings)
  o Very old steam condensate pumps with leaking case seals on one pump; motor is also missing
    from that pump
• Room # 121 MER
  o One centrifugal and one absorption chiller (newest drawings with chiller work are from 1968)
• Auditorium
  o Dedicated air handling systems S-5 and S-6.

Prerequisites:
Ventilation: Yes
Cooling: MER177

Age ........................................................................................................................................ 5
Condition .................................................................................................................................. 4
Capacity .................................................................................................................................... 4
Efficiency ................................................................................................................................... 4
Maintainability .......................................................................................................................... 4
Overall Rating .......................................................................................................................... 4.2

PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing ................................................................................................................................... 4

Most of the plumbing was installed in 1960 and is therefore 49 years old. Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation. Accessibility issues of restrooms and drinking fountains are addressed under the Architectural review.

Fire Protection .......................................................................................................................... 5

There is no sprinkler system.
**BUILDING STATISTICS**

Year Constructed: 1884  
Approx. Gross Area: 14,200 SF  
Stories: 1  
Address: 144 Hicks Way  
Use Group: -  
UMass Utilization: None  
Historic Significance: Legacy

**Rating Summary**

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural</td>
<td>4.2</td>
</tr>
<tr>
<td>Plumbing &amp; FP</td>
<td>4.0</td>
</tr>
<tr>
<td>HVAC</td>
<td>5.0</td>
</tr>
<tr>
<td>Electrical &amp; Alarm</td>
<td>4.3</td>
</tr>
<tr>
<td>Overall Rating</td>
<td>4.4</td>
</tr>
<tr>
<td></td>
<td>Poor</td>
</tr>
</tbody>
</table>

**Description**

Although its name and appearance suggests that this was once a religious building, the Chapel was not intended to serve a solely religious purpose. The Massachusetts Agriculture College administration originally built the iconic Romanesque Revival building as a multipurpose structure that would include, “a cabinet of natural history collections, a chapel for lectures and religious services, and a library and reading room,” according to documentation assembled for the Massachusetts Historical Commission. Located at what is the cultural center of the academic campus, it is prominently sited, overlooking the pond. The Chapel building has had an eclectic mix of uses over the years, but is currently vacant and in need of significant restoration as well as a compatible program to restore its vitality and contribute to the Campus.

Due to the nature of its floor plate, it is not well suited to most departmental space needs, but would work very well as a community gathering or ceremonial space which could make use of the open upper level.

**Occupancy**

<table>
<thead>
<tr>
<th>Category</th>
<th>General Building Areas</th>
<th>Non Assigned Space</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4,432</td>
<td>8,573</td>
</tr>
<tr>
<td>General Building</td>
<td>34%</td>
<td>66%</td>
</tr>
<tr>
<td>Total</td>
<td>13,005 NSF</td>
<td></td>
</tr>
</tbody>
</table>

**Assessment Summary**

Boarder-line asset/ liability building - currently vacant - deficiencies in facility’s systems limits use - generally inaccessible

**Recommendation**

Building should be renovated for mixed classroom/ department space or function space - differ upgrades except maintenance essential to sustain operation - take building off line for comprehensive renovation/restoration - restoration investment is offset by historic value of the building to campus
ARCHITECTURAL NARRATIVE

Overview Building Description:
The Chapel was constructed in 1884 to provide a space for chapel services that had been recently displaced from College Hall due to the expanding popularity of the University’s Agricultural Experiment Station, also located in College Hall. In addition to a chapel, for lectures and religious services, the building would also contain a natural history collection, a library, and a reading room. Designed by architect Stephen C. Earle, the two and a half story stone structure has a four-story bell tower at its southeast corner. Its most recent occupant was the UMass Marching Band, but the building is currently unoccupied. Its almost square footprint, open floor plan, and abundant windows would make it an ideal community or gathering space. As one of the oldest and most prominent buildings on campus it is important to preserve this legacy.

Exterior Building Envelope ................................................................. 3

The exterior walls of the building are masonry bearing walls constructed with gray Pelham granite and red-brown Longmeadow sandstone trim. The stone appears to be structurally sound and in good condition. Cleaning and repointing of the masonry would be recommended as part of a comprehensive restoration.

The single-glazed, wood frame windows are all original to the building and should not be replaced. The windows can be restored and storm windows can be added to reduce heat loss.

The roof is timber construction with gray slate shingles. The variegated slate patches are evidence of localized replacements over the years. Slate tends to have a long life, provided it is installed correctly. Therefore a full replacement should not be necessary unless there are other issues. The timber appears to be in good condition. There is documentation of previous repairs to the timber trusses at several base connection joints.

The bell tower is in good condition. It was restored in 1997 and is still serviceable.

Entrances, Circulation and Accessibility ........................................... 5

This building has never been retrofitted to provide accessibility. All of the entrances have stairs, but no ramps or chair lifts are available. There is no elevator or toilet rooms. All of the stairs are steep and narrow. The stairs by the auditorium platform are especially bad. None of the stairs have proper hand rails or guard rails. The door hardware is also not all code compliant. Due to the historical nature of this building, some code variances may be possible with proper coordination and documentation. Special care will have to be taken in order to retrofit the building for accessibility while still maintaining the historic character of the original design.

Common Area Interior Finishes .......................................................... 4.5

The finishes in the Chapel are simple, but worth preserving to maintain the historic integrity of the building. The walls are either painted masonry (exterior back of house), plaster over masonry (exterior front of house), or plaster on lathe (interior partitions). There also appear to be acoustic tiles adhered to some of the walls in the old library, that was converted into four separate rooms when band occupied the space. Most walls have a wood wainscot, base, and chair rail. All doors, trim, and floors are also wood. The wood in the building is in generally good condition, but could be refinished, and some areas need to be repaired, to bring the space back to its original grandeur. The ceiling in the auditorium consists of wood trusses and exposed plank decking that are very handsome. The ceilings are plaster on lathe in all other spaces.
ELECTRICAL NARRATIVE

Overview Building Description:
Building systems have been upgraded to comply with basic life safety requirements. Significant renovation will require complete rewiring and replacement of electrical equipment.

Main Electrical Service.......................................................................................................................................................................................... 5
- The Main Electrical Service equipment is a 225 amp, 120/208 volt panelboard.

Building Wiring ............................................................................................................................................................................................... 5
- Much of the branch circuitry is fed by the original panelboards.
- Surface metal raceway and conduit have been used extensively to add wiring where needed.

Fire Alarm ................................................................................................................................................................................................. 3
- A basic Simplex Fire Alarm System provides horn and strobe signaling to comply with applicable life safety codes.

Lighting ................................................................................................................................................................................................. 5
- Lighting is generally provided by older technology incandescent and fluorescent fixtures.

Emergency Power and Lighting ............................................................................................................................................................ 3
- The emergency lighting system consists of small chargeable battery backup units distributed throughout the building to provide emergency power to incandescent egress lighting and exit signs.

Low Voltage Systems .................................................................................................................................................................................... 5

Overall Rating ......................................................................................................................................................................................... 4.3

HVAC NARRATIVE

Overview Building Description:
Some very old unit ventilators in poor condition; also steam convectors. It appears there have not been any upgrades to the HVAC for a very long time. Entire HVAC should be upgraded.

Prerequisites:
Ventilation:  Some
Cooling:  No

Age ................................................................................................................................................................................................. 5

Condition ......................................................................................................................................................................................... 5

Capacity ......................................................................................................................................................................................... 5
Efficiency.................................................................................................................................... 5
Maintainability.................................................................................................................................. 5
Overall Rating................................................................................................................................... 5.0

PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing........................................................................................................................................ 5
The plumbing will need to be replaced for occupancy.

Fire Protection..................................................................................................................................... 3
The sprinkler system was installed in 1983, but corrosion is occurring at the joints.
BUILDING STATISTICS

Year Constructed: 1907
Approx. Gross Area: 20,200 SF
Stories: 3 + Attic
Address: 251 Stockbridge Road
Use Group: B - Business
UMass Utilization: Academic, Art & Research
Historic Significance: Legacy

Rating Summary

<table>
<thead>
<tr>
<th>Component</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural</td>
<td>4.2</td>
</tr>
<tr>
<td>Plumbing &amp; FP</td>
<td>5.0</td>
</tr>
<tr>
<td>HVAC</td>
<td>4.4</td>
</tr>
<tr>
<td>Electrical &amp; Alarm</td>
<td>3.2</td>
</tr>
<tr>
<td>Overall Rating</td>
<td>4.2</td>
</tr>
<tr>
<td></td>
<td>Poor</td>
</tr>
</tbody>
</table>

Assessment Summary

Potential asset building - under-utilized, partially vacant - space configuration is not well suited to current use (esp. sciences) - deficiencies in facility’s systems limits use - generally inaccessible

Recommendation

Building should be renovated for department that requires special teaching environments - differ upgrades except maintenance essential to sustain operation - take building off line for comprehensive renovation/restoration - restoration investment is offset by historic value of the building to campus

Description

Clark Hall is one of several historic buildings along Stockbridge Road. The building was designed in an eclectic style that combines the American Round Arch Style and elements of the Georgian Revival Style. It also has the Clark Hall Greenhouse attached to its south side. Currently there is about 4,000 sf of under utilized space in the building due in large part to the general condition of the building and the upper floor having been closed off for lack of adequate egress. That number will eventually increase to 8,700 sf when the plant soil and insect sciences relocate. The building is in poor condition and will require extensive renovation.

Art has occupied portions of Clark. This is a good fit due to the configuration of the floor plates which allow for large spaces and the large windows that provide an abundance of natural light.

Occupancy

<table>
<thead>
<tr>
<th>Category</th>
<th>Area (sq ft)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART</td>
<td>3,346</td>
<td>21%</td>
</tr>
<tr>
<td>BIOLOGY</td>
<td>2,084</td>
<td>13%</td>
</tr>
<tr>
<td>FINE ARTS CENTER</td>
<td>243</td>
<td>2%</td>
</tr>
<tr>
<td>GENERAL BUILDING AREAS</td>
<td>3,566</td>
<td>22%</td>
</tr>
<tr>
<td>GROUNDS/CUSTODIAL</td>
<td>126</td>
<td>1%</td>
</tr>
<tr>
<td>NON ASSIGNED SPACE</td>
<td>3,959</td>
<td>25%</td>
</tr>
<tr>
<td>PLANT, SOIL &amp; INSECT SCIENCES</td>
<td>2,657</td>
<td>17%</td>
</tr>
<tr>
<td>CLARK HALL Total</td>
<td>15,981 NSF</td>
<td></td>
</tr>
</tbody>
</table>
ARCHITECTURAL NARRATIVE

Overview Building Description:
Clark Hall was designed by Frank Irving Cooper as an academic building for the sciences. The two story brick building originally contained mostly laboratory space. It also had a lecture hall, 1 classroom, a main office, an assistant’s office, a museum, two small libraries, and several “fresh air rooms”. There does not appear to have been many major renovations to the building. Currently the building is significantly under utilized, due in large part to its poor condition. With Biology and Plant, Soil, & Insect Sciences moving to new spaces, Art will be the sole occupant of the building. In order to fully utilize the building, a full renovation that addresses code, accessibility and MEP issues is necessary. The large rectangular floor plate is ideally suited for users that can take advantage of the large spaces. There is also abundant natural light from the large windows. If renovated, this building could support a variety of uses in this stimulating space.

An attic with usable space also exists but has been taken off line. There is considerable shoring and bracing visible form the stair below. The cause behind the added bracing is not known but structural investigation and reinforcing must be anticipating in replanning the building.

Exterior Building Envelope

The original drawings do not show exterior wall sections, however, based on observations and the period of the building it can be inferred that the wall is a solid masonry bearing wall with no cavity or drainage. No visible signs of failures were noted. There is no drawing data available about any remedial work done to the exterior envelope. The roof has been replaced at least once as the original drawings show a slate roof with copper hip flashing. The current roof is asphalt shingle.

Although the current windows do not match those in the original drawings, historic pictures as early as 1918 show the current windows in place. It is assumed that the current windows are original to the building and that a change was made after the final drawings were complete. There are 3 types of windows on Clark Hall. The first, the large round arch windows on the second floor, are the most prominent. These have a fixed circular transom with radiating panels of glass on the top part of the window and three 3/1 casement windows on the lower part of the opening. It appears that some of the lower panes on the casement windows were replaced with smaller casement units. The second type of window is the 2/2 casement window that is found on all four sides of the first floor. The third type of window is the small round arch window that flanks either side of the large round arch window above the front entrance. These windows are 2/3 casement windows topped by a single pane round arch transom. All the windows are wood frame, single-glazed windows. They are not very energy efficient, but because they are original to the building they should be preserved if possible. The windows can be restored and storm windows can be added to increase energy efficiency.

Entrances, Circulation and Accessibility

The main entry to Clark Hall is on its East elevation, located just off Stockbridge Road. The entry is marked by a projected three-bay central section and granite banner over the entry displaying the building’s name. Currently there is no accessible entrance into the building. The building is set into a hill and the first floor is raised just above the level of Stockbridge Road. Both the East and West entries have stairs leading up to them. The door on the South side of the building that provides access to the Greenhouse from Clark Hall also has several stairs.

There are corridors in the building that are too narrow to meet current standards. The East staircase is steep and narrow and would not meet current code. The West staircase is an acceptable width, but is steeper than current code allows. Only the East staircase goes to the basement, meaning there is only one method of egress from that level. The stairs are also placed too close to each other to qualify as two means of egress from the second floor. There is no elevator in the building and no handicap accessible toilets. Most doors
have knob handles, which would need to be switched for lever handles to meet accessibility standards.

Common Area Interior Finishes ................................................................. 4

The interior finishes in Clark Hall are simple and do not have a high level of architectural detail. The original wood floors of the building are worn, and due to the extent of renovations needed, should be replaced. The wood doors, trim, molding, and base seem to be solid and in good condition. They could also be refinished and reused. The walls and ceilings are plaster on lathe and are also in good condition.

A full gut rehabilitation of Clark should be done to make the building fully usable. In so doing, the building would yield high quality and highly desirable space.

ELECTRICAL NARRATIVE

Overview Building Description:
The circuit breaker panels and power wiring should be replaced. Most of the wiring is very old and outdated. There is an abundance of surface raceway throughout the building causing a shabby appearance. There is a modern fire alarm system in compliance with modern life safety and accessibility codes.

Main Electrical Service.............................................................................. 5

- Clark Hall utilizes a 208/120 volt, 3 phase, 4 four wire electrical system. The Main Panelboard is a Westinghouse Electric 400 amp circuit breaker panel which is showing age. Replacement circuit breakers are still available. It is in fair condition, but there are breaker space covers missing, exposing energized bus. Blank covers should be installed.

Building Wiring ......................................................................................... 4

- General Electric circuit breaker panelboards feed branch circuits. They are in fair condition. It is not clear if the circuit breakers with blue handles are U.L. listed for the panels.
- Surface metal raceway has been used extensively to add wiring where needed.
- It is recommended to replace wiring and panelboards during any significant renovation.

Fire Alarm ................................................................................................. 0

- There is a modern Simplex fire alarm system which appears to be in compliance with applicable life safety and accessibility codes.

Lighting ........................................................................................................ 3

- Most of the classroom and office lighting is in good condition, having been upgraded with fixtures using modern T8 and compact fluorescent lamps. There are older fluorescent fixtures in the unoccupied areas that are showing age and in generally poor condition.
- Light switches are generally above the 48” maximum required by modern accessibility codes.

Emergency Power and Lighting ................................................................. 3

- Emergency lighting is provided by recently installed self-contained battery units in the stairwells, corridors, classrooms and miscellaneous other locations. They appear to be in fair condition, but would need to be replaced during any significant renovation.
Most of the wiring is in surface mounted raceway or conduit.

Low Voltage Systems .................................................................................................................... 4

- Campus wireless network is present.

Overall Rating ........................................................................................................................... 3.2

**HVAC NARRATIVE**

Overview Building Description:

Prerequisites:
Ventilation: No
Cooling: No

Age ............................................................................................................................................ 5
Condition .................................................................................................................................... 4
Capacity ...................................................................................................................................... 4
Efficiency ..................................................................................................................................... 5
Maintainability ............................................................................................................................. 4

Overall Rating ............................................................................................................................ 4.4

**PLUMBING & FIRE PROTECTION NARRATIVE**

Plumbing ..................................................................................................................................... 5

Most of the plumbing was installed prior to 1950 and is therefore over 50 years old. Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation. Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection ............................................................................................................................. 5

There is no sprinkler system.
132 - DICKINSON HALL

BUILDING STATISTICS

YearConstructed: 1960
Approx. Gross Area: 29,700 SF
Stories: 3
Address: 351 Hicks Way
Use Group: B - Business
UMass Utilization: Academic & Research
Historic Significance: Not Significant

Rating Summary

Architectural 3.0
Plumbing & FP 4.5
HVAC 3.8
Electrical & Alarm 3.0
Overall Rating 3.6 Fair

Description

Dickinson was built to house the Army and Air Force ROTC programs with medium size classrooms. The Campus Police now occupy the entire basement and a large portion of the first floor and the Army ROTC have moved out leaving just the Air Force. With the Campus Police moving to a new building in 2011, space will become available and the potential for Dickinson to assume a more active role on campus will increase. Dickinson has excellent natural light and a flexible floor plate that could serve a number of different programs if the need for medium size classrooms changes over the coming years.

The building is sound and usable as an interim swing building with modest renovations. With more extensive, upgrades the building could accommodate a small department with class lab needs.

Assessment Summary

Potential asset building - somewhat under-utilized (will be partially vacant 1/2011 +/-) - space configuration serves current programs well - facility’s condition compromises use - limited accessibility, needs improvement

Recommendation

Building should be renovated for department that requires special teaching environments - differ upgrades except maintenance essential to sustain operation - take building off line for most cost effective renovation - renovation/ improvement investment is a good value

Occupancy

<table>
<thead>
<tr>
<th>Category</th>
<th>Space (sq ft)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL BUILDING AREAS</td>
<td>8,026</td>
<td>31%</td>
</tr>
<tr>
<td>PUBLIC SAFETY</td>
<td>8,332</td>
<td>32%</td>
</tr>
<tr>
<td>ROTC - AIRFORCE</td>
<td>2,264</td>
<td>9%</td>
</tr>
<tr>
<td>UMASS CLASSROOMS (Total Seat Count = 412)</td>
<td>7,053</td>
<td>27%</td>
</tr>
<tr>
<td>DICKINSON HALL Total</td>
<td>25,875 NSF</td>
<td></td>
</tr>
</tbody>
</table>
ARCHITECTURAL NARRATIVE

Overview Building Description:
Dickinson Hall was built specifically for Army and Air Force ROTC in 1960 when officer training attracted had much stronger numbers than it currently does. The programs split when the Campus Police moved into the lower floors of the building and the Army program moved into what was a motor pool building along Massachusetts Avenue. The building was built as a classroom/administrative office space on the upper levels with storage and utility space including a rifle range in the partially subterranean lower level. Plans are in place to move the Campus Police to a new facility within the next two years freeing the entire lower level and approximately half of the first floor for reuse as valuable swing space on campus.

The building plan is configured as an L with the larger classroom bays along the north and east exposures with offices in the inner leg of the L. The structure is cast-in-place concrete columns and rib-slab floor decks. With the exception of a concrete bearing wall, running east/west in the basement, the masonry interior partitions are non-bearing allowing some flexibility in room sizes. Classrooms are roughly 24 feet wide and range in length from 17'-6" to 31'-6". There are classrooms in the 1st and 2nd floor that can be combined by opening a moveable partition, however a classroom of 24 x 63 feet results, a proportion that is unusable for most teaching styles. These partitions should probably be made permanent to improve acoustic performance. The building was built with 5 small classrooms (430sf +/-), two of which remain in use and 8 medium classrooms (780sf +/-) all of which are currently active classrooms.

Floor to floor heights are 11'-6" in the basement and 10'-8" on the 1st and 2nd floor. Floor to ceiling heights are more limited, however, (8'-6" in corridors and 8'-10" in the classrooms) due to the thickness of the rib slab floor and a minimal drop ceiling depth. More study is needed to determine if there is usable plenum space for HVAC distribution above the ceiling.

Exterior Building Envelope
The exterior wall assembly is veneer brick on a block backup wall. There is no cavity or insulation, however the details indicate a proper thru-wall flashing was called for. The interior face of the block is painted with no additional plaster or interior finish. Windows are framed in limestone with limestone highlights at the entrances. Exterior walls appear to be in good condition with no major repairs or restoration necessary. Windows are single glazed with non-thermally broken aluminum frames and were noted to be leaking air and dust. Based on drawing documentation it would appear that the roof was last replaced in 1973 indicating that replacement of the roof is over-due.

Entrances, Circulation and Accessibility
Dickinson’s formal entry is up ten steps on the north façade and is not accessible. The functional entry for classroom and general use has come to be the entry on the east side where grading and walkways have been modified to make the entrance accessible by wheel chair. Once inside accessibility is limited as there is no elevator to the lower or upper level. Toilet rooms on the first floor have been modified to provide an enlarged stall and a more accessible sink, however, the rooms do not meet the dimensional requirements of the current code and the approach is through a very narrow corridor, in the case of the women’s room, and a very constricted vestibule, in the case of the men’s room, neither of which allow adequate clearances or turning radius for true accessibility. Corridors and stairs are spacious, however, handrails and guardrails are non-conforming and would need to be replaced in a comprehensive renovation. Corridor smoke doors do not meet the 32” dimensional requirement for the single leaf clearance width.

Common Area Interior Finishes
Corridor finishes are glazed block with concealed spline ceilings and vinyl composite tile on the first floor and vinyl asbestos tile on the second floor. The corridors are set up with locker alcoves some of which are fitted out with storage lockers currently used by the ROTC. The glazed wall tile is somewhat dated but extremely durable with many remaining years of usable life. Other finishes should be upgraded as part of a moderate building upgrade program. Lighting is poor and fixtures should be upgraded and replaced.

**ELECTRICAL NARRATIVE**

Overview Building Description:
Although the main electrical service of Dickinson Hall has been configured for reliability to the University Police Department (UPD), which is headquartered there, the electrical rating must be downgraded because of capacity limitations. The electrical service capacity is insufficient for powering central air conditioning. The entire building is fed through a 400 amp ATS (automatic transfer switch), which can transfer between the normal power from the exterior padmount transformer and emergency power from the 100 KW exterior generator.

The building appears to be well maintained electrically, but most of the original wiring is still in use. The UPD in the basement and a few other small areas have been renovated.

Main Electrical Service........................................................................................................................................ 5
- The Main Switchboard (MSB) is rated 800 amp, 208/120 volt, 3 phase, 4 four wire. The electrical capacity of the building is limited by the 400 amp ATS ahead of the MSB.
- The MSB is the original General Electric (GE) switchboard with molded case breakers. It is in fair condition.
- The original transformer vault adjacent to the main electrical room now houses a modern Hubbell 400 amp ATS. The ATS routes electricity from either the normal or emergency source to power the entire building. The ATS appears to be in good condition. Electricity is fed to the MSB via the original GE bus duct, which appears to be in fair condition.
- An exterior padmount transformer is the normal power source, and an exterior 100 KW diesel generator in a weatherproof enclosure is the emergency power source. They both appear to be in good condition.
- The electrical usage is metered and recorded by a permanently networked Square D Power Logic digital meter.
- According to the meter, the peak demand is 69 KVA.

Building Wiring ..................................................................................................................................................... 4
- The basement level, which serves as the UPD headquarters, was extensively renovated around 1994. Some new panelboards and wiring have been installed to serve the area.
- The upper two floors appear to have only had minor renovations and most of the original wiring and panelboards are still in use.
- Surface raceway has been used extensively to add wiring over the years.
- Any major renovation would necessitate replacement of existing panelboards and wiring serving the respective area.

Fire Alarm ............................................................................................................................................................. 3
- A new addressable Simplex Fire Alarm System serves the building. When the UPD was renovated
in the basement, new fire alarm devices and wiring were installed on the upper floors. Central monitoring of the campus fire alarms is conducted from a modern console in the police headquarters. Although strobes have been added in corridors, the building is not fully compliant with modern life safety codes. There are not strobes in the classrooms. Pull stations are mounted above the 48” maximum height required by modern accessibility codes.

Lighting ............................................................................................................................................... 3

- While original fluorescent and incandescent lighting fixtures have been replaced with fixtures using modern T8 and compact fluorescent lamps, many of the fixtures are showing age. Light switches are generally above the 48” maximum required by modern accessibility codes.

Emergency Power and Lighting ........................................................................................................ 2

- The emergency lighting system consists of a combination of different types. In addition to the entire building service having backup power supplied by a 100 KW diesel generator, there is a central battery/inverter system in basement Electrical Room 14 which supplies power to some of the emergency lighting. It appears that this is primarily for the police department areas.
- Also, there are self-contained battery units in the stairwells and miscellaneous other locations.
- In basement Mechanical Room 21, there is an older 12 KW single phase natural gas generator which has been taken out of service along with the associated 60 amp ATS.

Low Voltage Systems .................................................................................................................... 1

- Campus wireless network is present.
- A modern Simplex Clock System serves the building. The Simplex central clock controller is located in the UPD. It appears to be in excellent condition.
- Most of the classrooms appear have basic audio-visual instructional equipment.

Overall Rating .................................................................................................................................... 3.0

HVAC NARRATIVE

Overview Building Description:
The HVAC for the Basement Level of Dickinson Hall was upgraded in 2000 with a central air handling system to serve the Campus Police. The McQuay air handling unit and associated equipment is in MER 21 in the Basement. There is a small in-line return air fan. The air handling system includes VAV terminals for each control zone. Cooling is from two direct expansion condensing units outside the MER. Heating is from hot water reheat coils at the VAV terminals. There is also a steam-to-hot water heat exchanger in the MER and two hydronic hot water pumps. (It appears one pump is duty, and one is back-up.) All of this equipment appears to be in very good condition.

The steam entrance is also in MER 21. The condensate return pump appears to be very new.

The classrooms on the upper floors of the building are served by unit ventilators. Offices have steam convectors.

Prerequisites:
Ventilation: Yes
Cooling: Bsmt
New Academic and Classroom Facilities
University of Massachusetts - Amherst

Age.................................................................................................................................................. 5
Notes: Most of the equipment, with the exception of the air handling unit that serves the lowest level, has aged beyond the normal life expectancy for this type of equipment.

Condition ........................................................................................................................................ 3
Notes: Other than the new air handling unit, the equipment is in less than good condition.

Capacity ......................................................................................................................................... 4
Notes: The equipment was maintaining comfortable conditions at the time of the survey when the weather was very cold.

Efficiency ....................................................................................................................................... 4
Notes: There are no modern energy conserving strategies like heat recovery or occupancy sensors.

Maintainability ............................................................................................................................... 3
Notes: MER 212 is tight for maintenance. Unit ventilators decentralize maintenance, and therefore increase the effort required for proper maintenance.

Overall Rating ............................................................................................................................... 3.8

PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing .......................................................................................................................................... 4
Most of the plumbing was installed in 1960 and is therefore 49 years old. Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation.

Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection .................................................................................................................................... 5
There is no sprinkler system.
087 - DRAPER HALL

**BUILDING STATISTICS**

- Year Constructed: 1903
- Approx. Gross Area: 31,700 SF
- Stories: 3 + Limited Basement
- Address: 40 Campus Center Way
- Use Group: B - Business
- UMass Utilization: Academic & Research
- Historic Significance: Legacy

**Rating Summary**

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural</td>
<td>3.8</td>
</tr>
<tr>
<td>Plumbing &amp; FP</td>
<td>5.0</td>
</tr>
<tr>
<td>HVAC</td>
<td>4.0</td>
</tr>
<tr>
<td>Electrical &amp; Alarm</td>
<td>3.7</td>
</tr>
<tr>
<td>Overall Rating</td>
<td>4.1</td>
</tr>
<tr>
<td>Description</td>
<td>Poor</td>
</tr>
</tbody>
</table>

**Description**

Draper is an architecturally and historically significant building in the center campus. Designed in an eclectic style as a women’s residence and dining hall, the building is distinctive with large open balconies over the center and side entrances giving the building an open, airy feel. The building was enlarged almost immediately after it was originally built and has undergone numerous renovations since. Large ornate arched windows in the stair wells were unfortunately filled and lost when the building was converted from a residence hall to labs. Reuse of Draper Hall is challenging due to its condition and concerns about sagging floors, the scale of the building which limits the amount of space it would yield and the difficulties of bringing the building up to code, especially accessibility, standards.

Adaptive reuse of the building may entail a further addition into the area to the north to solve accessibility and install an elevator.

**Assessment Summary**

Boarder-line asset/liability building - somewhat under-utilized - space configuration constrains current programs - facility’s condition compromises use - generally inaccessible

**Recommendation**

Building should be renovated for department that requires special teaching environments or administrative purposes - differ upgrades except maintenance essential to sustain operation - space configuration constrains current programs - restoration investment is offset by historic value of the building to campus

**Occupancy**

<table>
<thead>
<tr>
<th>Department</th>
<th>Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPITAL ASSET BOARD</td>
<td>552</td>
</tr>
<tr>
<td>COLLEGE OF NATURAL RESOURCES &amp; THE ENVIRONMENT</td>
<td>310</td>
</tr>
<tr>
<td>COLLEGE OF SOCIAL &amp; BEHAVIORAL SCIENCES</td>
<td>2,717</td>
</tr>
<tr>
<td>DEVELOPMENT OFFICE</td>
<td>341</td>
</tr>
<tr>
<td>ENVIRONMENTAL HEALTH &amp; SAFETY</td>
<td>7,715</td>
</tr>
<tr>
<td>GENERAL BUILDING AREAS</td>
<td>8,313</td>
</tr>
<tr>
<td>GROUNDS/CUSTODIAL</td>
<td>297</td>
</tr>
<tr>
<td>LEGAL STUDIES</td>
<td>422</td>
</tr>
<tr>
<td>NATURAL RESOURCES CONSERVATION</td>
<td>3,202</td>
</tr>
<tr>
<td>RESOURCE ECONOMICS</td>
<td>800</td>
</tr>
<tr>
<td>UMASS CLASSROOMS (Total Seat Count = 41)</td>
<td>674</td>
</tr>
<tr>
<td>UMASS EXTENSION ADMINISTRATION</td>
<td>737</td>
</tr>
<tr>
<td><strong>DRAPER HALL Total</strong></td>
<td><strong>26,080 NSF</strong></td>
</tr>
</tbody>
</table>
ARCHITECTURAL NARRATIVE

Overview Building Description:
Built as a women’s residence hall, Draper Hall was expanded to the north soon after its initial construction. It has been renovated and altered in numerous renovation programs to serve a variety of uses, from lab space to its current academic and office space. The original design shows large social spaces and a dining hall on the first floor, a kitchen, laundry and staff area in the basement and bedroom (chambers) on the upper levels. Most of the second floor partitioning was removed to create larger lab spaces on the second floor and then reintroduced when the building was converted to offices and classrooms. The second floor is a U-shape. The narrow dimension in the width of the floor plate limits reuse to either smaller office scale rooms or larger open plan spaces. Egress from the U is also a challenge and the building has relied on external fire escapes from the beginning. The third floor is usable but limited by knee walls, sloped ceilings with dormers which provide the only source of natural light and ventilation, and constrained subdivision options.

Original design drawings as well as past renovations would indicate that there is significant flexibility in the floor plans with minimal bearing walls and columns. Steel girders are shown at the second and third floor levels implying that larger, open spaces might be created for future uses if desirable. Concerns over the structural adequacy of the building (sagging floors and foundation settlement) have been heard, however, and further engineering analysis would be required as part of any deeper reuse or renovation planning.

Floor to floor heights (basement to first, 9’-8”; first to second 12’-0”, and, second to third, 10’-6”) are favorable (above the basement) for running sprinkler piping and possibly, limited duct work in strategically located soffits.

Exterior Building Envelope

Wall sections are not available, however, from the age of the building and traditional construction methods of the period it can be inferred that the exterior walls are solid masonry bearing walls with a red face brick, marble water table, window sills and keystones. No drainage cavity was used in this type of construction and water infiltration can be difficult to trace and address as a result. There is also a significant amount of painted wood trim on the cornice line gables, columns and dormers. The walls and woodwork are in fair condition with some deterioration noted in the marble trim.

Windows are single glazed, double hung painted wood units with significant modifications where window air conditioner units have been installed. The dormer windows are wood casements. The windows are in fair conditions, however upgrades in the form of sash replacement or the installation of secondary sash for increased energy efficiency should be considered as part of any scale renovation.

The pitched roofs areas are slate. The flat roof over the first floor was replaced in 1987 with a single ply membrane roof. Slate repair and flashing replacement was done in 1989. Roof replacement in kind should be considered.

Reports of water infiltration through the roof, walls and foundation have been noted. Further investigation should be undertaken as part of any renovation planning to enable to effective remediation of the problems. Water problems of this sort are common in buildings of this age and should be able to be addressed in a comprehensive renovation program.

Entrances, Circulation and Accessibility

Draper Hall is inaccessible with no accessible, at grade entry into the building, door widths are not an adequate dimension, there is no elevator and no accessible toilets. The first floor is approximately 5 feet above exterior grade which probably represents the biggest single obstacle in a comprehensive renovation.
which would include making the building fully accessible. Egress from the upper levels currently relies on external fire escapes that are not allowed under current codes.

For its many deficiencies, Draper Hall has good natural light, high ceilings, inviting spaces and could, with sensitive renovations, be brought up to very high quality space. As a result of the numerous renovations there is little remaining interior architectural detail worthy of preservation. This could provide more latitude and flexibility in replanning and renovating. The building is small, however, and may be a candidate for a modest scale addition to the north that could address the circulation, accessibility and egress problems adjacent to, but outside of the current building footprint. The floor plate works well for office scale spaces, however it appears that the opportunity is there for larger scale assembly rooms to be carved out as well.

ELECTRICAL NARRATIVE

Overview Building Description:
The main electrical service is more than adequate for the present demand, but the electrical capacity, at approximately 4.5 watts per square foot, is insufficient for powering central air conditioning. Electrical panelboards and circuits have been added with each renovation while leaving many original in place. There are panelboards and wiring dating back more than 50 years. The fire alarm system is outdated. Any major renovation will require complete upgrade of the building electrical systems.

Main Electrical Service

- Draper Hall utilizes a 208/120 volt, 3 phase, 4 wire distribution system with 400 amp (144 KVA) capacity. The main electrical disconnect is a very old fused 400 amp switch (possibly 70 years old) which feeds directly to a 600 amp Yankee Manufacturing Company panelboard (possibly over 50 years old) with Federal Pacific circuit breakers. This entire service should be replaced with any major renovation.
- The 225 KVA main transformer is fed from a campus 2400 volt primary feeder. This transformer also serves another building.
- The electrical usage is metered and recorded by a permanently networked Square D Power Logic digital meter.
- According to the meter, the peak demand is 60 KVA.

Building Wiring

- On each floor, modern circuit breaker panelboards have been added to supplement original branch circuit capacity.
- Some branch circuits are still fed by the 1950 era Westinghouse breaker panelboards.
- Surface metal raceway has been used extensively to add wiring where needed.

Fire Alarm

- The original hard-wired Standard Electric Time Company fire alarm system is still in use, and would need to be replaced in conjunction with any major renovation. It does not comply with modern fire alarm or accessibility codes.

Lighting

- Draper Hall utilizes a 208/120 volt, 3 phase, 4 wire distribution system with 400 amp (144 KVA) capacity. The main electrical disconnect is a very old fused 400 amp switch (possibly 70 years old) which feeds directly to a 600 amp Yankee Manufacturing Company panelboard (possibly over 50 years old) with Federal Pacific circuit breakers. This entire service should be replaced with any major renovation.
- The 225 KVA main transformer is fed from a campus 2400 volt primary feeder. This transformer also serves another building.
- The electrical usage is metered and recorded by a permanently networked Square D Power Logic digital meter.
- According to the meter, the peak demand is 60 KVA.

- On each floor, modern circuit breaker panelboards have been added to supplement original branch circuit capacity.
- Some branch circuits are still fed by the 1950 era Westinghouse breaker panelboards.
- Surface metal raceway has been used extensively to add wiring where needed.

- The original hard-wired Standard Electric Time Company fire alarm system is still in use, and would need to be replaced in conjunction with any major renovation. It does not comply with modern fire alarm or accessibility codes.
- The lighting appears to have been upgraded with modern fluorescent fixtures with T8 lamps. The lighting is in fair condition.

Emergency Power and Lighting
- Emergency lighting is accomplished by the use of local self-contained battery-backup, emergency light packs and exit signs. These units appear to have been installed within the last five years and are in good condition.

Low Voltage Systems
- The one classroom (Room 124) is equipped with a basic audio-visual package including ceiling projector.
- In Room 124 there is a miscellaneous item in need of repair: wall anchors have failed which had secured a surface mounted time clock located next to the window. The box is loose.

Overall Rating

HVAC NARRATIVE

Overview Building Description:
All HVAC system appears to be older. There are several small air handling units, but most of the building is served by unit ventilators.
- Basement southwest corner MER
  - Steam entrance and PRV with condensate drain (no pump); some of the insulation appears to have been replaced. There is a motorized valve in the main steam supply pipe downstream from the PRV which may be for setting the entire building back. Not sure if it is functional. The appears to be a new steam meter upstream from the PRV.
  - Steam to DHW heater
- Room # 15A
  - Toilet exhaust fan
- Room # 20A MER (could not get in)
  - Appears to be small AHU serving areas above
- Small AHU for Room 102
- Classroom 124
  - Unit ventilator with wall thermostat

Prerequisites:
Ventilation: Yes
Cooling: No

Age

Condition

Capacity

Efficiency

Maintainability
Overall Rating ........................................................................................................................................ 4.0

PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing ............................................................................................................................................... 5

Most of the plumbing is original and therefore over 50 years old. Domestic water piping is copper. Waste
and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms
should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric
couplings should be tested and evaluated as part of the renovation.

Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection .......................................................................................................................................... 5

There is no sprinkler system.
417 - DUBOIS LIBRARY

BUILDING STATISTICS

Year Constructed: 1972
Approx. Gross Area: 406,500 SF
Stories: 30
Address: 154 Hicks Way
Use Group: A-3 - Assembly
UMass Utilization: Academic & Research
Historic Significance: Significant

Rating Summary

Architectural 2.5
Plumbing & FP 4.0
HVAC 3.6
Electrical & Alarm 2.5
Overall Rating 3.2 Fair

Description

Built in 1972 to accommodate expanding library collections, the modern, 28 story W.E.B DuBois Library rises above the campus pond in the heart of campus. The building was designed by the New York architectural firm of Edward Durell Stone. There are twenty-six occupied levels above grade and a below grade level that is accessed through the building. There are two mechanical floors (twenty-seven and twenty-eight) and a basement level which contains storage, mechanical, electrical and information technology infrastructure. Each tower floor plate provides a gross interior area of approximately 9,800 sf including the elevator/mechanical core. The building houses most of the UMass library collections which are no longer expanding as the need for immediate access to printed documents is decreasing. Several related programs now occupy space in the building with the potential to utilize more space for non-stack purposes likely.

Asset building - somewhat under-utilized - space (and structure) constrains current (and potential alternative) programs - facility’s condition compromises use - limited accessibility, needs improvement

Recommendation

Current use is well suited to the building (auxiliary programs could take over portions of the building) - coordinate aggressive maintenance around system upgrades - implement staged upgrades to key building component without taking the building off line – cost/value to the long term academic plan is questionable

Occupancy

<table>
<thead>
<tr>
<th>Category</th>
<th>NSF</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPUTING/NETWORKING</td>
<td>8,450</td>
<td>2%</td>
</tr>
<tr>
<td>DINING COMMONS</td>
<td>442</td>
<td>0%</td>
</tr>
<tr>
<td>GENERAL BUILDING AREAS</td>
<td>78,257</td>
<td>21%</td>
</tr>
<tr>
<td>GENERAL INSTRUCTIONAL SUPPORT</td>
<td>2,298</td>
<td>1%</td>
</tr>
<tr>
<td>GROUNDS/CUSTODIAL</td>
<td>1,344</td>
<td>0%</td>
</tr>
<tr>
<td>LEARNING RESOURCE CENTER</td>
<td>2,655</td>
<td>1%</td>
</tr>
<tr>
<td>LIBRARY ADMINISTRATIVE SERVICE</td>
<td>265,873</td>
<td>72%</td>
</tr>
<tr>
<td>PRINTING SERVICES</td>
<td>233</td>
<td>0%</td>
</tr>
<tr>
<td>TELECOMMUNICATIONS</td>
<td>2,956</td>
<td>1%</td>
</tr>
<tr>
<td>UNIVERSITY PRESS</td>
<td>5,377</td>
<td>1%</td>
</tr>
<tr>
<td>VICE CHANCELLOR FOR ACADEMIC AFFAIRS &amp; PROVOST</td>
<td>1,627</td>
<td>0%</td>
</tr>
<tr>
<td>DUBOIS LIBRARY Total</td>
<td>369,512</td>
<td>NSF</td>
</tr>
</tbody>
</table>
ARCHITECTURAL NARRATIVE

Overview Building Description:
The building is organized vertically as three major components. The first, from the lower level through level 6, includes the information commons, reading rooms, offices and stacks. The second consists of levels 7 through 24, which are in turn arranged as six groups of three levels, each consisting of a conventional office level with two levels of self-supporting stacks above. These stack levels bear on a concrete ribbed slab, with the upper stack level situated on a light concrete slab supported by the 4’ x 3’ grid of light gauge steel stack supports below. Present stack capacity ranges from 125,000 to 150,000 volumes per level. The third component consists of levels 24 through 28 and includes reading rooms, conference rooms, the DuBois collection and mechanical spaces.

The building structure generally consists of post tensioned two-way cast-in-place ribbed concrete floor systems which bear upon reinforced concrete perimeter beams and columns and a reinforced concrete elevator/stair core. The tower floors provide clear span, column-free space between the core and the exterior envelope. The rectangular core is centrally positioned within the square building footprint, resulting in typical spans predominantly of approximately 37’, and, from the ends of the core, approximately 27’. The enclosed usable area of the typical floor is 8,640 sf.

Office levels are nominally 11’-2” floor to floor with a 2’-2” deep ribbed cast in place concrete system, providing 9’-0” clear floor to underside of structure; much of the floor system was designed to be exposed, and remains so.

Lower stack levels are nominally 8’-5” floor to floor with a 4” flat slab, providing a floor to underside of structure dimension of 8’-1”. Upper stack levels are nominally 10’-1” floor to floor with a 2’-2” structural depth, providing a floor to underside of structure dimension of 7’-11”. The stack array of the lower level supports the 4” flat slab as well as the stack array of the upper level; the upper level stack system serves no structural function to the building.

The unique structural configuration of the paired stack floors severely constrains possibilities of their alteration to accommodate other uses. A 2008, Beacon Architectural Associates report (“W.E.B. DuBois Library, University of Massachusetts, Amherst Campus, Building Deficiency Study and Chapter 34 review”) investigated removal of the level 14 & 15 stacks and replacement by a learning commons and offices within the resulting 16’-4” high space. A portion of the “mezzanine” was to be reserved for new mechanical equipment.

Removal of only the typical upper level stacks might permit certain uses to be accommodated despite the restricted vertical clear dimension of 7’-11”. The capacity of the present 4” floor slab (supported by the closely spaced metal struts of the lower level stacks) appears to be adequate for office occupancy. Code minimum ceiling height of 7’-6” might be maintained by locating required services below the existing floor, and by locating main distribution over existing lower level stack alignments. Due to the deep structural ceiling coffers, the upper level space would appear to be more spacious than the actual dimension to the bottom of the ribs might suggest.

Exterior Building Envelope

The library tower is constructed as a cast-in-place reinforced concrete structure with brick cladding and non-operable glazed openings. Exterior masonry walls are of face brick with unit concrete masonry back-up and a 2 1/2” cavity with conventional masonry ties. The block is supported upon the slab edges at every level, with the brick supported by shelf angles at the major concrete floor systems. A long history of deterioration of exterior face brick has prompted several surveys and reports. To our knowledge, no comprehensive repair of these conditions has taken place beyond a 1977 brick replacement.
Entrances, Circulation and Accessibility

The building is served by 5 elevators and two enclosed fire stairs, with various additional grade level egresses. Public entrances to the building are considered to meet current accessibility requirements. Designed and built with consideration for accessibility, the building is dimensionally deficient by today's standards. Typical stack areas and study carrels do not comply with current accessibility requirements due to aisle widths. Loading is via a tunnel from the sub-basement to a loading dock at South College.

Common Area Interior Finishes

ELECTRICAL NARRATIVE

Overview Building Description:
The electrical service and distribution capacity seems to be adequate for present and anticipated future loads. However, a careful load analysis would need to be done prior to any major renovation. It appears that there have been concerns about overheating in the original Main Switchgear.

The University has made major investments and renovated many selected areas and systems over the 37 year life of the building. There is currently at least one major project in progress to update HVAC and life safety (emergency lighting, fire alarm and sprinklers). This work is primarily in the basement, but effects various areas of the building. There is some modern equipment such as the Square D Chiller Substation #2, installed in 1998, and the addressable Simplex Fire Alarm System, installed in 2000, which are in excellent condition. Also, there have been significant lighting upgrades.

Much of the original electrical equipment is still in use. The original electrical distribution equipment should be replaced as soon as the budget allows, especially the FPE (Federal Pacific Electric Company) branch circuit panelboards. Also, the original FPE Substation #1 medium voltage switches, transformer, and main switchgear, motor control centers in the basement and in the mechanical penthouse, and bus duct should be tested, evaluated, and scanned for hot spots. The bus duct feeding power up through the building is showing rust. The emergency generator and transfer switch are near the end of useful life, and the present installation does not meet modern building codes.

Main Electrical Service

- There is 13.8 KV incoming voltage which is converted to the 480/277, 3 phase, 4 wire utilization voltage at the two substations in the Main Electrical Room B08A in the basement. At the original FPE Substation #1, two redundant, primary selective, 13.8 KV feeders terminate at two interlocked medium voltage switches. The 13.8 KV then feeds the 2500 KVA transformer and 3000 amp switchboard in Substation #1. The 13.8 KV also feeds over to the medium voltage current interrupter switch at the newer Substation #2. Substation #2 consists of a primary switch, a 750/1000 KVA, 13.8 KV to 480/277 volt transformer feeding a 1200 amp switchboard, primarily for power to the chiller. The power is fed at 480/277 volt via large feeders or bus duct and converted to a 208/120, 3 phase, 4 wire utilization voltage by small distribution transformers located throughout the building near the loads.
- All of the original FPE equipment should be tested and evaluated. It is nearing end of useful life and should be refurbished or replaced when the budget allows.
- The circuit breaker feeding Motor Control Center #3 in Substation #1 appears to have had heat problems because a solid metal cover panel has been replaced by a mesh screen. This does not afford arc flash protection to anyone near the switchgear and does not comply with modern codes.
- The electrical usage is metered and recorded by two permanently networked Square D Power Logic...
digital meters, one on Substation #1 and the other on Substation #2.

- According to the meters, peak demand has been recorded at 1260 KVA for Substation #1 and 311 KVA for Substation #2.

Building Wiring ............................................................................................................................................. 3

- Overall, the building wiring generally appears to be in acceptable condition and well maintained. There is conduit and wireway that is heavily corroded and missing a cover (at the original clock system power supply), but this does not appear to be the norm.
- As stated in the summary portion, the bus duct going up through the building is showing rust and should be evaluated.
- Some modern circuit breaker panelboards have been added to supplement original branch circuit capacity or replace original. The original Federal Pacific Electric Company (FPE) branch circuit panelboards and circuit breakers are not considered reliable by many professionals due to fire hazards associated with their residential line of circuit breakers and panelboards which caused the FPE Company to go out of business. (There is a Federal Pacific Company still in business not associated with the FPE Company.) There has not seemed to be many complaints with the commercial equipment, but at 37 years old, it is best to replace it when the opportunity arises.
- The normal power bus duct riser shares electrical closets with the emergency lighting panels, which does not comply with modern life safety codes.

Fire Alarm .................................................................................................................................................. 1

- There is a modern Simplex 4100 NDU addressable fire alarm system with voice evacuation. It is in very good condition.

Lighting ..................................................................................................................................................... 1

- Most of the lighting appears to have been upgraded to modern fluorescent fixtures utilizing energy efficient T8 or compact fluorescent lamps. The lighting is in good condition.

Emergency Power and Lighting .................................................................................................................. 4

- The emergency power and lighting system supply consists of original equipment which is near the end of its useful life. These pieces of equipment should be replaced as soon as the budget allows. The power supply is an Onan 250 KW, 480/277 volt, 3 phase, 4 wire natural gas generator located in the Penthouse Mechanical Room on the 27th Floor. An 800 amp, 3 pole Russelectric automatic transfer switch is built into the existing, original motor Federal Pacific motor control center. The generator installation does not comply with modern building codes. A compliance study report done by Art Engineering (as part of a 2008 detailed building report by Beacon Architectural Associates, on file with the Department of Facilities and Campus Planning) dated February 13, 2008 states that the Amherst Electrical inspector will not allow any additional loads on the existing emergency standby system.
- Various options for replacement of the emergency systems were presented in the fore-mentioned report. Partial implementation is in progress with the current project titled HVAC and Life Safety Improvements. New emergency lighting in the building will be powered by a central battery, inverter system which will be in compliance with modern life safety codes.

Low Voltage Systems .................................................................................................................................. 3

- Campus wireless network is present.
- There is a Standard Electric Time Company clock system that is appears to be still in use.
- There is a natural gas fire pump in the basement which is showing its age. It should be tested and
HVAC NARRATIVE

Overview Building Description:
The building is served by all air systems. Most of them are multizone systems utilizing hot deck/cold
dock with mixing at the air handling units. Except for the chiller and a couple of pumps, the systems and
equipment appear to be original. We learned during the survey that there is a program underway to
replace AHU’s – 8, 11, -12, -13 and 14, as well as RF – 11, 12, 13 and 14. These are currently dual-deck multi-zone units. The new arrangement will utilize single zone AHU’s with large modulating damper/reheat coil terminals for each zone.

- Room # B08 MER (NE corner)
  - Most equipment in here appears to be original
    * York centrifugal chiller YTK3C4E2 – CNHS; R-123; newer than rest of equipment in room
    * HAC – 7; AC – 10; AC – 12; EF – 7; EF – 9; F-16
    * Chilled water pumps #3 and #4 appear newer than rest of equipment
    * Condenser water pumps #3 and #4
    * Pumps #7 and #8 (could be DHW)
    * Two hydronic hot water HX’s and zone pumps #14 east side, #15 and #16 south side

- Room # B09 MER
  - Most equipment in here also appears to be original
    * HAC – 13; EF – 13 and EF – 17
  - Condensate receiver

- Room # B11 MER
  - Most equipment in here also appears to be original
    * AC – 14 and EF – 14
    * Two hydronic heat exchangers and four zone pumps

- Penthouse
  - Equipment here is original
    * AC – 1, AC – 2 and AC – 5; EF – 1 and EF – 2,
    * Hydronic heat exchangers and four zone pumps
    * Hydronic heat exchangers and two zone pumps
    * Two condenser water pumps
    * Emergency generator

Prerequisites:
Ventilation: Yes
Cooling: Yes
PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing .................................................................................................................................... 3

Most of the plumbing was installed in 1972 and is therefore 37 years old. Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation.

Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection ................................................................................................................................ 5

Only the basement will soon be sprinklered.
BUILDING STATISTICS

Year Constructed: 1973
Approx. Gross Area: 219,100 SF
Stories: 4
Address: 151 Presidents Drive
Use Group: B - Business/ A1 - Assembly
UMass Utilization: Academic & Performing Arts
Historic Significance: Significant

Rating Summary

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural</td>
<td>2.7</td>
</tr>
<tr>
<td>Plumbing &amp; FP</td>
<td>4.0</td>
</tr>
<tr>
<td>HVAC</td>
<td>3.6</td>
</tr>
<tr>
<td>Electrical &amp; Alarm</td>
<td>3.0</td>
</tr>
<tr>
<td>Overall Rating</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>Fair</td>
</tr>
</tbody>
</table>

Description

The Fine Arts Center (FAC) forms a dramatic backdrop along the end of the Haggis Mall and creates an east west axis across campus at the south end of the pond. A complex building, housing Theater, Music and Art as well as the main campus performance facility, the FAC gets its sculptural form in the expression of the unique internal volumes. FAC is both an academic building and a building of public assembly. Theater, Music and Art (predominately Architecture) departments occupy and schedule their facilities with the Concert Hall run and controlled by the Fine Arts Center. The building is in fair condition but it is in need of upgrades in HVAC and accessibility to continue to serve its mission.

There is a noted need for music and theater program growth. The sculptural shape and nature of the building presents distinct expansion challenges, if not outright barriers.

Assessment Summary

Asset building - highly utilized – space configuration (and lack of space) constrains current programs (music & theater) - facility’s condition compromises use - facility’s condition compromises use - limited accessibility, needs improvement (areas of the building are completely inaccessible)

Recommendation

Current use is well suited to the building- coordinate aggressive maintenance around system upgrades - implement staged upgrades to key building component without taking the building off line - localized renovations needed to optimize use - renovation/ improvement investment is a good value

Occupancy

<table>
<thead>
<tr>
<th>Category</th>
<th>Use</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART</td>
<td>24,376</td>
<td>13%</td>
</tr>
<tr>
<td>COMPUTING/NETWORKING</td>
<td>95</td>
<td>0%</td>
</tr>
<tr>
<td>FINE ARTS CENTER</td>
<td>32,755</td>
<td>17%</td>
</tr>
<tr>
<td>GENERAL BUILDING AREAS</td>
<td>75,613</td>
<td>40%</td>
</tr>
<tr>
<td>GROUNDS/CUSTODIAL</td>
<td>286</td>
<td>0%</td>
</tr>
<tr>
<td>LIBRARY ADMINISTRATIVE SERVICE</td>
<td>679</td>
<td>0%</td>
</tr>
<tr>
<td>MUSIC &amp; DANCE</td>
<td>28,350</td>
<td>15%</td>
</tr>
<tr>
<td>THEATER</td>
<td>28,886</td>
<td>15%</td>
</tr>
<tr>
<td>FINE ARTS CENTER Total</td>
<td>191,040 NSF</td>
<td></td>
</tr>
</tbody>
</table>
ARCHITECTURAL NARRATIVE

Overview Building Description:
As noted above, the FAC is a complex and challenging building to understand, maintain, and upgrade. There are distinct forms that reflect the volumes and activities within. The Concert Hall forms the central, largest space for public performances. The remainder of the building is dedicated to academic purposes with Theater anchoring the west end of the building around the Curtain and Rand Theaters and associated department and office spaces. Music is to the east end of the building with a wing of practice rooms and offices, rehearsal spaces, music library and the Bezanson Recital Hall arranged on a north south axis. The Arts Bridge forms a physical and compositional connector across the fourth floor level, also defining the open colonnade axis from Herter Hall at the west to North Pleasant Street at the East. There are also occupied spaces below the plaza.

The complex presents significant mechanical, waterproofing, circulation and way-finding challenges. The building has required an ongoing series of repair and upgrade projects over many years to maintain its integrity. The sculptural nature of the building and the significance of the building’s architect (Kevin Roche John Dinkeloo and Associates) has made alterations to the exterior of the building controversial in the past and expansion of the building to accommodate growing programs would be difficult and perhaps impractical.

Spatially, there are no real modules typical of other academic buildings other than offices and practice rooms in the theater and music wings. The bridge is subdivided into a series of 1,100 sf studios by non-bearing partitions that could be removed or altered to other room size configurations.

Exterior Building Envelope

The building is cast-in-place, reinforced concrete, with metal windows, and a combination of metal and single ply membrane roofing. There are also extensive areas of plaza waterproofing and pavers which have been an ongoing source of maintenance and replacement need. Drawing documentation indicates several roof and envelope repair/replacement projects, the most recent being in 2008. Current conditions seem to be stable however the complex geometry of the building and its numerous flashing conditions will continue to require vigilance and provisions for maintenance and refurbishment.

Entrances, Circulation and Accessibility

The building has at grade entrances from the Haggis Plaza approaches. The ramp to the Bezanson Recital Hall is extremely long and lacks proper railings. The pond side of the building does not have accessible entrances to the main public levels. There is an elevator at the west end of the building serving the art bridge and interim levels in that end of the complex. There is no elevator in the east end of the building leaving the mid levels of the art and music building without a means of handicap access.

Toilet facilities in the west end have been designed for access but do not meet current code criteria. Most door hardware is knob actuated and non-conforming. Corridors are adequate in dimension. Stairs are steeper than the current code prescribes and hand and guardrails should be brought up to code height and space dimension between members.

Common Area Interior Finishes

Interior finishes and their conditions range considerably throughout the building and between departments. In general, the Theater and Music zones have received some upgrades and are in fair condition. The spaces are used more or less as designed with the exception the converting of some practice space to faculty offices. Space issues are around the quantity rather than the quality of space.
The art bridge and remaining studio art functions are not well planned and in these areas, the finishes are generally more utilitarian, in fair to poor condition, and in need of upgrading. While the space is well suited to the architecture program there are many remnants of the prior studio arts programs (fume hoods, sinks, etc.) that should be removed to allow the area to better serve the need.

ELECTRICAL NARRATIVE

Overview Building Description:
The electrical service and distribution capacity seems to be adequate for the present and future anticipated loads. A load analysis would need to be done for any major renovation.

This building serves many different functions, each having very different requirements. The University has renovated many selected areas and systems over the 35 year life of the building, so some areas have modern equipment such as the Bezanson Recital Hall and Music Wing, with upgrades to Mechanical Rooms 46 and 144 on the east end of the building. The Rand Theatre and Auditorium have new dimming systems. Some areas or systems have all original equipment, and there are some that have been partially renovated. Three of the four low voltage Load Center (LC) dry type transformers have been replaced with new high efficiency Powersmith dry type transformers, placed in the original substation transformer enclosures. (LC#1, #3, and #4 transformers have been replaced, while LC#2, a medium voltage substation – over 600 volts - has not, and LC#5, a low voltage substation – under 600 volts - has not.) There have been significant lighting upgrades.

The original electrical distribution equipment should be replaced as soon as the budget allows, especially the FPE (Federal Pacific Electric Company) branch circuit panelboards. Also, the original FPE switchboards and medium voltage interrupters should be tested, evaluated, and scanned for hot spots. Ground fault protection should be added to the Main Switchboard and Load Center #2 (if not already done) for safety, as is required by modern electrical codes. The emergency generator and transfer switch are near the end of useful life, and the present installation does not meet modern building codes. It may be necessary eventually to install a new package unit generator set exterior to the building. Fire alarm system upgrades will be necessary with major renovations.

Main Electrical Service.............................................................. 3

- Because of the size of the facility, and distance from one end to the other, the Fine Arts Center utilizes a three-tiered electrical distribution system. There is 13.8 KV incoming voltage, which is distributed to large transformers on the east (750 KVA) and west (1500 KVA) ends of the building stepping the voltage down to the 480/277 utilization voltage. The power is further distributed to other large transformers stepping down to the 208/120 utilization voltage.
- The Main Switches are part of a four bay unit on the west side of the building in Electrical Room 34. Each bay is comprised of a medium voltage current interrupter switch. Each of the first two bays are for redundant 13.8 KV, 3 phase, 3 wire incoming radial feeders in a primary selective configuration, each terminating in a 600 amp, non-fused disconnect, key interlocked so that only one line can be closed at a time. The third interrupter is fused and feeds three 500 KVA transformers in the adjacent transformer vault, wired in wye-delta configuration to provide 1500 KVA capacity at 480/277, 3 phase, 4 wire. The fourth interrupter is fused and feeds to a medium voltage, fused interrupter on the east end of the building, which in turn feeds LC#2, 750 KVA capacity at 480/277, 3 phase, 4 wire.
- The following is intended to provide a system summary of the distribution for normal power: The Main Switchgear is rated 2000 amps at 480/277 volt and is fed via 2000 amp bus duct from the three 500 KVA transformers in the Main Transformer Vault. The Load Centers are LC#1(Main
Electrical Room 34, 480 to 208/120 volts, 500 KVA, 1600 amp switchboard) and LC#5 (Mechanical Room 20, 480 to 208/120 volts, 225 KVA, 800 amp switchboard) on the west end of the building. There is LC#4 toward the center (Mechanical Room 39, 480 to 208/120 volts, 500 KVA, 1600 amp switchboard). There are LC#2 (Mechanical Room 46, 13.8 KV to 480/277 volts, 750 KVA, 1200 amp switchboard) and LC#3 (Mechanical Room 46, 480 to 208/120 volts, 150 KVA, 500 amp switchboard) on the east end of the building. The Main Switchgear and these five Load Centers feed power to the other switchboards and panelboards throughout the building.

- Ground fault protection should be added to the Main Switchboard and Load Center #2 for safety. This may have already been done, but was not shown on any drawings and would require removal of covers to verify.
- The Main Switchgear, Load Centers, and medium voltage interrupters should be tested, evaluated, and scanned for hot spots. Main and Feeder breakers should be tested to evaluate their trip capabilities and whether replacement is necessary.
- The electrical usage is metered and recorded by permanently networked Square D Power Logic digital meters. There is one meter in Switchboard Room 34 (west end of the building), and there is a meter in Mechanical Room 46 (east end of the building).
- According to the meters, west peak demand has been recorded at 552 KVA and east peak demand has been recorded at 300 KVA.

Building Wiring ..................................................................................................................................................... 3

- Building wiring generally appears to be in fair condition.
- Some modern circuit breaker panelboards have been added to supplement original branch circuit capacity or replace original. The original Federal Pacific Electric Company (FPE) branch circuit panelboards and circuit breakers are not considered reliable by many professionals due to fire hazards associated with their residential line of circuit breakers and panelboards which caused the FPE Company to go out of business. (There is a Federal Pacific Company still in business not associated with the FPE Company.) There has not seemed to be many complaints with the commercial equipment, but at 36 years old, it is best to replace it when the opportunity arises.

Fire Alarm .......................................................................................................................................................... 3

- The original Honeywell hard wired fire alarm system appears to still be in use, with new Simplex addressable equipment added during renovations.
- Many of the visual notification devices do not comply with modern codes, or are not where required.
- Manual pull stations are mounted higher than the code allows.

Lighting ............................................................................................................................................................ 3

- Much of the lighting appears to have been upgraded to modern fluorescent fixtures utilizing energy efficient T8 or compact fluorescent lamps.
- The lighting in the art studios on the fourth floor bridge still consists of original T12HO fluorescent controlled via heavy duty contactors. It would be advisable to consider updating this to more efficient lighting when the budget allows. The abundance of daylight through the large skylights is a huge plus.
- Light switches are mounted higher than the modern code allows.

Emergency Power and Lighting ......................................................................................................................... 4

- The emergency power and lighting system supply consists of original equipment which is near the end of its useful life. These pieces of equipment should be replaced as soon as the budget allows.
The power supply is an Onan 200 KW diesel generator located in Mechanical Room 34 on the west end of the building. The associated 400 amp, 480/277 volt, 3 pole transfer switch and 275 gallon fuel tank are also located in this room. This installation would not comply with modern building codes.

Low Voltage Systems

- Campus wireless network is present.
- There is a Standard Electric Time Company clock system still in use which appears to be well maintained.
- There is a paging system which serves a portion of the building.

Overall Rating

HVAC NARRATIVE

Overview Building Description:
The fine arts center is served by a number of different air systems. Most of the system and equipment appear to be original, with the few exceptions noted. There also is a project in progress to replace some of the HVAC equipment in this building.

- Fifth Level Bridge appears to be fan coils units with outdoor air.
  - Very poor air distribution; register over entry door appears to be split into supply and return; outdoor air appears to be ducted to return portion of grille; individual outdoor air intakes through roof each appear to serve a couple of rooms
  - Many rooms have auxiliary exhaust for various art activities, but there does not appear to be provision for additional make-up air to accommodate exhaust
- Room # 20 MER
  - Four separate air handling systems serve Speech Building, Speech Studio, Scenery Shop and Studio Room; one return fan; all appear to be original; there is not adequate space in this room to maintain equipment
- Room # 27 MER
  - Exhaust fan AH-5
- Room #27B MER
  - AH-9
  - EF-9
  - AH-7
  - AH-8
- Room # 34 Electric Room
  - Two identical Trane CVHE400 chillers manufactured in 2002
  - Two chilled water pumps and one condenser water pump appear to be new
  - Four hydronic hot water pumps appear original
  - Steam to hydronic hot water heat exchanger also appears original
  - Lots of missing pipe insulation on hot water piping and heat exchanger
  - Steam PRV also
- Room # 46 MER
  - AH – 14 (old Airtherm Central Aire AHU Model HC113))
  - AH – 15 (old)
  - AH – 16 (old)
  - AH – 19A New Ventrol unit
  - AH-20 (old)
- Dual temp supply pumps
- Room # 144 MER
  - AHU – 17 appears to be newer Ventrol unit (check drawings)
  - Also AHU - 18 for Recital Hall appears original
  - Exhaust fans EF-20 and EF-22; also EF-34 appears to be MER exhaust
  - Dual temperature supply system in this room

Note: The entire building appears to have lined duct. This duct work should be replaced as the central equipment is updated. The lined duct can harbor bacteria and mold, and will deteriorate over time. The deterioration will result in particulate being discharged from the system.

Prerequisites:
Ventilation: Yes
Cooling: Yes

Age................................................................. 5
Condition .......................................................... 3
Capacity............................................................ 3
Efficiency........................................................... 4
Maintainability .................................................... 3
Overall Rating .................................................... 3.6

PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing.................................................................................................................. 3

Most of the plumbing was installed in 1973 and is therefore 36 years old. Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation.

Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection............................................................................................................. 5

There is no sprinkler system.
### Building Statistics

- **Year Constructed:** 1912
- **Approx. Gross Area:** 29,900 SF
- **Stories:** 4
- **Address:** 90 Campus Center Way
- **Use Group:** B - Business
- **UMass Utilization:** Academic & Research
- **Historic Significance:** Legacy

### Rating Summary

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural</td>
<td>4.2</td>
</tr>
<tr>
<td>Plumbing &amp; FP</td>
<td>5.0</td>
</tr>
<tr>
<td>HVAC</td>
<td>5.0</td>
</tr>
<tr>
<td>Electrical &amp; Alarm</td>
<td>4.0</td>
</tr>
<tr>
<td>Overall Rating</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>Poor</td>
</tr>
</tbody>
</table>

### Assessment Summary

Boarder-line asset/ liability building - somewhat under-utilized - space configuration is not well suited to current use - deficiencies in facility’s systems limits use - generally inaccessible

### Recommendation

Building should be renovated for department that requires special teaching environments - differ upgrades except maintenance essential to sustain operation - take building off line for comprehensive renovation/restoration - restoration investment is offset by historic value of the building to campus

### Description

The Flint Laboratory was designed in a neo-classical style by the same architect as Stockbridge Hall. The two buildings make strong reference to the University’s Agricultural School heritage. The building is sound but in poor condition. The floor plate and overall dimensional flexibility could support a number of adaptive reuse scenarios depending on the need for small to medium sized classrooms or departments that require departmentally controlled learning environments. The extent of the renovations required to address code problems, accessibility deficiency and building systems replacement requires that the building be taken off line during the work. Hotel and Tourism Management hope to relocate to the business school which would help facilitate the renovation.

Long term planning should take into account the potential Flint has to contribute to the heritage of the campus and lend a strong identity to the appropriate departmental program.

### Occupancy

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL BUILDING AREAS</td>
<td>7,098</td>
<td>27%</td>
</tr>
<tr>
<td>GROUNDS/CUSTODIAL</td>
<td>121</td>
<td>0%</td>
</tr>
<tr>
<td>HOSPITALITY AND TOURISM MANAGEMENT</td>
<td>15,856</td>
<td>61%</td>
</tr>
<tr>
<td>UMASS CLASSROOMS (Total Seat Count = 171)</td>
<td>2,764</td>
<td>11%</td>
</tr>
<tr>
<td>FLINT LABORATORY Total</td>
<td>25,839</td>
<td>NSF</td>
</tr>
</tbody>
</table>
ARCHITECTURAL NARRATIVE

Overview Building Description:
Flint Laboratory was designed and built as a dairy lab facility and was set up for large (wet) work rooms with minimal office and classroom space. The building has received many piecemeal renovations as the dairy facility likely became outdated. It is unclear in the drawing data available when the current office and classrooms were installed. It is apparent that the building has never had a cohesive, overall renovation/rehabilitation and that there is a significant amount of under utilized available space in the building.

The structural module yields a wide (8'-6") corridor and rooms to either side of approximately 25'-0", a good medium size classroom depth. Framing would allow for partitions to be arranged around window openings and the opportunity for creating rooms of varying lengths and sizes. The basement has a mid-span column line that interrupts the floor plate and limits large room layouts. The attic (3rd floor) has limited natural light via 4 large dormers but could yield usable space. It currently has only one stair (means of egress), however. Floor to floor dimensions are: Bsmt to 1st, 10'-6"; 1st to 2nd, 13'-6"; 2nd to 3rd (attic), 13'-0". The ceiling heights appear to be adequate for potential upgrades to HVAC and other antiquated or missing systems.

Exterior Building Envelope........................................................................................................3.5

Exterior walls are solid masonry bearing walls. We could find no drawing documentation of significant repointing or masonry repairs. The need for pointing work is visually obvious, however. Water infiltration problems, attributed to the roof, walls, rain leaders and foundation walls were reported by the occupants. The scope of this survey does not allow for a definitive assessment of the source. Given the age of the systems, it seems likely that all need attention and rehabilitation or replacement in the case of the roof. No signs were noted that these problems were related to systemic failures that could not be rectified in a common, preservation/renovations campaign.

Windows appear to be original and have been altered significantly for the installation of window air conditioning units that contribute significantly to air infiltration and extreme discomfort for occupants seated near them. Given the many alterations, a good case exists for replacing the windows with a much higher performing, energy efficient unit, designed to complement the historic character of the building.

Structural work to shore the first floor in the southwest corner of the building was done, initially in 1970 and more extensively in 1984. The original building had a double beam with a trench type floor drain between the beams. It is assumed that a failure in this system was the source of the problem and further investigation will be needed to insure that the most recent repairs have been effective.

Entrances, Circulation and Accessibility........................................................................................5

The first floor is raised and the main entrance includes a formal exterior stair which prevents access to the main level. The basement has an at grade entrance at the rear, west side, but it has not been set up as an accessible entrance and would not allow for access to central offices and programs which are on the first floor. The building had an elevator in the original plan. It was apparently replaced in 1970 but has since been decommissioned. Based on the little information known, it seems unlikely that it is dimensionally adequate and should be entirely replaced, probably in a location that would serve a new use for the building.

Corridors are a generous width. Stairs are steeper than current code allows with radiator obstructions at the landings and handrails that are too low. Toilets were renovated in 1991 and brought up to a level of handicap accessibility that would not meet current dimensional standards. The toilet facilities are separated with men on the basement level and women on the first floor.
The interior of the building has no finishes or architectural detail worthy of preservation. The spaces themselves have appeal due to their high ceilings and large windows. On a raw level, the quality of the space is good and could yield interesting and stimulating renovated spaces.

**ELECTRICAL NARRATIVE**

**Overview Building Description:**
The power and fire alarm systems require major upgrades. The fire alarm system is obsolete and needs to be upgraded to meet applicable life safety and accessibility standards. Most of the wiring is very old and outdated. There is an abundance of surface raceway throughout the building causing a shabby appearance.

**Main Electrical Service.................................................................................................................. 4**

- Flint Laboratory utilizes a 208/120 volt, 3 phase, 4 four wire electrical system. The Main Panelboard is a Westinghouse Electric 400 amp circuit breaker panel which is showing age. Replacement circuit breakers are still available. It is in fair condition, but there are breaker space covers missing, exposing energized bus. Blank covers should be installed.
- The service is fed from an exterior padmount transformer which appears to be in fair condition.
- The electrical capacity of the Main Panelboard provides less than 5 watts per square foot. This is more than sufficient for the present load, but the service must be upgraded if central air conditioning is to be considered.
- The electrical usage is metered and recorded by a permanently networked Square D Power Logic digital meter.
  - According to the meter, peak demand has been recorded at 42 KVA.

**Building Wiring ............................................................................................................................ 5**

- On each floor, modern circuit breaker panelboards have been added to supplement original branch circuit capacity. Many of the walls date from the original construction and original building wire is still in use.
- Many branch circuits appear to be fed from the original Edison-base fused panelboards manufactured by the old Frank Adams Electric Company (out of business for more than 30 years at least).
- Surface metal raceway has been used extensively to add wiring where needed.
- It is recommended to replace wiring and panelboards for any significant renovation.
- There are light fixtures and surface conduit on the exterior of the building which are showing rust and age, causing a shabby appearance.

**Fire Alarm ................................................................................................................................... 5**

- There is an obsolete fire alarm system. It should be replaced.
- There are no smoke detectors.
- There did not appear to be any visual alarm devices (strobes) throughout the building as is required by modern life safety standards.
- Pull stations are mounted above the 48” maximum height required by modern accessibility codes.

**Lighting ........................................................................................................................................ 4**
Most of the classroom and office lighting is in good condition, having been upgraded with fixtures using modern T8 and compact fluorescent lamps. There are some older fluorescent fixtures that are showing age.

- Although corridor fixtures appear to use fluorescent lamps, corridors and stairs are poorly illuminated.
- Light switches are generally above the 48” maximum required by modern accessibility codes.
- There are still some incandescent light fixtures in use.

Emergency Power and Lighting

- Emergency lighting is provided by recently installed self-contained battery units in the stairwells, corridors, classrooms and miscellaneous other locations. They appear to be in good condition, but would need to be replaced during any significant renovation.
- Most of the wiring is in surface mounted raceway or conduit.

Low Voltage Systems

- Campus wireless network is present.
- Two of the classrooms have the basic audio-visual instruction equipment.
- There does not appear to be a clock system.

Overall Rating

HVAC NARRATIVE

Overview Building Description:
There are some old systems serving Flint Laboratory, but they appear to be barely functional, if at all. Air quality in the basement in particular has been noted to be of great concern. The building was cold. The HVAC systems for this building should be completely replaced.

Prerequisites:
Ventilation: No
Cooling: No

Age
Condition
Capacity
Efficiency
Maintainability
Overall Rating
PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing............................................................................................................................................. 5

Most of the plumbing was installed in 1938 and is therefore over 50 years old. Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation.

Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection.......................................................................................................................................... 5

There is no sprinkler system.
Furcolo Hall was built in conjunction with a “practice school” (Mark’s Meadow) forming the SOE complex on the extreme north end of the campus. Built in a nondescript academic style, Furcolo looks like a typical K-12 facility of the period. Growth and increased specialization in the fields of training educators has caused the administrative and departmental functions to expand beyond the office wing of the original design. Teaching spaces have been altered to become administrative offices and two large departments have had to be located to a remote building (Hills House) at the south end of the campus leaving the Dean’s offices and one academic department in Furcolo. The building is sound and in generally fair condition.

Primary needs are in the area of finding more space, better utilizing existing space, upgrading conditions including limited remediation and making the building fully accessible.

Building should be renovated for mixed classroom/department space - coordinate aggressive maintenance around system upgrades - implement staged upgrades to key building component without taking the building off line - localized renovations needed to optimize use - renovation/ improvement investment is a good value.
ARCHITECTURAL NARRATIVE

Overview Building Description:
Furcolo is made up of two wings which form an “L”. The northwest wing is a narrow footprint, designed and currently used for offices. The south wing is a wider floor plate and was designed for teaching space, a large open plan resource/reading room and generally larger spaces. Floor to floor heights are 10’-0” in the office wing and 10’-6” in the classroom wing. The disparity is exacerbated as the floor levels between the wings do not match at any level. A small amount of under-utilized space exists in the basement where a television studio is no longer used.

The west wing is used as offices as initially designed. Offices have migrated into the south, teaching wing, however, where the resource/reading room on the lower level has been subdivided into computer rooms, classrooms and program support spaces. The first floor has been subdivided into all offices, conference rooms and office support spaces with the exception of one UMass classroom. The second floor has several originally scaled teaching spaces including one UMass classroom but the learning environments have been subdivided into offices for the most part. In addition, 2 SOE departments are housed in 17,500 sf in Hills Hall.

Exterior Building Envelope
The facades are composed of red brick, marble accents and single glazed, aluminum frame windows. The roof over is flat and is protected with a single ply, PVC membrane. Drawing documentation indicates that the roof was last replaced in 1993 at which time masonry repairs were also made along the top of the walls.

Entrances, Circulation and Accessibility
The floor to floor heights vary between the office wing and the classroom wings and while the main entrance is on grade and the doors have been replaced in conformance with accessible leaf dimensions, the interior of the building presents significant accessibility challenges. A ramp was installed in 1980 in the main lobby area connecting the office (west) wing and (what is now) the dean’s administrative offices on the first floor of the south wing. At that time, alterations were also made to the toilet spaces on the first floor to provide accessible toilets on the main level. The toilet rooms are not dimensionally compliant with the current code. There is a 19 inch change in grade from the office wing up to the teaching wing at the basement level and a 30 inch rise between the office and teaching wings on the 2nd floor. An incline wheel chair lift was added to the central stairs, however, it is no longer used as it lacks capacity for motorized wheel chairs.

Corridors are wide and dimensionally adequate. Stairs are steeper than current code allows but could be altered for improved safety with adaptations to the stair nosing and replacement or alteration of the hand and guardrails to meet dimensional criteria. Doors are knob actuated and non-compliant. Toilet rooms are also non-compliant as are drinking fountains.

Common Area Interior Finishes
Furcolo is well maintained and in generally good condition with the exception of lose ceiling tiles which are contaminated with an asbestos containing adhesive. The spaces receive abundant natural light and are good quality space. Offices and spaces created from renovated classrooms are somewhat oversized and not as efficient as specifically designed space would be.
ELECTRICAL NARRATIVE

Overview Building Description:
Furcolo Hall is currently home to many of the offices and classrooms of the School of Education. It is a 101,000 gross square foot building which also houses Marks Meadow Elementary School. From the original building plans, the facility was called the “School of Education and Laboratory Practice School Building.” The Furcolo School of Education is a roughly 45,450 square foot portion of the building located in the original School of Education. The Marks Meadow Elementary School is located in the original Laboratory Practice School. Marks Meadow has been extensively renovated. New wiring and panelboards were installed in 2001. A modern addressable Simplex Fire Alarm was installed in 2002. The Furcolo School of Education has not been changed nearly as much from the original.

Electrically, the Furcolo School of Education and the Marks Meadow Elementary School share the same Main Circuit Breaker and Main Switchboard, but beyond that, they are metered independently. And, they do not share fire alarm systems.

Improvements have been made to the Furcolo School of Education. Classrooms and a few other areas have been remodeled over the years. Original incandescent lighting has been replaced with modern fluorescent fixtures. Classrooms have been modernized with new electrical receptacles and computers or audio-visual packages. The original clock system has been updated from the original Standard Electric Time system to a modern Simplex clock system.

Although circuit breaker panelboards have been added for the computer lab and television studio, most of the original 1962 equipment and wiring are still in use. The original panelboards and fire alarm systems are still in use. These do not comply with modern codes and would need to be replaced with any major renovation. There is a new main electrical switchboard serving the facility. A careful load analysis should be conducted prior to the addition of more electrical load at Furcolo Hall.

Main Electrical Service

- The entire facility is served by a modern General Electric Spectra Series switchboard rated 1600 amp, 208/120 volt, 3 phase, 4 wire. It was installed in 2001 as part of an upgrade of the original electrical service. It is located in the basement of the central area below the elementary school. The service conductors and transformer vault were upgraded also. There are two 800 amp, 3 phase circuit breakers downstream from the 1600 amp Main Breaker. One 800 amp breaker feeds half of the switchboard serving the elementary school, and one 800 amp breaker feeds the half of the switchboard serving the Furcolo School of Education, including a small television studio which is not currently utilized, and a small nearby building known as the Montague House. A 600 amp, 3 phase feeder serves Panel SDP, the original main distribution panel for the School of Education. This panel feeds all of the other original panels. A 200 amp, 3 phase feeder serves the Television Studio, and another 200 amp, 3 phase feeder serves the Montague House. The capacity of the service may be marginal for central air conditioning. A careful load analysis would be required.
- The electrical usage is metered and recorded using a separate networked Square D Power Logic PM800 digital meter on each 800 amp side of the Main Switchboard.
- The peak demand has been recorded at 130 KVA on the side feeding the Furcolo School of Education.
- The peak demand has been recorded at 96 KVA on the Marks Meadow School side.

The following assessment is for the Furcolo School of Education only.
Building Wiring .................................................................................................................................................. 5

- Much of the branch circuit wiring is still fed from the original General Electric Edison-base fused panelboards.
- Electrical equipment serving mechanical equipment in the pump room appeared to be near end of useful life. (The floor of the pump room was flooded on the day of the survey.)
- Surface metal raceway has been used extensively to add wiring where needed.
- It will be necessary to replace panelboards and wiring during any significant renovation. Most panelboards are beyond useful life and/or do not comply with modern codes.

Fire Alarm ..................................................................................................................................................... 5

- The original hard-wired Standard Electric Time fire alarm system is still in use and does not comply with modern codes. It would need to be replaced with any major renovation.

Lighting ....................................................................................................................................................... 2

- In most cases, the lighting has been upgraded with fluorescent fixtures which use T8 lamps.

Emergency Power and Lighting ..................................................................................................................... 4

- Self-contained battery backup units are distributed throughout the building to provide power for emergency egress lighting and exit signs. They are showing age and would be replaced during any significant renovation.

Low Voltage Systems .................................................................................................................................. 3

- Campus wireless network is present.
- A modern Simplex Clock System serves the building.
- Only a few of the classrooms appear have a basic audio-visual package.

Overall Rating .............................................................................................................................................. 3.8

HVAC NARRATIVE

Overview Building Description:
The HVAC equipment in this building all appears to be original. There is a mix of unit ventilators and air systems.
- Unit ventilators in classrooms with wall thermostats; appear to be steam heat; no cooling
- Interior spaces have sidewall supply grilles or ceiling supply diffusers; low sidewall return grilles; wall thermostats; common supply duct in horizontal chase along side of building; probably zone reheat coils.
- Believe steam is supplied from Marks Meadow school.

Prerequisites:
Ventilation: Yes
Cooling: No

Age ............................................................................................................................................................... 5

Condition ...................................................................................................................................................... 4
Capacity.................................................................................................................................................. 4
Efficiency.................................................................................................................................................. 4
Maintainability ......................................................................................................................................... 4
Overall Rating ....................................................................................................................................... 4.2

PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing .................................................................................................................................................. 4

Most of the plumbing was installed in 1962 and is therefore 47 years old. Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation.

Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection ........................................................................................................................................ 5

There is no sprinkler system.
171 - GOODELL BUILDING

BUILDING STATISTICS

Year Constructed: 1934
Approx. Gross Area: 34,300 SF
Stories: 4
Address: 140 Hicks Way
Use Group: B - Business
UMass Utilization: Academic & Research
Historic Significance: Legacy

Rating Summary

Architectural 2.0
Plumbing & FP 5.0
HVAC 4.0
Electrical & Alarm 2.0
Overall Rating 3.3 Fair

Assessment Summary

Potential asset building - somewhat under-utilized - space configuration is not well suited to current use (in many areas) - deficiencies in facility’s systems limits use- limited accessibility, needs improvement

Recommendation

Building should be renovated for department that requires special teaching environments - differ upgrades except maintenance essential to sustain operation - take building off line (probably in 3 zones) for comprehensive renovation/restoration - restoration investment is offset by historic value of the building to campus

Description

A Depression era building, Goodell “Library”, was built with the assistance of the Emergency Public Works Administration. Goodell is an important part of the University’s history and contributes to important historic nucleus at the center of the campus along with the Chapel, South College and Memorial Hall. The building was expanded to the west prior to the relocation of library functions to the DuBois tower in the early 1970s. The building currently houses a variety of occupants but is undistinguished and under-utilized as it has never been renovated to remove constricting remnants of the library (a self supporting stack structure) and reestablish a new identity and role on campus. The building is in fair condition and has been well maintained over the years. Also see Goodell Addition profile.

The interior layout is well suited to large spaces with high ceilings. An ideal occupant for this building would be able to take advantage of the spacious, open plan layout and high ceilings as well as benefit from and bring activity to the central campus location.

Occupancy

<table>
<thead>
<tr>
<th>CAMPUS CAREER NETWORK</th>
<th>4,730</th>
<th>17%</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMONWEALTH COLLEGE - HONORS PROGRAM</td>
<td>2,383</td>
<td>8%</td>
</tr>
<tr>
<td>COMPUTING/NETWORKING</td>
<td>723</td>
<td>3%</td>
</tr>
<tr>
<td>GENERAL BUILDING AREAS</td>
<td>7,784</td>
<td>28%</td>
</tr>
<tr>
<td>GRADUATE DEAN'S OFFICE</td>
<td>753</td>
<td>3%</td>
</tr>
<tr>
<td>GRANT &amp; CONTRACT ADMINISTRATION</td>
<td>19</td>
<td>0%</td>
</tr>
<tr>
<td>GROUNDS/CUSTODIAL</td>
<td>573</td>
<td>2%</td>
</tr>
<tr>
<td>NON ASSIGNED SPACE</td>
<td>5,578</td>
<td>20%</td>
</tr>
<tr>
<td>UNDERGRADUATE ADVISING &amp; LEARNING COMMUNITIES</td>
<td>3,260</td>
<td>12%</td>
</tr>
<tr>
<td>VICE CHANCELLOR FOR STUDENT AFFAIRS &amp; CAMPUS LIFE</td>
<td>2,453</td>
<td>9%</td>
</tr>
<tr>
<td>GOODELL BUILDING Total</td>
<td>28,256 NSF</td>
<td></td>
</tr>
</tbody>
</table>
ARCHITECTURAL NARRATIVE

Overview Building Description:
The Goodell Building was designed by Morse, Dickenson & Goodwin, Associated Engineers and Architects, to house the University library that had outgrown its previous location in the Chapel. It was sited in the center of campus in accordance with the Campus Planning Committee’s final report. The report stated that, “buildings of such a general service nature (library, dining hall, etc.) that they affect the entire student body be located in the first zone immediately adjacent to the central open space.” Today this area is still seen as the center of the campus. The Student Union and the W.E.B. DuBois Library are also located nearby.

In addition to Commonwealth College Honors Program, the building houses several administrative and advising departments. Although these programs benefit from the central location of Goodell, the large open spaces the building provides are ill suited to their uses. Office cubicles have been setup in some of the large spaces, but provide little or no privacy for conversations. Other areas have been partitioned into smaller spaces for private offices, but these small rooms do not make the most economical use of the space. Private offices are typically more appropriate for advising situations and a floor plan that accommodates such spaces would be more appropriate. The mostly rectangular floor plate, large spaces, and high ceilings would be better suited for classrooms or meeting rooms such as the Dallas Room.

In 1960, an addition was made that more than tripled the size of the building. The addition is integral and should be considered as one with the original (see profile immediately following).

Exterior Building Envelope................................................................. 1.5

Exterior walls are solid masonry bearing walls with wood trim and brick quoins at its corners. The windows have wood frames and sashes and the roof is slate. Other notable features are the two story portico surrounding the main entry and the cupola that sits atop the hip roof. The exterior envelope appears to be in good condition. There is documentation of an extensive exterior restoration that took place in 2008. It appears that the roof was replaced, the roof structure was repaired as necessary, necessary repointing and masonry replacement was done, spalling and masonry cracks were repaired, windows were recaulked and repaired as necessary, main entrance doors were replaced, the cupola was restored, copper gutters and ridge caps were replaced, mechanical penthouse was repaired and lead paint removed, and lightning protection was installed. With this extensive a restoration, the exterior envelope of this building should only need regular maintenance to be kept serviceable and in good condition.

Entrances, Circulation and Accessibility .............................................. 3

The main entrance is three steps above ground level on the east elevation. It is clearly distinguished by a projecting portico that is centered on the east facade and the elaborate ornamentation above the doorway. This entrance is accessible by a ramp. There is also one accessible entrance in the addition. An interior ramp on the 5th floor connects the original Goodell Building to its addition. The 4th and 6th floors are connected by level corridors. An elevator in the Goodell Addition provides access between floors. Accessible toilets are available in the addition on the 5th floor, with a limited accessibility toilet in the addition on the 4th floor. Accessible water fountains are also available.

Most corridors are of adequate width. However, some have obstructions that will need to be removed in order to be compliant. The stair has a 30 inch handrail, no guards, and inadequate guard rails. The stair slope may not meet current codes, but should be allowed for a building of this age. There are also a number of doors that do not have adequate pull and push side clearances and lack lever activated latches.

Common Area Interior Finishes ............................................................ 1.5

Spaces in the Goodell Building are handsomely detailed giving them attractive qualities that should be
preserved and carried over in a renovation or reuse scenario. Many of these details are wood or plaster and give the building its character. The flooring is mostly VCT with wood base and tile floors in the toilets. The walls are plaster with wood paneling or chair rails in certain areas. The ceilings are mostly plaster. Some ceilings have additional ornamentation and a couple ceilings on the 4th floor are tin. The doors and frames are wood. Most doors will need their hardware replaced to be brought up to code standards.

ELECTRICAL NARRATIVE

Overview Building Description:
The original Goodell Building addressed in this summary and the Goodell Building Addition serve the function of a single building, totaling approximately 129,000 square feet. The building has recently been upgraded with a modern, addressable fire alarm system and new emergency lighting and exit signage. Any significant renovation would include new circuit breaker panelboards and wiring.

Main Electrical Service

- The Goodell Building utilizes a 208/120 volt, 3 phase, 4 wire system. The Main Electrical Service is in the Goodell Building Addition, built in 1960.
- An 800 amp Square D, I-Line panelboard (with 500 amp main circuit breaker) located in Electrical Room 414 serves as the Main Distribution Panel (MDP) in the original building. (The fourth floor is the original basement level.) The MDP feeds other panelboards. The MDP, which was installed as part of 1990 upgrade, is fed from a 600 amp fused switch in the main electrical room of the Addition. The panelboard is in good condition and should have sufficient capacity for present and future loads, assuming that larger mechanical support equipment would be fed from the addition.
- The electrical usage for the entire building is metered at the main electrical room of the Addition.

Building Wiring

- There have been many renovations during which panelboards and new wiring were added. Some panelboards are in very good condition, but many panelboards have circuit breakers considered obsolete and should be replaced.
- A moderate amount of surface raceway has been used to update wiring.
- Much of the electrical gear serving mechanical equipment is showing rust and wear.

Fire Alarm

- The building is served by a recently installed modern, addressable Notifier fire alarm system.
- The system complies with modern life safety and accessibility codes.
- There are smoke detectors throughout the corridors.

Lighting

- Most of the lighting appears to have been upgraded with fluorescent light fixtures.
- Most light switches are at the originally installed height of 54” which does not comply with the 48” maximum of modern accessibility codes.

Emergency Power and Lighting

- Emergency egress lighting and exit signs are provided by recently installed self-contained units with battery backup. They appear to be in good condition.
Low Voltage Systems................................................................................................................................. 4

- Campus wireless network is present.
- No classrooms were observed which have basic audio-visual instructional equipment.

Overall Rating ............................................................................................................................................... 2.0

HVAC NARRATIVE

Overview Building Description:
Most of the systems appear to be original. There are a unit ventilators for heating and ventilating, some steam convectors for heating, and window AC units scattered throughout for cooling

- Room 0417A
  o Steam entry room; the steam PRV is old, but there is steam metering and some of the insulation has been replaced.
- Room #0418C MER
  o Newer Carrier AHU

Prerequisites:
Ventilation: Yes
Cooling: Some

Age ............................................................................................................................................................ 5
Condition .................................................................................................................................................. 3
Capacity .................................................................................................................................................... 4
Efficiency .................................................................................................................................................... 4
Maintainability ........................................................................................................................................ 4
Overall Rating .......................................................................................................................................... 4.0

PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing ....................................................................................................................................................... 5

Most of the plumbing was installed prior to 1957 and is therefore over 50 years old. Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation.

Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection ............................................................................................................................................ 5

There is no sprinkler system.
### BUILDING STATISTICS

**Year Constructed:** 1960  
**Approx. Gross Area:** 95,400 SF  
**Stories:** 6  
**Address:** 140 Hicks Way  
**Use Group:** B - Business  
**UMass Utilization:** Administrative & Support  
**Historic Significance:** Not Significant

### Rating Summary

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural</td>
<td>2.5</td>
</tr>
<tr>
<td>Plumbing &amp; FP</td>
<td>4.5</td>
</tr>
<tr>
<td>HVAC</td>
<td>4.0</td>
</tr>
<tr>
<td>Electrical &amp; Alarm</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>Overall Rating</strong></td>
<td><strong>3.4</strong></td>
</tr>
</tbody>
</table>

### Description

The Goodell Building Addition was built to address the need for more library space. The brick and concrete structure is a good compliment to, but does not mimic, its older sibling with a respectful modern design. No longer used as a library, the six-story addition connects to the 5th and 6th levels of the west side of the original building and steps down the hillside to the west, its two lowest floors being completely below grade. Goodell and Goodell Addition functions as one building, housing a variety of administrative and advising services as well as Commonwealth College. Its deep rectangular floor plate is a continuation of the original Goodell layout and is better suited to the large open spaces as the central areas are removed from natural light and ventilation. The building is in fair condition. Also see Goodell Building profile.

An ideal occupant for the building would be able to take advantage of the large space, open plan layout as well as benefit from and bring activity to the central campus location.

### Occupation

<table>
<thead>
<tr>
<th>Department</th>
<th>NSF</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACADEMIC INSTRUCTIONAL MEDIA SERVICES</td>
<td>1,083</td>
<td>1%</td>
</tr>
<tr>
<td>BACHELORS DEGREE INDIVIDUAL CONCENTRATION</td>
<td>1,356</td>
<td>2%</td>
</tr>
<tr>
<td>CAPITAL ASSET BOARD</td>
<td>386</td>
<td>0%</td>
</tr>
<tr>
<td>COMMONWEALTH COLLEGE - HONORS PROGRAM</td>
<td>7,483</td>
<td>9%</td>
</tr>
<tr>
<td>CONTROLLER</td>
<td>9,091</td>
<td>11%</td>
</tr>
<tr>
<td>GENERAL BUILDING AREAS</td>
<td>19,797</td>
<td>23%</td>
</tr>
<tr>
<td>GRADUATE DEAN'S OFFICE</td>
<td>9,414</td>
<td>11%</td>
</tr>
<tr>
<td>HUMAN RESOURCES</td>
<td>3,829</td>
<td>5%</td>
</tr>
<tr>
<td>MAIL SERVICES</td>
<td>1,657</td>
<td>2%</td>
</tr>
<tr>
<td>NON ASSIGNED SPACE</td>
<td>7,295</td>
<td>9%</td>
</tr>
<tr>
<td>PROCUREMENT</td>
<td>3,281</td>
<td>4%</td>
</tr>
<tr>
<td>TEACHING DEVELOPMENT CENTER</td>
<td>3,278</td>
<td>4%</td>
</tr>
<tr>
<td>TELECOMMUNICATIONS</td>
<td>90</td>
<td>0%</td>
</tr>
<tr>
<td>UNDERGRADUATE ADVISING &amp; LEARNING COMMUNITIES</td>
<td>6,141</td>
<td>7%</td>
</tr>
<tr>
<td>VICE CHANCELLOR OF ADMINISTRATION &amp; FINANCE</td>
<td>10,113</td>
<td>12%</td>
</tr>
<tr>
<td><strong>GOODELL BLDG ADDITN Total</strong></td>
<td>84,294</td>
<td>NSF</td>
</tr>
</tbody>
</table>
ARCHITECTURAL NARRATIVE

Overview Building Description:
The Goodell Building Addition was built as an expansion to the Goodell Library in 1960. The campus was growing so quickly that by 1973 a new library, W.E.B. Dubois Library, had already been built in order to keep up with the demand for space. However, due to restrictions on the use of the building, the library materials were moved back to Goodell in 1979. Eventually the library materials were permanently moved to Dubois and since then Goodell has seen a variety of occupants, but has never had a comprehensive renovation. Currently the building is occupied by administrative and advising services as well as Commonwealth College. Many of the original large spaces have been “chopped” up into offices and smaller spaces. The current layout is cluttered and not very efficient. This building would be better utilized as classroom or meeting room space that could take advantage of the floor plate layout.

Floor to floor heights are: Level 1 to 2 and 2 to 3, 9'-6"; Level 3 to 4 and 4 to 5, 12'-0"; Level 5 to 6, 14'-0"; Level 6 to 7, 9'-6"; Level 7 to Roof, 14'-0". These would appear to be adequate for potential upgrades to HVAC distribution and other antiquated or missing systems.

Exterior Building Envelope

Exterior walls are a combination of brick or marble on a CMU back-up. The original construction drawings show that the both wall types have no waterproofing membrane, cavity, or insulation. Thruwall flashing is called for at relieving angles and lintels. Level 1 and 2 are completely below grade with concrete foundation walls. These walls also do not have any insulation or waterproofing. No signs of serious exterior wall failure were noted. However, there is documentation of facade replacement and restoration that occurred in 1997. The marble panels were replaced with an exterior insulation finish system. Additional brick repair was also done in 2008 as part of an extensive exterior rehabilitation of both buildings.

Single glazed, non-thermally broken wood windows are original to the building. The windows were recaulked and the marble surrounds were replaced with wood in the 1997 exterior restoration. Although not as energy efficient as they could be, the original windows are in good condition and have many more years of serviceable use if properly maintained.

The Goodell Addition has a flat roof that is sound and serviceable. Documents show that the roof was replaced in 1997 and again in 2008. The original marble fascia and plaster soffits were also replaced, with sheet metal, during the 1997 restoration.

Overall the exterior envelope has been well maintained and is in good condition. With continued maintenance this building could have a long and useful life.

Entrances, Circulation and Accessibility

In addition to the main entrance of the original Goodell Building, the Goodell Addition has one accessible entrance on the 4th floor on its North elevation. The other entrances have single step stoops, which could have ramps easily added. There is an elevator in the addition and ramps between the original building and the addition that allows full access to both buildings.

Corridors vary in width throughout the building. Some are too narrow to meet code. Widening these corridors or providing alternate egress routes may be necessary depending on the scope of renovations. There are also several corridor obstructions noted in the Goodell Hall Chapter 34 and Building Deficiency Study, that would need to be removed for these corridors to comply with the current code. The stairs are slightly steeper than code allows, but would most likely be able to remain with the addition of a proper guardrail and handrails. The spacing between vertical members in the guardrail are also too large, but would be remedied with a new guardrail.
Accessible unisex toilet facilities, that appear to be compliant, are available on the 5th floor of the addition. Limited accessibility toilets, that do not appear to be fully compliant, are available on the 4th floor. Toilet facilities should be upgraded to confirm to code as part of any renovation plan.

Common Area Interior Finishes ........................................................................................................................................... 3

The Goodell Addition, like Goodell itself, is better suited to the scale of rooms it was designed to contain. Being a modern addition, the building lacks the character and architectural detailing that the original exhibits. The floors are a combination of VCT and carpet with rubber base. The doors are wood with hollow metal frames. Some door hardware has been replaced with compliant lever handles, while some door knobs remain and will need to be replaced. The ceilings are ACT or GWB. The walls are painted GWB with some of the corridors containing chair rails. Most of the finishes in this building look relatively new and well maintained. With a few upgrades in specific areas this space will remain serviceable and in good condition. However, to make the most efficient use of the space, changes to the interior layout would have to be made to eliminate partitions that subdivide large spaces and added internal corridors.

ELECTRICAL NARRATIVE

Overview Building Description:
The Goodell Building Addition addressed in this summary and the original Goodell Building serve the function of a single building, totaling approximately 129,000 square feet. The building has recently been upgraded with a modern, addressable fire alarm system and new emergency lighting and exit signage. Any significant renovation would most likely include a new Main Switchboard, new circuit breaker panelboards and wiring.

Main Electrical Service............................................................................................................................................................... 4

- The Goodell Building Addition utilizes a 208/120 volt, 3 phase, 4 wire system. The Main Switchboard (MSB) is rated 1600 amps. The MSB is close to 50 years old and considered close to the end of useful life. There do not appear to be many spare breakers.
- The MSB is fed from a bank of new dry type transformers in an exterior vault, providing 750 KVA of electrical capacity. The 13.8 KV primary is fed from exterior padmount switchgear in redundant “primary selective” configuration for reliability. The existing MSB, while sufficient for the present load, should be sized to make use of the transformer capacity. The size increase to 2500 amp would allow full use of the transformer capacity if needed in the future for additional HVAC loads which may be incurred with any significant renovation.
- A wall mounted 600 amp fused switch feeds power to a Distribution Panelboard in Electrical Room 414 which feeds panelboards in the original Goodell Building.
- The electrical usage is metered and recorded by a permanently networked Square D Power Logic digital meter.
- According to the meter, peak demand has been recorded at 317 KVA.

Building Wiring ........................................................................................................................................................................... 4

- There have been many renovations during which panelboards and new wiring were added. Some panelboards are in very good condition, but many panelboards have circuit breakers considered obsolete and should be replaced.
- A moderate amount of surface raceway has been used to update wiring.
- Much of the electrical gear serving mechanical equipment is showing rust and wear.
Fire Alarm ........................................................................................................................................... 0
- The building is served by a recently installed modern, addressable Notifier fire alarm system.
- The system complies with modern life safety and accessibility codes.
- There are smoke detectors throughout the corridors.

Lighting ............................................................................................................................................... 2
- Most of the lighting appears to have been upgraded with fluorescent light fixtures.
- Most light switches are at the originally installed height of 54" which does not comply with the 48"
  maximum of modern accessibility codes.

Emergency Power and Lighting ........................................................................................................... 1
- Emergency egress lighting and exit signs are provided by recently installed self-contained units with
  battery backup. They appear to be in good condition.
- An original inverter system is still be in use, and appears to be well maintained.

Low Voltage Systems .......................................................................................................................... 4
- Campus wireless network is present.
- No classrooms were observed which have basic audio-visual instructional equipment.

Overall Rating ....................................................................................................................................... 2.5

HVAC NARRATIVE

Overview Building Description:
The systems and equipment appear to be original, except it appears there was an upgrade to some of the
air handling unit components in 1988.
- Four air handling systems; S-1; S-2; S-3 and S-4. They provide heating, cooling and ventilation.
- Steam absorption chiller; it appears that the cooling tower was replaced in 1996.

Prerequisites:
Ventilation: Yes
Cooling: Some

Age ..................................................................................................................................................... 5
Condition ............................................................................................................................................. 3
Capacity ............................................................................................................................................... 4
Efficiency ............................................................................................................................................ 4
Maintainability ................................................................................................................................... 4
Overall Rating ................................................................................................................................... 4.0
PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing........................................................................................................................................... 4

Most of the plumbing was installed in 1960 and is therefore 49 years old. Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation.

Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection........................................................................................................................................... 5

There is no sprinkler system.
BUILDING STATISTICS

Year Constructed: 2002
Approx. Gross Area: 49,500 SF
Stories: 3 + Basement
Address: 121 Presidents Drive
Use Group: B - Business
UMass Utilization: Academic
Historic Significance: Not Significant

Rating Summary

Architectural: 0.0
Plumbing & FP: 0.0
HVAC: 1.0
Electrical & Alarm: 0.0
Overall Rating: 0.3 Good

Description

Located in the South Campus, the Harold Alfond Management Center is an addition to the School of Management. The post modern building was built as an expansion to the School of Management to address the increasing demand for its programs and subsequent need for more space. It is currently used as offices and class labs for the Isenberg School of Management. The building is less than ten years old and is in very good condition. The L-shaped floor plate and undulating facade works well with a variety of large and small spaces.

The building has been specifically designed to meet the needs of the School of Management and while changes in instructional methods may dictate minor internal alternations, no need has been noted for changes in the building due to condition or to better serve the program.

Assessment Summary

Asset building - highly utilized – space configuration serves current program well - facility’s condition enlivens use - appears to be meet accessibility standards

Recommendation

Current use is well suited to the building– keep-up aggressive maintenance program - maintenance investment is a good value

Occupancy

<table>
<thead>
<tr>
<th>Account</th>
<th>Utilization</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCOUNTING &amp; INFORMATION SYSTEMS</td>
<td>93</td>
<td>0%</td>
</tr>
<tr>
<td>COMPUTING/NETWORKING</td>
<td>302</td>
<td>1%</td>
</tr>
<tr>
<td>FINANCE &amp; OPERATIONS MANAGEMENT</td>
<td>3,428</td>
<td>8%</td>
</tr>
<tr>
<td>GENERAL BUILDING AREAS</td>
<td>17,057</td>
<td>41%</td>
</tr>
<tr>
<td>GROUNDS/CUSTODIAL</td>
<td>113</td>
<td>0%</td>
</tr>
<tr>
<td>MANAGEMENT</td>
<td>198</td>
<td>0%</td>
</tr>
<tr>
<td>NON ASSIGNED SPACE</td>
<td>275</td>
<td>1%</td>
</tr>
<tr>
<td>SCHOOL OF MANAGEMENT</td>
<td>19,826</td>
<td>48%</td>
</tr>
<tr>
<td>H. ALFOND MGMT CTR Total</td>
<td>41,292</td>
<td>NSF</td>
</tr>
</tbody>
</table>
ARCHITECTURAL NARRATIVE

Overview Building Description:
Built in 2002 by Architectural Resources Cambridge, Inc., the H. Alfond Management Center was built to provide departmental space for the School of Management. As an extension to the School of Management building, these two buildings provide the majority of the department’s space, with the Alfond building forming the identity point and heart of the school. Alfond provides a variety of offices, class labs, and lounge spaces for the department. Its curved, L-shaped floor plate and room mix is customized to the program it supports.

Floor to floor heights are: Bsmt to 1st, 14’-0”; 1st to 2nd, 15’-4”; 2nd to 3rd, 13’-4”; 3rd to Roof, 12’-10”.

Exterior Building Envelope

The exterior walls are cast stone or lead coated copper. The cast stone has an airspace, rigid insulation, sheet rubberized asphalt barrier, and exterior sheathing on a light gauge metal frame. The lead coated copper wall system has a self adhered underlayment, pressure treated plywood, air space, exterior sheathing, on a light gauge metal frame with batt insulation and a vapor barrier. The walls are in very good condition and do not need repair at this time. The wall composition uses the most up-to-date techniques and should be resistant to moisture as well as relatively energy efficient.

The windows and curtain wall are thermally broken aluminum frames with insulated glass. They are in very good condition and should not need replacement in the near future.

Alfond has a flat, multi-level, built-up roof. Tapered insulation, over a steel deck, creates pitch to roof drains in the center of each roof section. The roof was new when the building was built seven years ago and should not need to be replaced for another eight to thirteen years.

Entrances, Circulation and Accessibility

There are two main entrances to the building, opposite each other, on the Northwest and Southeast sides of the building. All entrances are at grade and fully accessible. An elevator in the North end of the building provides access to all floors. Seminar rooms and class labs are also accessible and provide spaces for wheelchairs. There are compliant men’s and women’s toilet rooms and water fountains on each floor.

Corridors are dimensionally adequate with no obstructions. Stairs, handrails, and guardrails are compliant with current codes.

Common Area Interior Finishes

Being only seven years old, the finishes in Alfond are in very good condition. The floors are carpet or VCT with rubber base. The walls are painted GWB and ceilings are ACT. The toilet rooms have porcelain tile for their floors, base, and walls. In general the building is in excellent condition and should have a rigorous maintenance program in place to keep it performing at a high level.

ELECTRICAL NARRATIVE

Overview Building Description:
Built in 2002, H. Alfond Hall is practically brand new. The building is well designed from an electrical standpoint and should require minimal maintenance for many years. The building conforms to University standards and the applicable codes. Both the normal and emergency power systems are more than
adequate for present and anticipated loads. For the most part, the lighting is energy efficient. There are programmable relay lighting control panels, with some occupancy sensors, to control energy usage. There is a modern addressable fire alarm system with smoke detection throughout. The clock system, audio-visual systems, and information technology systems are modern and in excellent condition.

Main Electrical Service

- The electrical service is located in the basement Electrical Room G01A. The building is fed with two 13.8 KV feeders in a primary selective configuration to two S&C medium voltage interrupter switches. From the interrupters, power is fed to the General Electric (GE) dry-type main transformer, which is rated 2500 KVA. At this transformer, the voltage is stepped down to the 480/277, 3 phase, 4 wire utilization voltage. The main switchboard, transformers and panelboards are manufactured by GE. The main switchboard is adjacent to the main transformer. From this switchboard, 480/277 volt feeders serve the building distribution system, including various transformers which provide the 208/120 volt utilization voltage. In addition, this switchboard provides power to Mahar Auditorium and the connecting Isenberg School of Management (SOM). The gross square foot building area served, combining HAMC, SOM, and Mahar Auditorium, is approximately 133,000. The system capacity at 2,500 KVA provides about 18.8 watts per square foot, which more than adequate for existing and anticipated future loads. The electrical equipment is in excellent condition.
- The electrical usage for HAMC, SOM, and Mahar Auditorium is metered and recorded by a permanently networked Square D Power Logic digital meter located at the main switchboard.
- According to the meter, peak demand has been recorded at 838 KVA.

Building Wiring

- Building wiring is in excellent condition. Workmanship is good.

Fire Alarm

- There is Simplex 4100U addressable fire alarm system with full smoke detection coverage. It is in excellent condition.

Lighting

- Lighting is well designed and conforms to University standards. Light fixtures are primarily fluorescent and utilize mainly T8 or compact fluorescent lamps. Some incandescent lighting is used to highlight the architecture. Lighting is in excellent condition.
- Occupancy sensors and programmable lighting control panels are used for automatic lighting control. They are in excellent condition.

Emergency Power and Lighting

- A Kohler 505 KW diesel generator provides emergency power for both this building and the adjacent Isenberg SOM. It is in excellent condition.

Low Voltage Systems

- All systems and wiring have been installed per University standards and are in excellent condition.
- A Simplex clock system has been provided per University standards and is in excellent condition.
- Audio-visual systems have been provided in the classrooms and they are in excellent condition.

Overall Rating

- Overall Rating: 0.0
HVAC NARRATIVE

Overview Building Description:
The HVAC systems in this building are new, and are in excellent condition. The systems are all-air, with two large air handling units in the Basement MER supplying air through VAV terminals with reheat coils.

- Room #G09 MER
  - Two AHU’s, (27,500 CFM and 29,500 CFM) with steam heat, chilled water cooling and steam humidification. The fans have variable frequency drives.
  - Two identical axial return air fans (24,000 CFM and 26,000 CFM) with variable frequency drives
  - Two steam to steam humidifiers
  - All equipment appears to be in excellent condition

- Room #G07B
  - Trane Centravac chiller, 400 Tons
  - Four chilled water pumps; two primary and two secondary (800 GPM each); secondary pumps have variable frequency drives
  - Two identical condenser water pumps (1200 GPM)

- Room G10
  - Water service for sprinkler and domestic
    * Dedicated backflow preventer for sprinkler
    * Two parallel backflow preventers for domestic water
    * Separate dedicated backflow preventer for non-potable water (may be for humidifiers

- Room G17
  - Steam to hydronic hot water heat exchanger for reheat and two hydronic hot water pumps with variable frequency drives.

Prerequisites:
Ventilation: Yes
Cooling: Yes

Age.......................................................................................................................................................... 1

Notes: Built in 2001-2002; approximately ¼ to 1/3 of the normal life expectancy for this equipment has passed.

Condition .................................................................................................................................................. 0

Notes: The condition of all equipment surveyed in this evaluation is excellent.

Capacity.................................................................................................................................................. 0

Notes: None.

Efficiency .................................................................................................................................................. 2

Notes: Overall, the efficiency of the system is very good since the features include VAV, air side economizer, and an R123 chiller. The efficiency would be a bit higher if heat recovery were included.

Maintainability ....................................................................................................................................... 2

Notes: Space around air handling units for maintenance is tight, but systems are maintainable.
PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing

The plumbing appears to comply with the applicable codes and is in excellent condition. Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection

There is a sprinkler system and piping was installed in 2002. The system is in excellent condition.
317 - ISENBERG SCHOOL OF MANAGEMENT

BUILDING STATISTICS

Year Constructed: 1963
Approx. Gross Area: 75,000 SF
Stories: 4
Address: 121 Presidents Drive
Use Group: B - Business
UMass Utilization: Academic & Research
Historic Significance: Not Significant

Rating Summary

Architectural 2.3
Plumbing & FP 4.0
HVAC 4.0
Electrical & Alarm 1.5
Overall Rating 3.0 Fair

Description

The Isenberg School of Management (ISOM) is the original management school facility which was expanded with the H. Alfond Management Center (HAMC) addition. The two buildings function as one and form the backbone of the Isenberg School of Management (ISOM). The building is in fair condition and has been well maintained. The rectangular, double loaded floor plate is well suited to mid-size classrooms and offices. The central bar is terminated to the south by the HAMC addition and to the north by two large auditorium making the building a crucial general classroom facility in addition to its primary function as the business and management school.

The original building and addition have been specifically designed to meet the needs of the School of Management and while the complex serves the program well, the ISOM portion of the building is in need of upgrades that would allow it to function at the same, high standard of the HAMC.

Assessment Summary

Asset building - highly utilized - space configuration serves current program well - facility’s condition compromises use - limited accessibility, needs improvement (auditoria are non-compliant)

Recommendation

Current use is well suited to the building- coordinate aggressive maintenance around system upgrades - implement staged upgrades to key building component without taking the building off line - renovation/ improvement investment is a good value

Occupyancy

| ACCOUNTING & INFORMATION SYSTEMS | 2,385 | 4% |
| COMPUTING/NETWORKING | 106 | 0% |
| FINANCE & OPERATIONS MANAGEMENT | 2,776 | 4% |
| GENERAL BUILDING AREAS | 17,582 | 28% |
| GROUNDS/CUSTIODIAL | 682 | 1% |
| MANAGEMENT | 2,258 | 4% |
| MARKETING | 1,604 | 3% |
| MASS SMALL BUSINESS DEVELOPMENT CENTER | 1,266 | 2% |
| SCHOOL OF MANAGEMENT | 15,242 | 24% |
| SPORT MANAGEMENT | 3,760 | 6% |
| TELECOMMUNICATIONS | 275 | 0% |
| UMASS CLASSROOMS (Total Seat Count = 988) | 14,959 | 24% |
| SCHOOL OF MANAGEMENT Total | 62,895 NSF |

New Academic and Classroom Facilities
University of Massachusetts - Amherst
ARCHITECTURAL NARRATIVE

Overview Building Description:
The School of Management building was originally designed for the Isenberg School of Management by Campbell & Aldrich Architects in 1963. The building was previously called the School of Business Administration, also the former name of the ISOM. Since it was opened, the building has been occupied by various ISOM departments as the needs and specialities of the school have evolved.

Originally the building contained twelve 750 nsf classrooms on the first and second floor, five 1300 nsf classrooms in the basement, two 1300 nsf classrooms with moveable partitions on the first floor, four 450 nsf seminar rooms, four laboratories, a reading room, an amphitheater, and a lecture hall. Of those original rooms eight of the 750 nsf classrooms are UMass classrooms, two have been partitioned into smaller departmental spaces, and two have been turned over to departments. The 1300 nsf classrooms in the basement have all been divided in half, but two and a half are UMass classrooms, the rest are departmental space. One seminar room is now a UMass classroom, while the other three have been partitioned up into departmental space. Two of the laboratories are departmental class labs while the other two have been divided into offices. The reading room is also now departmental offices. The amphitheater and lecture hall both remain UMass classrooms. Although the new partitions create interior office spaces without windows, the layout seems to work well. Several department spaces are also newly renovated and are very high quality, such as the Sport Management space in room 236. Due to the recent customization of these spaces and the addition of HAMC to meet ISOM’s needs, there is no reason to consider alternative users for the building.

Floor to floor heights are: Bsmt. to 1st, 12’-6”; 1st to 2nd, 12’-6”; 2nd to 3rd, 12’-6”; 3rd to Roof, 10’-8”.
Some antiquated systems have been upgraded already and some areas of the building have central AC. This leads us to believe that there is adequate room for potential upgrades to other antiquated or missing systems. Beam crossing will need to be studied.

Floor to floor heights are: Bsmt. to 1st, 12’-6”; 1st to 2nd, 12’-6”; 2nd to 3rd, 12’-6”; 3rd to Roof, 10’-8”.
Some antiquated systems have been upgraded already and some areas of the building have central AC. This leads us to believe that there is adequate room for potential upgrades to other antiquated or missing systems. Beam crossing will need to be studied.

Exterior Building Envelope..............................................................2.5

There are several different wall types on the SOM building. The brick walls are a composite wall consisting of an outer brick layer and an inner CMU layer with precast concrete trim. A waterproof membrane runs in between the two materials of the wall. Construction drawings show no cavity, but there is 2 inches of rigid insulation between the masonry and plaster. The other major wall types are insulated precast cast stone panels hung from the slab, limestone panels with insulation and plaster on the inside, and limestone facing on a CMU backup wall with brick finish on the interior. While all of these wall assemblies do not meet today’s standards they do appear to be functional. No signs of serious exterior wall failure were noted. Thermal modeling should be done before altering the wall assembly as moisture might inadvertently and detrimentally be introduced into the wall via condensation. There is no evidence of any repointing or masonry repair. Judging by the age of the building, repointing is something that should be considered in the future as part of any facade renovations.

Windows are mill finished aluminum frame, single glazed windows with casement vents. Some glass panes have been removed for the installation of window air conditioning units, but the frames appear to be unaltered. The windows are original to the building and are not thermally broken. These windows are not as energy efficient as they could be and are approaching the end of their useful life. Window replacement should be considered as part of any facade renovations. The link to Flavin Auditorium is a single glazed aluminum store front. Replacement of this system with insulated glazing would increase the energy efficiency of the space.

SOM originally had a flat tar and gravel roof over a light weight insulating concrete topping slab that created pitch to drains. The building was most recently reroofed in 1993. A new topping slab and insulation
was added and new tar and gravel applied. A roof of this quality, if properly installed, should have a 20 to 25 year life expectancy.

Entrances, Circulation and Accessibility ........................................................................................................ 2.5

SOM has four entrances. The two entrances on either side of the bridge between the main building and the lecture hall are accessible via ramps. However, only the North ramp complies with code. The South ramp lacks proper handrails and landings. The other two entrances enter directly onto a mid-level landing of the stairs and are therefore not accessible. There are additional accessible entrances in HAMC that connects to this building. The elevator in SOM is too narrow to be code compliant, however, HAMC has an accessible elevator that serves all the floors of both buildings.

There are handicap accessible toilets on the first and third floors in SOM. They appear to be code compliant. Accessible drinking fountains as also available. Additional accessible toilets and drinking fountains are available in HAMC on every floor.

The corridors are of adequate width with no obstructions. The stairs are slightly steeper than code allows, but would most likely be able to remain with the addition of a proper guardrail and handrails and alterations to the tread nosing. The spacing between vertical members in the guardrail are also too large, but would be remedied with a new guardrail.

Common Area Interior Finishes ............................................................................................................. 2

There is no interior detailing of note in SOM. The building is well laid out and with the new addition it is a well functioning space. Some finishes have been upgraded, while others appear to be original. The floors are a combination of VAT and VCT. The lobby is bluestone tile and the stairs have terrazzo treads. The toilet rooms have ceramic tile floors and walls. The walls are painted plaster in most areas except for the corridors and lobbies that have glazed CMU and the stairs that are brick. The ceilings are a combination of 1x1 CSC or 2x2 ACT. Doors are wood or hollow metal in hollow metal frames. The door hardware should be upgraded to be fully code compliant. Some minor upgrades to interior finishes and lighting could bring this building up to the level of its neighbor, HAMC.

ELECTRICAL NARRATIVE

Overview Building Description:
The original main electrical switchboard which still serves the building has insufficient capacity for a building of this size with central air conditioning. A careful load analysis should be conducted prior to adding any load. The actual peak demand is unknown. The metering equipment is located in the H. Alfond Management Center (HAMC) and records the combined usage of HAMC, Isenberg SOM, and Mahar Auditorium. It is recommended that a meter be provided to record the present usage.

The Fire Alarm System and Emergency Lighting System both have been recently upgraded to comply with life safety codes. Lighting has been upgraded to modern T8 fluorescent technology, and most classrooms have occupancy sensors. Also, most classrooms are equipped with basic audio-visual instructional equipment.

Main Electrical Service.......................................................................................................................... 5

- The Main Switchboard (MSB) is rated 800 amp, 208/120 volt, 3 phase, 4 wire. It is original equipment which should be budgeted for replacement.
- The MSB is Square D equipment with a stored energy main air circuit breaker and molded case
feeder breakers. The equipment is still serviceable and parts are available, but the size is marginal for a building of 75,000 gross square feet. The switchboard provides a capacity of 3.8 watts per square foot.

- The source of power for the MSB is an 800 amp circuit breaker from a switchboard installed in 2002 in the main electrical room of HAMC. Record drawings for HAMC show that the feeders to the switchboard may have been upgraded with larger capacity than 800 amp.
- The electrical usage is metered at HAMC. The meter records the combined usage of HAMC, Isenberg SOM, and Mahar Auditorium.
- It is recommended that a meter be provided to record SOM usage.

Building Wiring ................................................................. 2

- Most of the circuit breaker panelboards are original. Replacement circuit breakers are readily available.
- Building wiring generally appears to be in good condition. Workmanship looks good, and wiring 36 years ago generally used modern thermoplastic insulation.
- Some circuit breaker panelboards have been added to supplement original branch circuit capacity or replace original.
- Surface raceway has been extensively used to update wiring.

Fire Alarm ................................................................................................................. 0

- An addressable Simplex 4100U Fire Alarm System was installed during the last major renovation and appears to have brought the building into compliance with applicable life safety codes. Smoke detection has been provided throughout the corridors and a new graphical annunciator was provided at the main entrance. It is in excellent condition.

Lighting ............................................................................................................... 1

- The lighting appears to have been upgraded to modern T8 technology. It is in good condition.
- Occupancy sensors have been added in the classrooms, promoting energy savings.

Emergency Power and Lighting .................................................................................. 0

- Emergency power is supplied from the 500 KW diesel generator in the HAMC. It is in excellent condition.

Low Voltage Systems ........................................................................................................ 1

- Campus wireless network is present.
- Most classrooms have basic audio-visual instructional equipment.
- The clock system has been updated with a modern Simplex clock system.

Overall Rating .............................................................................................................. 1.5

HVAC NARRATIVE

Overview Building Description:
Most of the building appears to be served by small air handling systems. Most of the systems appear to be original, except for a newer Trane AHU in MER 346.
• Room #132 MER
  o Older AHU’s (small) and exhaust fans
• Room #G34
  o Pumps and converters
• Room #346
  o New Trane AHU with stream heating and chilled water cooling coil (room very tight for space; difficult to access for maintenance
• Room #330
  o Two older H&V units and two return fans

Prerequisites:
Ventilation: Yes
Cooling: SB7

Age............................................................................................................................................. 5

Notes: Built in 1963. There is a new air handling unit in MER 346, but most of the other equipment appears to be aged beyond the normal life expectancy for such equipment.

Condition ........................................................................................................................................... 3

Notes: All equipment does appear to be functioning. However, except for the new air handling unit in MER 346, all of the equipment observed in this survey appears to be in less than good condition.

Capacity........................................................................................................................................... 4

Notes: It is doubtful if any of the older equipment has adequate ventilation capacity, and cooling appears to be mostly non-existent.

Efficiency........................................................................................................................................... 4

Notes: It is difficult to rate efficiency when the systems are somewhat inadequate without cooling. There is no heat recovery.

Maintainability ................................................................................................................................... 4

Notes: There is space to maintain most equipment. MER 346 is very tight. The decentralized nature of unit ventilators results in much more required maintenance.

Overall Rating...............................................................................................................................

PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing........................................................................................................................................... 3

The First Floor restrooms were renovated in 1994, but most of the plumbing was installed in 1963 and is therefore about 46 years old. The Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms on each floor other than the first should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation.
Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection

There is no sprinkler system.
BUILDING STATISTICS

Year Constructed: 1948
Approx. Gross Area: 17,700 SF
Stories: 3
Address: 131 County Circle
Use Group: B - Business
UMass Utilization: Administrative & Support
Historic Significance: Not Significant

Rating Summary

Architectural 4.5
Plumbing & FP 5.0
HVAC 4.8
Electrical & Alarm 3.5
Overall Rating 4.5 Poor

Assessment Summary

Liability building - under-utilized, partially vacant - space configuration fails to meet current program or pedagogical requirements - deficiencies in facility’s systems limits use - limited accessibility, needs improvement

Recommendation

Building should be taken out of inventory as soon as possible - differ upgrades except maintenance essential to sustain operation - replace building due to condition and space that does not support current pedagogy - renovation would yield a poor return on investment

Description

Hampshire House, while sound and built of enduring materials, has minimal architectural and aesthetic distinction. The specialized nature of its design, for residential use, limits the potential for reuse as does the floor to floor heights which limit the scale of the rooms and the potential for introducing adequate central HVAC systems. The building is in poor condition at this point and would require extensive renovations to bring it up to an acceptable standard for full utilization. The costs of the upgrade outweigh the benefits of the type and quality of space that even extensive renovations would yield.

For these reasons it is recommended that further investment in the building not be made and that planning take into account relocating occupants and taking the building out of inventory when practical. As the building is fundamentally sound, it might play a swing space role as other buildings are renovated assuming minor, cosmetic upgrades were to be made in the interim.

Occupancy

| AMERICAN FEDERATION OF STATE, COUNTY AND | 459 3% |
| MUNICIPAL EMPLOYEES | 660 4% |
| BUILDING MAINTENANCE | 317 2% |
| CHANCELLOR | 167 1% |
| CLASSICS | 59 0% |
| COMPUTING/NETWORKING | 533 4% |
| FACULTY SENATE | 4,174 28% |
| GENERAL BUILDING AREAS | 300 2% |
| GRADUATE EMPLOYEES ORGANIZATION | 131 1% |
| JUDAIC & NEAR EASTERN STUDIES | 1,932 13% |
| LANGUAGE, LITERATURE & CULTURE | 778 5% |
| MASSACHUSETTS SOCIETY OF PROFESSORS | 356 2% |
| PROFESSIONAL STAFF UNION/MASS TEACHERS ASSOCIATION | 532 4% |
| UNIVERSITY STAFF ASSOCIATION | 4,488 30% |
| WFCR-FM RADIO | HAMPSTEAD HOUSE Total 14,886 NSF |
ARCHITECTURAL NARRATIVE

Overview Building Description:
Hampshire House was a post war residence building. Built as “Building #3” in a 1948 cluster of nearly identical residential buildings, it housed simple, 2 and 3 room apartments with kitchenettes and shared (men’s and women’s) toilet facilities on each floor. The floor plate is narrow (38’ overall) and is composed of a 14’-8” wide room on either side of a 6’-0” corridor. Exterior and corridor walls are masonry bearing walls which carry 5 inch reinforced concrete floor and roof decks. The building is vertically compact: 8’-8” floor to floor on floors 1 and 2; 8’-11” floor to the underside of the roof deck on 3; and, 8’-0” floor to floor in the (partial) basement.

A number of localized interior renovations have taken place over the years, some involving removal of interior partitions to create larger spaces. Most of the building is subdivided as originally built, into living room and bed room scale spaces in the 135 and 175 sf size range.

Re-programming options for the building are limited to office, office support and small conference room uses. Vertical constraints make the options for introducing air conditioning, improving heating and ventilation distribution and even the use of more effective lighting, extremely limited and probably unsatisfactory.

Exterior Building Envelope
The exterior wall is a combination of red brick with a concrete block back-up/bearing wall on the north and south ends where the brick returns along the east and west elevations for a bay. The east and west elevations are painted, solid concrete block. The red brick areas appear to be in good condition while the painted block exhibits significant areas of cracking and surface (paint) failure. The interior surface is furred and plastered. Little can be ascertained about the flashing systems from the original drawings, however, flashing is called for and noted at appropriate points. Windows are double hung, non-thermally broken, metal framed, single glazed units, original to the building. They are in poor condition and are extremely energy inefficient. Archive drawings indicate that the roof was replaced with a tapered insulation and PVC room in late 2007. A roof of this quality should perform well for 20 plus years.

Entrances, Circulation and Accessibility
Accommodations have been made to make the buildings first floor accessible by adding a ramp at the south entry. The ramp and particularly the hand rails are not compliant with the MAAB standards. The entry door has been replaces with a single leaf door that does dimensionally comply. There is no elevator and no accessible route to other levels of the building. Corridor widths are adequate however toilet facilities are not compliant with MAAB standards. Stairs are steeper than current code allows with tread nosing and handrails that would require retrofitting or replacement as part of a renovation of any extent. Door hardware includes knob sets rather than lever handles which current code requires.

Common Area Interior Finishes
Interior partitions are painted block. Ceilings are a combination of painted concrete and adhered acoustic tiles. Floors are a combination of VCT, VAT and carpet which is assumed to have been installed over VAT. None of the materials are high quality and while conditions vary, there is little that should be salvaged. Overall, the quality of the space is poor to fair due to limited natural light, poor ventilation and air quality and a general institutional feel of painted concrete and block.
ELECTRICAL NARRATIVE

Overview Building Description:
The main electrical service and many branch circuit panelboards are original equipment. The service, along with much of the wiring and panelboards should be replaced. Lighting, for the most part, appears to have been updated with modern fluorescent fixtures having energy efficient lamps and ballasts. Light switches do not comply with height requirements of modern accessibility standards. The Fire Alarm system has been upgraded to bring the building into compliance with modern life safety codes. The emergency power system appears to be sufficient for present use. Any significant renovation would include a major power system upgrade.

Main Electrical Service
- The Hampshire House is served by a 208/120 volt, 3 phase, 4 wire system. The Main Service Disconnect Switches are original 60 year old equipment.
- Power is supplied from original oil filled transformers.
- The Main Electric Service should be replaced due to age.
- The electrical usage is presently not metered.

Building Wiring
- Circuit breaker panelboards of varying condition have been added to supplement original branch circuit capacity or replace original. Most would be replaced during any significant renovation.
- An abundant amount of surface raceway has been used to update wiring, causing a shabby appearance in corridors and some other areas.
- All wiring would most likely be replaced with any significant renovation.

Fire Alarm
- The building is served by a recently installed modern, addressable Notifier fire alarm system.
- The system complies with modern life safety and accessibility codes.
- There are smoke detectors throughout the corridors.

Lighting
- Most of the lighting appears to have been upgraded with fluorescent light fixtures.
- Most light switches are at the originally installed height of 54” which does not comply with the 48” maximum of modern accessibility codes.

Emergency Power and Lighting
- Emergency egress lighting and exit signs are provided by recently installed self-contained battery units. They appear to be in good condition, but would most likely be replaced during any significant renovation.

Low Voltage Systems
- Campus wireless network is present.
- There are no classrooms with basic audio-visual instructional equipment.
- There does not appear to be a clock system.

Overall Rating

3.5
HVAC NARRATIVE

Overview Building Description:
The building is served by steam convectors and window AC units. All of the steam heating systems and equipment appear to be very old
- Room # 002 MER
  - Old counterweighted PRV
  - Condensate receiver with duplex pump
  - Steam to DHW heater
  - An abandoned riveted copper DHW tank.

Prerequisites:
Ventilation: No
Cooling: No

Age ........................................................................................................................................... 5
Condition .................................................................................................................................... 5
Capacity ...................................................................................................................................... 5
Efficiency ..................................................................................................................................... 5
Maintainability ............................................................................................................................ 4
Overall Rating ............................................................................................................................. 4.8

PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing .................................................................................................................................... 5

Most of the plumbing was installed in 1948 and is therefore over 50 years old. Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation.

Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection ............................................................................................................................. 5

There is no sprinkler system.
Herter Hall is located to the west of the Haigis Mall in the South Campus. This Modern (Brutalist) concrete building has two parts, the main building and an annex which are connected at the basement and second floor levels with an open pass-through at grade. The building currently houses UMass classrooms on the first and second floor with random, isolated classrooms on upper floors and two large lecture halls in the Annex, and offices for several College of the Humanities and Fine Arts departments. The wider first and second floor plates provide medium size classrooms, while the narrower upper floor plates work well for faculty and graduate student offices. The Annex is rectangular in shape and is well suited to the auditoria and gallery spaces it houses. Overall the building is in fair condition.

Most of the building is used as it was originally designed and works well. While the need is not foreseen for significant alteration to accommodate radically changing uses, the building is in need of systems upgrades to function at a higher standard.

**Occupancy**

<table>
<thead>
<tr>
<th>Category</th>
<th>Use</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART</td>
<td>2,153</td>
<td>2%</td>
</tr>
<tr>
<td>CLASSICS</td>
<td>2,072</td>
<td>2%</td>
</tr>
<tr>
<td>COLLEGE OF HUMANITIES &amp; FINE ARTS</td>
<td>4,903</td>
<td>5%</td>
</tr>
<tr>
<td>COMPUTING/NETWORKING</td>
<td>78</td>
<td>0%</td>
</tr>
<tr>
<td>FINE ARTS CENTER</td>
<td>222</td>
<td>0%</td>
</tr>
<tr>
<td>GENERAL BUILDING AREAS</td>
<td>37,943</td>
<td>38%</td>
</tr>
<tr>
<td>GROUNDS/CUSTODIAL</td>
<td>985</td>
<td>1%</td>
</tr>
<tr>
<td>HISTORY</td>
<td>9,240</td>
<td>9%</td>
</tr>
<tr>
<td>JUDAIC &amp; NEAR EASTERN STUDIES</td>
<td>1,939</td>
<td>2%</td>
</tr>
<tr>
<td>LANGUAGE, LITERATURE &amp; CULTURE</td>
<td>14,515</td>
<td>15%</td>
</tr>
<tr>
<td>OFFICE 2 OFFICE</td>
<td>669</td>
<td>1%</td>
</tr>
<tr>
<td>UMASS CLASSROOMS (Total Seat Count = 1282)</td>
<td>22,306</td>
<td>23%</td>
</tr>
<tr>
<td>VICE CHANCELLOR FOR ACADEMIC AFFAIRS &amp; PROVOST</td>
<td>2,048</td>
<td>2%</td>
</tr>
<tr>
<td>HERTER HALL Total</td>
<td>99,073</td>
<td>NSF</td>
</tr>
</tbody>
</table>
ARCHITECTURAL NARRATIVE

Overview Building Description:
Herter Hall was designed by the Coletti Brothers in 1968, to accommodate the rapid growth of the College of Humanities and Fine Arts’ departments. The College’s former home, in Bartlett Hall, is now connected to Herter via an underground tunnel. The building was designed in two parts. Part 1 is the main building that is long and narrow. This part of the building contains several UMass classrooms on the first and second floors. The other five floors contain mostly office space with a few class labs. Part 2 is known as the Herter Hall Annex and has a more square floor plate. The first floor contains three art galleries, a meeting room, and some offices. The second floor has two lecture halls. The tunnel to Bartlett Hall is in the basement of the annex. Today, the building is still mostly occupied by various Humanities departments. Its program and layout has changed very little from its original design. The current program works very well and should require very little modification.

Floor to floor heights are: Bsmt. to 1st, 12'-0"; 1st to 2nd, 12'-0"; 2nd to 3rd, 14'-5"; 3rd to 4th, 10'-2"; 4th to 5th, 10'-2"; 5th to 6th, 10'-2"; 6th to 7th, 10'-2"; 7th to Roof, 11'-4". These heights would appear to be adequate for potential upgrades to HVAC and other antiquated or missing systems. The structural slab will need to be studied.

Exterior Building Envelope

The walls in Herter Hall are a combination of cast-in-place and pre-cast concrete. Construction drawings show that the walls are minimally insulated with no vapor barrier. The interior plaster is installed on 3/8” insulating gypsum lath on top of metal furring channels. No signs of serious failure were noted. Routine maintenance of sealants is critical in concrete construction in order to prevent water infiltration and cracking or spalling of the concrete. While the wall assembly does not meet today’s standards, it does appear to be functional. Thermal modeling should be done before adding insulation or altering the wall assembly, as moisture might be inadvertently and detrimentally introduced into the wall via condensation.

The original windows installed were double-glazed, non-thermally broken, aluminum frame windows. There are a combination of fixed glass and casement windows. Some windows have insulated metal panels where the unit vents are installed. In 2005 all of the windows on the building were replaced. Some were completely replaced with new thermally broken frames and insulated glass. Some had only the glazing replaced with new insulated glass. This improvement should help with the building’s energy efficiency as well as occupant comfort.

Herter has a flat tar and gravel roof with a topping slab to create pitch to internal drains and perimeter scuppers. The roof is known to be about 18 years old. There is extensive water damage to some of the ceilings in the building, which is most likely caused by leaks in the roof. Plans for roof replacement are currently underway.

The tunnel between Herter and Bartlett is cast in place concrete. Original drawings show butyl waterproofing on the roof of the tunnel that overlaps trowelled damproofing on the walls and a vapor barrier under the floor. However, Umass has noted that the tunnel suffers from moisture and water leaks and may be developing mold.

Entrances, Circulation and Accessibility

Most of the entrances to Herter Hall are accessible. All the main entrances to both buildings are at grade, however some of the vestibules do not allow enough pull side clearance. None of the doors have automatic openers, which are also required by code where dimensional requirements cannot be met. There are two elevators in the main building that allow access to all floors. There is no elevator in the annex, which means the only means of handicap access to the first floor is from outside. A bridge connects the second level of
the main building to the second level of the annex. A ramp was also added in the tunnel between Bartlett and Herter to accommodate accessibility.

The basement and first floor annex toilets have been modified for handicap access. The basement toilets were renovated in 2006 and should meet current code. However, the first floor toilets in the annex were renovated some time earlier and may not fully comply with the current standards. The toilets on the upper floors of the main building are all identical in layout. The entries to the bathrooms are too narrow and do not have enough pull side clearance. There are also no handicap stalls. Accessible drinking fountains have been installed but are not in full compliance with the current code and are a corridor obstruction.

Corridors are dimensionally adequate with few obstructions. The stair slope is compliant with current code. Hand rails need to be replaced to provide adequate guardrail protection and to meet code standard spacing between vertical members.

Common Area Interior Finishes .................................................................................................... 2

The interior finishes are, for the most part, in good condition. The floors are carpet, VAT, or VCT with vinyl base. Terrazzo floor tile was used in high traffic areas on the first and second floors. The bathrooms are done in ceramic tile on the walls and floors. The walls in other areas are painted gypsum or concrete. The ceilings are 2x2 ACT. Many of the ceilings have noticeable water damage. Locating and resolving the source of the water and replacing any damaged ceiling tiles would be a priority in maintaining this building. Many of the office doors still have knobs that should be replaced with levers. Some additional upgrades to the lighting and finishes could bring the space back to high level.

ELECTRICAL NARRATIVE

Overview Building Description:
Although the main transformers have been recently replaced and are in excellent condition, the 480/277 volt Main Switchboard and obsolete original panelboards should be budgeted for replacement. Fire alarm notification devices should be provided in classrooms. The emergency lighting system should be upgraded.

Main Electrical Service................................................................................................................ 3

- Herter Hall is served by two voltage systems. The Main Disconnects are not well labeled, which can cause confusion. They are all in the Main Electric Room 12 in the basement. It is recommended that all the Main Disconnects be clearly labeled as Service Disconnects. There is a 480 volt Main Circuit Breaker in the Main Switchboard (MSB) and four 208 volt Main Disconnects mounted on the wall adjacent to the transformer room.
- The 480/277 volt, 3 phase, 4 wire, 1600 amp MSB has a Main Circuit Breaker with a trip setting of 1200 amp. It has adequate capacity for present and anticipated future loads. It is ITE brand original equipment (41 years old) and should be budgeted for replacement. ITE is no longer in business, but the equipment is still serviceable, and parts are still available through other companies. The MSB is fed from three new 250 KVA single phase, Olsun dry type transformers wired in a three phase configuration and located in the adjacent Transformer Room 12A, providing 750 KVA of capacity.
- The four Main Disconnects for the 208/120 volt, 3 phase, 4 wire system are fed by a new Olsun 225 KVA three phase, dry type transformer also located in the adjacent Transformer Room. Together with the MSB, there should be plenty available power in the building for any future requirements. The four Main Disconnects are showing rust.
- The transformers are fed from 13.8 KV feeders in a primary selective configuration (for redundancy)
through exterior S&C padmount switchgear. All of the primary wiring has recently been upgraded.
- The electrical usage is metered and recorded by permanently networked Square D Power Logic
digital meters. There is one meter in Transformer Room 12A for the 208 volt system, and there is a
meter in Electrical Room 12 for the 480 volt system.
- According to the meters, peak demand has been recorded at 389 KVA on the 480 volt system and
48 KVA on the 208 volt system.

Building Wiring ............................................................................................................................ 3

- Most of the circuit breaker panelboards are original, manufactured by KeLek, which is no longer
in business as an electrical equipment manufacturer. Replacement circuit breakers that meet U.L.
standards in these panelboards may be difficult to find.
- Building wiring generally appears to be in fair condition.
- Circuit breaker panelboards have been added in various areas to supplement original branch
circuit capacity or replace original.
- Some electrical equipment has been replaced along with mechanical upgrades.
- Some surface raceway has been used to update wiring, mostly in classrooms and offices.

Fire Alarm .................................................................................................................................... 2

- The original fire alarm system has been replaced by an addressable Simplex 4100 Fire Alarm
System. This was most likely installed to monitor the sprinkler system, drawings dated 2001. Strobes
and audible notification devices have been provided throughout corridors and many public spaces,
but they have not been installed in classrooms as is required by the modern code. The pull stations
have been installed as replacements for the originals and, in most if not all locations, they are
much too high to comply with the 48” maximum requirement of modern accessibility codes.

Lighting ....................................................................................................................................... 3

- Much of the lighting appears to have been upgraded to modern T8 technology. It is in fair
condition.
- Incandescent lighting is still used in the Auditorium and lobbies.
- Most light switches are at the originally installed height of 54” which does not comply with the 48”
maximum of modern accessibility codes.

Emergency Power and Lighting ............................................................................................... 4

- Emergency power is supplied from central battery units which appear to be original equipment. It is
doubtful that sufficient light is provided by the emergency light fixtures to comply with code.
- The central battery units are located in Mechanical Room 2. This does not comply with modern
codes. They are required to be in a separate fire-rated room to comply with modern codes.

Low Voltage Systems ............................................................................................................... 1

- Campus wireless network is present.
- Most classrooms have basic audio-visual instructional equipment.
- There is modern Simplex clock system.

Overall Rating ............................................................................................................................ 2.7
HVAC NARRATIVE

Overview Building Description:
The central chilled water equipment and hydronic hot water equipment was all replaced in 2006. Most of the air handling equipment appears to be original, except for a new AHU (AC-5) in MER 11. Most classrooms have unit ventilators.

- **Room #02 MER**
  - Most equipment is new
    - York absorption chiller (ST 6C4-46-C-5-6) and centrifugal chiller (YKACADDQ3 – CHF
    - Two large chilled water pumps
    - Four smaller chilled water pumps (two different sizes)
    - Two condenser water pumps
    - Two HX’s; one appears to be dual temperature (single temp HX is uninsulated; should be insulated)
    - Four hydronic pumps (two dual temperature)
    - Condensate receiver with duplex pumps

- **Room #12A MER** (also labeled #10)
  - Older equipment
    - Hydronic heat exchanger and two pumps
    - Steam to DHW heater
    - Condensate receiver and duplex pumps

- **Room # 11**
  - Old fans
    - New AC – 5 (York XTI-066X102-BACA046A; Serial CHRMXT0169; Job 06-105110-65-01)
    - EB – 1 (also labeled EF – 3)
    - Separate service entrances for CW and FPW

Air handling equipment shut off at 4:00 PM; must be on time clock

Prerequisites:
Ventilation: Yes
Cooling: Yes

Age.......................................................................................................................................................... 5
Condition ............................................................................................................................................... 4
Capacity ..................................................................................................................................................... 4
Efficiency .................................................................................................................................................. 4
Maintainability .......................................................................................................................................... 4
Overall Rating ............................................................................................................................................ 4.2
PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing .................................................................................................................................... 4

Most of the plumbing was installed in 1968 and is therefore 41 years old. Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation.

Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection.................................................................................................................................. 0

The sprinkler system was installed in 2001.
037 - HILLS HOUSE

BUILDING STATISTICS

Year Constructed: 1960
Approx. Gross Area: 87,600 SF
Stories: 4
Address: 111 Infirmary Way
Use Group: A-3 Assembly
UMass Utilization: Academic & Research
Historic Significance: Not Significant

Rating Summary

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural</td>
<td>4.5</td>
</tr>
<tr>
<td>Plumbing &amp; FP</td>
<td>4.5</td>
</tr>
<tr>
<td>HVAC</td>
<td>4.4</td>
</tr>
<tr>
<td>Electrical &amp; Alarm</td>
<td>3.2</td>
</tr>
<tr>
<td>Overall Rating</td>
<td>4.1</td>
</tr>
</tbody>
</table>

Description

Hills House was designed and built for dorm use. With little architectural or aesthetic distinction, the constraints of the floor plate and ceiling height put extreme limitations on its potential for reuse other than possibly as office space. The scale of the building however, would yield an over abundance of departmental offices in a less than desirable campus location. Originally constructed with inferior materials and building systems, the building envelope, mechanical and electrical systems are beginning to fail. The building is now in very poor condition.

Investment in the building is not recommended beyond that needed to maintain its utility until programs and occupants can be relocated. The short term objective should be to remove the building from the campus inventory as soon as practicable.

Assessment Summary

Liability building - somewhat under-utilized - space configuration is not well suited to current use - failure of facility’s systems prevent full use - limited accessibility

Recommendation

Building should be taken out of inventory as soon as possible - defer upgrades except maintenance essential to sustain operation - replace building due to condition and space that does not support current pedagogy - renovation would yield a poor return on investment

Occancy

<table>
<thead>
<tr>
<th>Category</th>
<th>Seats</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPUTING/NETWORKING</td>
<td>360</td>
<td>0%</td>
</tr>
<tr>
<td>EDUCATIONAL POLICY RESEARCH &amp; ADMINISTRATION</td>
<td>11,842</td>
<td>16%</td>
</tr>
<tr>
<td>GENERAL BUILDING AREAS</td>
<td>16,908</td>
<td>23%</td>
</tr>
<tr>
<td>GROUNDS/CUSTODIAL</td>
<td>371</td>
<td>1%</td>
</tr>
<tr>
<td>HEALTH SERVICES</td>
<td>4,806</td>
<td>7%</td>
</tr>
<tr>
<td>INTERNATIONAL PROGRAMS</td>
<td>4,370</td>
<td>6%</td>
</tr>
<tr>
<td>LANDSCAPE ARCHITECTURE &amp; REGIONAL PLANNING</td>
<td>24,007</td>
<td>33%</td>
</tr>
<tr>
<td>SCHOOL OF EDUCATION</td>
<td>895</td>
<td>1%</td>
</tr>
<tr>
<td>STUDENT DEVELOPMENT &amp; PUPIL PERSONNEL SERVICES</td>
<td>5,925</td>
<td>8%</td>
</tr>
<tr>
<td>UMASS CLASSROOMS (Total Seat Count = 209)</td>
<td>3,527</td>
<td>5%</td>
</tr>
<tr>
<td>HILLS HOUSE Total</td>
<td>73,011 NSF</td>
<td></td>
</tr>
</tbody>
</table>
ARCHITECTURAL NARRATIVE

Overview Building Description:
Built as a large dormitory building, Hills is configured around a small cellular module on a double loaded corridor with a very narrow floor plate. The building has two distinct, L-shaped, north and south wings that are connected only at the first floor by a single story lobby and lounge structure. The lounge has been converted to a large presentation room and is the only large open room original to the building. There is a basement under the center lobby area (only) which has experienced severe water damage and is no longer usable.

Floor to floor heights are extremely restrictive, ranging from 9'-6" between the 1st and 2nd floor to 8'-9" in the mid floors and 8'-7 ½" from the 4th floor to the roof.

The building use changed in the 1970s and piecemeal renovations have been ongoing since, creating primarily office space in the south wing and landscape architecture studio space in the north wing, a conversion that is particularly forced in the case of the studios.

The physical and structural layout, both vertically and horizontally, make the repurposing of the building difficult, yielding space that is overly constrained and unsuitable for most uses and programs other than dorm rooms originally intended.

Exterior Building Envelope
The building has a concrete encased steel frame with a concrete plank floor deck and a masonry exterior wall. The façade is a mix of red brick and limestone trim with major portions of the west, north and south (street front) elevations clad in blue and white terra-cotta set up in a striped pattern. The panels do not appear to be true, glazed terra-cotta units and seem to be some type of hi-bred composite panel. Available exterior wall sections indicate mortar between the face material and a material noted as “Speed-A-Backer” back-up tile, creating a solid wall susceptible to moisture infiltration problems. Thru-wall flashing is called for and plaster is applied directly to the interior face of the backer tile. The terra-cotta portions of the façade are failing with deep spalling and joint failure noted over wide spread areas, probably due to water penetration and freeze/thaw stresses.

Windows are original to the building and are non-thermally broken, aluminum frames with single pane glazing. The windows are in poor condition and are extremely energy inefficient. Archive drawings indicate that the roof was last replaced in 1994 with a single ply PVC membrane. A roof of this quality can be expected to perform for 20 plus years but time is counting down and further investment in the roof would be unfortunate at this stage.

The basement has flooded and been rendered unusable. Gypsum wall board has been removed from the bottom of the walls, however, mold is visible and a stale odor is noticeable in the basement as well as portions of the upper levels of the buildings. Water infiltration through the facade wall is also an ongoing problem which likely contributes to the stale odor and reported presence of mold in the upper areas of the building as well. Concern over air quality has been raised in interviews with the occupants.

Entrances, Circulation and Accessibility
The main entrances are not at grade and are not accessible. An accessible entrance with a power actuated door has been created off the back (east side). The accessible entrance is proximate to parking but remote to the pedestrian flow from center campus. An elevator was added in the knuckle of the south wing where the wing turns to the east. Due to the central split between the building’s north and south wings, the elevator provides no access to the upper levels of the north wing.
Corridors are of adequate width. Stairs, particularly the hand and guardrails, are not code compliant.

Toilets on the first floor of the south wing were retrofitted for improved accessibility but do not fully meet the dimensional criteria of the current code. Other toilet facilities are more or less carry-overs from the dorm facilities and are limited to one facility per floor. Men and women’s rooms alternate levels or have, in at least one case, been designated as “gender neutral”.

Common Area Interior Finishes ................................................................. 5

Windows are large and the building gets an abundance of natural light. Finishes are durable but not high quality or distinguished in any way. Artificial lighting is basic and while adequate it does little to enhance the character of the spaces. In general, the quality of the space is fair to poor with limited potential for rejuvenation.

**ELECTRICAL NARRATIVE**

Overview Building Description:
The main electrical transformer and switchboard were replaced within the last 10 years and are in good condition for the present loads. Careful evaluation of proposed loads will be necessary if central air conditioning is considered. Replacement of most of the power distribution system will be necessary with any significant renovation. The fire alarm system would need to be replaced. The emergency lighting seems to be insufficient. Much of the wiring is very old and outdated. There is an abundance of surface raceway throughout the building causing a shabby appearance.

Main Electrical Service ............................................................................. 2

- Hills House utilizes a 208/120 volt, 3 phase, 4 wire electrical system.
- The Main Switchboard (MSB) is a modern Square D QED switchboard installed around 2004. It is in good condition. The Main Circuit Breaker is rated 1600 amps.
- The transformer which feeds the MSB was installed at the same time as the switchboard. It is 500 KVA exterior padmount transformer. It is in good condition
- The electrical capacity of the switchboard at 6.6 watts per square foot is more than sufficient for present loads, but may be marginal if central air conditioning is to be considered.
- The electrical usage is metered and recorded by a permanently networked Square D Power Logic digital meter.
- According to the meter, the peak demand is 108 KVA.

Building Wiring .......................................................................................... 4

- The last renovation which included major wiring changes appeared to have been in 1980 when the original Federal Pacific fused panelboards were replaced with circuit breaker panelboards in the North Wing. Most of the wiring in that area was replaced.
- The original panelboards are still in service in the South Wing, and the wiring is close to 50 years old. Replacement of most of the power distribution system will be necessary with any significant renovation.
- Electrical systems have been upgraded with abundant use of surface conduit and raceway leaving a shabby appearance.

Fire Alarm ................................................................................................. 4
• A hardwired Simplex Fire Alarm Panel installed in 1980 serves the North Wing. There are smoke and heat detectors located throughout much of the North Wing. The system is in serviceable condition but would be replaced during any significant renovation. The visual notification devices do not comply with modern life safety codes, and the manual pull stations are mounted too high to comply with modern accessibility codes.

• The original Standard Electric Time fire alarm system is still in service in the South Wing. There are audible devices in corridors, but no visual notification devices. Pull stations are mounted above the 48” maximum height required by modern accessibility codes. The system is obsolete.

• There are no strobes in any of the classrooms.

Lighting ............................................................................................................................................... 3

• While original fluorescent and incandescent lighting fixtures have been replaced with fixtures using modern T8 and compact fluorescent lamps, many of the fixtures are showing age.

• Light switches are generally above the 48” maximum required by modern accessibility codes.

• There are still some incandescent light fixtures in use.

Emergency Power and Lighting........................................................................................................... 3

• Emergency lighting is provided by self-contained battery units in the stairwells, corridors and miscellaneous other locations. They vary in age and condition. Some are old and use acid batteries. There are many areas not covered by the emergency lighting. The system does not appear to be code compliant.

• Much of the wiring is in surface mounted raceway.

Low Voltage Systems ................................................................................................................................ 3

• Campus wireless network is present.

• A Simplex Clock System serves the building. It appears to be in fair condition, but there were clocks in few classrooms.

• Many of the classrooms have the basic audio-visual instruction equipment.

• The occupants report that since the construction of the Studio Arts Building, wireless access to the internet has not been reliable.

Overall Rating ............................................................................................................................................ 3.2

HVAC NARRATIVE

Overview Building Description:
This building was served by steam convectors and unit ventilators. Many of the convectors and unit ventilators are damaged physically, and appear to be in poor condition. Could not find the steam entrance for this building.

Prerequisites:
Ventilation: Yes
Cooling: No

Age ............................................................................................................................................................ 5
PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing ....................................................................................................................................... 4

Most of the plumbing was installed in 1960 and is therefore 49 years old. Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation.

Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection ................................................................................................................................... 5

There is no sprinkler system.
**MACHMER HALL**

**BUILDING STATISTICS**

- Year Constructed: 1957
- Approx. Gross Area: 72,600 SF
- Stories: 4
- Address: 240 Hicks Way
- Use Group: A-3 - Assembly
- UMass Utilization: Academic & Research
- Historic Significance: Not Significant

**Rating Summary**

| Architectural | 3.7 |
| Plumbing & FP | 5.0 |
| HVAC          | 4.4 |
| Electrical & Alarm | 2.2 |
| Overall Rating | 3.8 | Fair |

**Description**

Machmer Hall is on a prominent site between South College, W.E.B. DuBois Library, Thompson Hall, the Student Union and the central parking garage. Neither on axis with the pedestrian mall or with an entrance in alignment with the mall, it is awkwardly placed and does little in the way of contributing to the main “streetscape” of the campus. The building is a U-shaped floor plate. The east and west wings are wider with higher ceilings making them good for medium size, 30 to 40 seat, classrooms or department class labs. The connecting bar has a narrower floor plate, lower floor to floor height and an additional floor for faculty offices. Areas of the classroom wings have been converted to offices for several departments of the College of Social & Behavioral Sciences. The building is in fair to condition but in need of extensive renovations.

**Assessment Summary**

Boarder-line asset/ liability building - highly utilized
- space configuration constrains current programs
- deficiencies in facility’s systems limits use - limited accessibility, needs improvement

**Recommendation**

Building should be renovated for mixed classroom/ department space - differ upgrades except maintenance essential to sustain operation - take building off line for comprehensive renovation/ restoration - cost/value to the long term academic plan is questionable

**Occupancy**

| ANTHROPOLOGY | 12,246 | 20% |
| ARTS & SCIENCES ADVISING CENTER | 3,290 | 5% |
| COLLEGE OF SOCIAL & BEHAVIORAL SCIENCES | 289 | 0% |
| COMMUNICATION | 8,677 | 14% |
| GENERAL BUILDING AREAS | 19,503 | 31% |
| GROUNDS/CUSTODIAL | 664 | 1% |
| HUMAN RESOURCES | 698 | 1% |
| POLITICAL SCIENCE | 179 | 0% |
| SOCIAL THOUGHT & POLITICAL ECONOMY | 1,028 | 2% |
| SOCIOLOGY | 5,246 | 8% |
| UMASS CLASSROOMS (Total Seat Count = 618) | 10,388 | 17% |
| **MACHMER HALL Total** | **62,208 NSF** |
ARCHITECTURAL NARRATIVE

Overview Building Description:
Machmer Hall is a highly utilized academic resource that is in fair to poor condition. Designed as a classroom and departmental office building, it is utilized as such today with notable revisions in the number of remaining classroom/class-lab instructional spaces. The building was built with 42 classrooms, 45 faculty offices and 6 conference rooms. Today Machmer has 24 Classrooms (16 UMass classrooms and 8 departmental class-labs) while the remaining classrooms and conference rooms have been partitioned and put to predominately departmental office use. Classrooms modules range between 591 sf, 713 sf and 848 sf. Floor to underside of slab height is 10ft in the classroom wing and 8’ – 8” in the office wing. The office wing is 4 stories and the classroom wing is 3 with a significant floor height change between the two wings at all floors except the first.

The U-Shaped configuration has classrooms in the two wings and office space in the connecting bar between the wings. The dimensions of the building make the bar ideal for offices with its narrow floor plate and good opportunity for deep natural light penetration while the classroom wing is wider with higher ceilings and windows for good natural lighting in the classrooms. When offices are introduced into the classroom module, however, inefficiencies result as well as windowless interior vestibules.

Exterior Building Envelope.......................... 3

Exterior walls are face brick on a CMU back-up with limestone trim. Construction drawings show parging on the block with no waterproof membrane, cavity or insulation. Thruwall flashing is called for at relieving angles and lintels. The interior plaster is installed directly on furring over the block. No signs of serious exterior wall failure were noted, however, evidence of brick repair/repointing, done as part of the 2008 roof work, is evident.

Single glazed, non-thermally broken aluminum frame windows appear to be original and are beyond their expected serviceable life as well as being extremely energy inefficient.

Machmer has a flat roof with a topping slab creating pitch to internal drains along the corridor line. The building has been reroofed at least twice, most recently in 2008 with a PVC membrane over rigid insulation. A roof of this quality should have a 15 to 20 year life expectancy.

The exterior envelope appears to be sound and serviceable. While the wall assembly does not meet today’s standards it does appear to be functional. Thermal modeling should be done before adding insulation or altering the wall assembly as moisture might be inadvertently and detrimentally introduced into the wall via condensation. Window replacement should be done as part of any renovation. Depending on the scope of any proposed renovation, it may be possible to maintain warranties and possibly extend warranties on the roof if certified installers are used.

Entrances, Circulation and Accessibility ..................... 4

The building has multiple entrances several of which are or could be made accessible on the first floor. There are two main entrances to the second floor at the south side of the building. A sloped walkway has been introduced to allow wheel chair access to the west entry. This entry comes in at the mid/office bar level and internal ramps have been added in both the east and west lobbies to allow limited access to the corridor wings of the second floors. Toilet facilities on these floors have been augmented for access with unisex facilities which appear to be compliant. There is no elevator and the 3rd and 4th floors of the building are not accessible nor is there an internal route from the 2nd floor to the 1st.

Corridors are wide and dimensionally spacious with no obstructions. Stairs are steep but appear to be
at the limit of current code standards. Hand rails need to be replaced to provide adequate guardrail protection and to meet code standard spacing between vertical members.

Toilet rooms have been renovated on some floors with new tile and fixtures. Handicap accommodations were not made as the floors typically are not accessible.

The building has lounge areas in the junctures between the center bar and class room wings that have been upgraded with soft seating and finishes. The spaces get a great deal of natural light and are very pleasant gathering spots. They are positioned, however, such that people must pass from the egress corridor into the lounge to get to the egress stairs. This would not be allowed under current code and should be revisited if the building is extensively renovated to see if an alternative layout or designation might be made.

Common Area Interior Finishes ................................................................. 4

Machmer is well suited to the use and scale of a department and small classroom (or department classroom) building. The building lacks a high level of architectural as well as interior distinction but is nonetheless good space with high quality corridor glazed tile. Floors are a combination of VCT and VAT tiles. Some abatement of tile has been done. Replacement and upgrading of the ceilings, finishes and lighting could bring the space back to a high level as part of a major building renovation.

ELECTRICAL NARRATIVE

Overview Building Description:
Any major renovation should include a new main switchboard, new branch circuit panelboards, and a new fire alarm system, all of which are considered to be at or near the end of useful life and do not comply with modern codes. The exterior padmount transformer, while new and in excellent condition, may be insufficient for powering whole building central air conditioning. It is recommended that a careful load analysis be conducted if deciding to add central air.

Electrically the building seems to be very well maintained. There is modern fluorescent lighting. There are occupancy sensors in many rooms. Surface raceway has been neatly installed in the corridors and rooms where necessary. Classrooms have been updated with electrical receptacles and modern audio-visual equipment packages. There is a modern Simplex clock system.

Main Electrical Service................................................................. 3
- The Main Switchboard (MSB) is rated 1000 amp, 208/120 volt, 3 phase, 4 wire.
- The MSB is the original 1957 Westinghouse equipment.
- The source of power for the MSB is a newer Olsun 300 KVA dry type, pad mount transformer near the parking garage. It is fed from a campus 2400 volt feeder.
- The electrical usage is metered and recorded by a permanently networked Square D Power Logic digital meter.
- According to the meter, the peak demand is 84 KVA.

Building Wiring................................................................. 3
- Most of the panelboards are original Westinghouse circuit breaker panels.
- Much of the building wiring is original.
- Some new wiring and panelboards have been added and the quality is good.
Fire Alarm .................................................................................................................................................. 5

- The original hard-wired Fire Alarm System is still in use. There are no strobes and the height of the manual pull stations does not comply with code.

Lighting ................................................................................................................................................... 1

- Much of the lighting appears to have been upgraded to modern fluorescent fixtures utilizing energy efficient T8 or compact fluorescent lamps. The lighting quality is good.
- Many classrooms have occupancy sensors.
- Many classrooms have switching configurations to shut off selected fixtures to accommodate audio-visual presentations.

Emergency Power and Lighting ............................................................................................................... 1

- The emergency lighting system consists of a central battery/inverter system powering emergency light fixtures and exit signs. It appears to be well maintained.

Low Voltage Systems ................................................................................................................................ 0

- Campus wireless network is present.
- Most classrooms have basic audio-visual instructional equipment.
- There is a modern Simplex clock system.

Overall Rating .............................................................................................................................................. 2.2

HVAC NARRATIVE

Overview Building Description:
The HVAC systems appear to be original in the building.
- Unit ventilators
- No cooling except computer room (split system) and conference room (window units); wall stats for unit ventilators
- Steam entrance in lower level MER (Room 03); PRV appear to be very old.
- Steam to DHW heater also
- Relief for unit ventilators through roof
- Tunnel around lowest level of building for steam and condensate distribution

Prerequisites:
Ventilation: Yes
Cooling: No

Age............................................................................................................................................................ 5

Notes: Built in 1957. All of the equipment observed in this survey has aged well beyond the normal life expectancy for such equipment.

Condition .................................................................................................................................................... 4

Notes: Although all of the observed equipment appears to be functional, it has aged well beyond the
normal life expectancy.

Capacity.................................................................................................................................................. 5

Notes: Outdoor temperatures were extremely low at the time of this survey, and the building appeared to be adequately heated. However it is not likely that the systems have adequate capacity to meet current ventilation standards, and there is no cooling.

Efficiency.................................................................................................................................................. 4

Notes: There are no features like heat recovery.

Maintainability........................................................................................................................................... 4

Notes: There is space to maintain the equipment, but the decentralized nature of unit ventilators increases the effort required to maintain systems.

Overall Rating ........................................................................................................................................... 4.4

PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing.................................................................................................................................................. 5

Most of the plumbing was installed in 1957 and is therefore over 50 years old. Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation.

Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection........................................................................................................................................... 5

There is no sprinkler system.
**329 - MAHAR AUDITORIUM**

**BUILDING STATISTICS**

- **Year Constructed:** 1965
- **Approx. Gross Area:** 7,640 SF
- **Stories:** 1
- **Address:** -
- **Use Group:** A1 - Assembly
- **UMass Utilization:** Academic Lecture
- **Historic Significance:** Not Significant

**Rating Summary**

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural</td>
<td>1.7</td>
</tr>
<tr>
<td>Plumbing &amp; FP</td>
<td>3.0</td>
</tr>
<tr>
<td>HVAC</td>
<td>1.8</td>
</tr>
<tr>
<td>Electrical &amp; Alarm</td>
<td>1.0</td>
</tr>
<tr>
<td><strong>Overall Rating</strong></td>
<td>1.9</td>
</tr>
<tr>
<td><strong>Good</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Assessment Summary**

Asset building - highly utilized - space configuration serves current program well - facility’s condition enlivens use - limited accessibility, needs improvement

**Recommendation**

Current use is well suited to the building - keep-up aggressive maintenance program - maintenance investment is a good value

**Description**

Mahar Auditorium is located in the South Campus between the School of Management and several non-University buildings that front on North Pleasant Street. The modern style, hexagonal building houses a single, 470 seat auditorium, the largest on campus. Out of the general student flow within the campus, the auditorium is in very high demand and the building is very heavily utilized. Despite its heavy use, the building has been invested in and is in generally good condition.

Its hexagonal floor plate and tall ceiling was designed specifically for the auditorium it houses. No change in use should be considered. Aggressive maintenance is needed as are modifications necessary to make the building fully access compliant.

**Occupancy**

<table>
<thead>
<tr>
<th>Category</th>
<th>Capacity</th>
<th>Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL BUILDING AREAS</td>
<td>3,142</td>
<td>43%</td>
</tr>
<tr>
<td>UMASS CLASSROOMS (Total Seat Count = 469)</td>
<td>4,160</td>
<td>57%</td>
</tr>
<tr>
<td>MAHAR AUDITORIUM Total</td>
<td>7,302 NSF</td>
<td></td>
</tr>
</tbody>
</table>
ARCHITECTURAL NARRATIVE

Overview Building Description:
Mahar Auditorium was originally designed as a large capacity auditorium by Campbell & Aldrich Architects. It is still used for its original purpose today, with few modifications to the original layout. Being one of the only large auditoriums on campus, Mahar is fully booked. The University understands that due to its key educational role, it is in their best interest to maintain this building. The maintenance program for the building may need to be accelerated due to its heavy use, however, the building works very well for this purpose and is worth the investment.

Exterior Building Envelope

The walls are a composite masonry bearing wall consisting of an outer brick layer and an inner CMU layer with limestone trim and accents. A waterproof membrane runs in between the two materials of the wall. Construction drawings show no cavity or insulation, with the exception of insulation for acoustical purposes. While the wall assembly does not meet today’s standards it does appear to be functional. No signs of serious exterior wall failure were noted. Thermal modeling should be done before adding insulation or altering the wall assembly as moisture might inadvertently and detrimentally be introduced into the wall via condensation. Although, with the thickness of the masonry wall and the amount of body heat generated by a full classroom, heat loss should not be a significant problem. There is no evidence of any repointing or masonry repair. Some vertical cracking was noted at roof drain locations, however, the masonry looks like it is in good condition, but repointing should be anticipated in the future.

The building was originally designed with seven pairs of windows, one on each corner of the hexagon and one flanking the main entrance doors. The two pairs at the back of the auditorium had one aluminum framed, glass door in place of a window. During the 1996 renovation and addition, four of the pairs were closed up. The window openings adjacent to the rear doors were bricked up, but the doors remained, along with the two openings on the North and South sides of the auditorium. This is most likely due to light control issues for projection. The remaining windows are single glazed, non-thermally broken aluminum frame, fixed glass, with a grey tint. They appear to be original to the building. Replacing these with thermally broken, insulated glass units could improve the building’s energy efficiency.

Mahar has a complex roof geometry with numerous peaks and valleys. The original roof was tar and gravel over two inches rigid insulation and tongue and groove roof decking. It is assumed that the roof has been replaced at least once, most likely prior to the interior renovation in 1996. However, no drawing documentation was available to confirm the work. There is some damage to the limestone cladding of the roof leader in the southwest corner of the building indicating there may have been some water backup at one time. It is recommended that the roof, gutters, and leaders be checked on a regular basis and be serviced and replaced as appropriate.

Entrances, Circulation and Accessibility

The building has one main entrance on the West elevation with three doors and two exit doors on the East elevation. The original drawings show four doors at the main entrance. It is assumed that these doors were too narrow to allow for accessibility and were replaced at some point with fewer, wider doors in order to comply with code. All entrances are at grade and fully accessible. There was also a chair lift added during the 1996 renovation to allow access from the lobby down to the auditorium.

Both male and female toilet facilities were made accessible during the 1996 renovation and appear to be in compliance with today’s standards. There is also an accessible water fountain. The projection room is the only space not accessible, as the only means of reaching it is via a stair. However, this does not necessarily violate code depending on the restrictive nature of the use.
Circulation spaces are dimensionally adequate and free of obstructions. The stairs were widened during the 1996 renovation and their slope is at the limit of current code standards. The handrails are also compliant.

Common Area Interior Finishes ........................................................................................................ 1

The building underwent a significant interior renovation in 1996 and an audio visual upgrade in 1997. The building appears to be well maintained and in good condition. The floors in the auditorium are sheet vinyl under the seats, carpet in the aisles, and wood on the stage. The lobby floor is slate tile. The toilet rooms have ceramic tile on the floors and walls. The walls in the auditorium are acoustical panels. Other spaces have painted plaster walls. The ceilings are either painted plaster or ACT. The ceilings in the auditorium are suspended acoustical panels.

**ELECTRICAL NARRATIVE**

**Overview Building Description:**
Built in 1965, the electrical systems were upgraded during a major 1997 renovation. The electrical equipment appears to be in very good condition for the building’s intended purpose. There is plenty of electrical capacity for present and anticipated loads. The building appears to be well maintained.

**Main Electrical Service........................................................................................................ 1**

- Mahar Auditorium utilizes an incoming 480/277 volt, 3 phase, 4 four wire system. There is a 75 KVA distribution transformer to provide a 208/120 volt, 3 phase, 4 wire utilization voltage.
- The Main Electrical Service equipment is in good condition having been upgraded with a new Square D Main Disconnect, panelboards, and distribution transformer. There is sufficient capacity for present and future loads.
- The source of power is the Main Switchgear in the new Harold Alfond Management Center.
- The electrical usage is metered and recorded by a permanently networked Square D Power Logic digital meter.
- According to the meter, the peak demand is 29 KVA.

**Building Wiring .................................................................................................................. 1**

- The electrical distribution equipment is in good condition having been replaced during the 1997 renovation.
- Some of the electrical raceway and equipment in the mechanical rooms are showing age.
- Surface metal raceway has been used moderately to add wiring where necessary.

**Fire Alarm .......................................................................................................................... 1**

- The building is equipped with a modern, addressable Simplex fire alarm system with smoke detection and voice evacuation.
- The manual pull stations are too high to be in compliance with modern life safety and accessibility codes.

**Lighting .............................................................................................................................. 1**

- Most of the lighting has been upgraded with modern fluorescent fixtures.
- There are still incandescent fixtures in the main lecture hall for ease of dimming.
- Occupancy sensors are used in some of the smaller rooms.
Emergency Power and Lighting

- Power for emergency egress lighting and exit signs is provided by a mixture of central and local self-contained battery units. The equipment appears to be well maintained and in good condition.

Low Voltage Systems

- Campus wireless network is present.
- The audio visual equipment appears to be in very good condition.
- There is a modern Simplex clock system.

Overall Rating: 1.0

HVAC NARRATIVE

Overview Building Description:
HVAC system was completely updated in 1996. System is all air with two central air handling units, chilled water cooling and steam heat.

- Air handling units are Trane climate Changer Size 012 (typical for 2); one AHU serves half (one side) of the auditorium; separate thermostat for each side of the auditorium
- Single Trane air cooled chiller Model CGAEC604ACNICDGRT

Some of the steam piping insulation appears to be older than the remainder of the system, but is still good.

Prerequisites:
Ventilation: Yes
Cooling: Yes

Age: 3
Condition: 0
Capacity: 0
Efficiency: 3
Maintainability: 3

Overall Rating: 1.8

PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing:

Most of the plumbing was installed replaced in 1996 and is therefore 13 years old. Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation
pumps and dielectric couplings should be tested and evaluated as part of the renovation.

Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection

There is no sprinkler system.
BUILDING STATISTICS

Year Constructed: 1948
Approx. Gross Area: 21,600 SF
Stories: 3
Address: 111 County Circle
Use Group: B - Business
UMass Utilization: Administrative & Support
Historic Significance: Not Significant

Rating Summary

Architectural: 4.5
Plumbing & FP: 5.0
HVAC: 4.8
Electrical & Alarm: 3.5
Overall Rating: 4.5
Description: Poor

Assessment Summary

Middlesex House, while sound and built of enduring materials, has minimal architectural and aesthetic distinction. The specialized nature of its design for residential use limits the potential for reuse as does the floor to floor heights which limit the scale of the rooms and the potential for introducing adequate central HVAC systems. The building is in poor condition at this point and would require extensive renovations to bring it up to an acceptable standard for full utilization. The costs of the upgrade outweigh the benefits of the type and quality of space that even extensive renovations would yield.

For these reasons it is recommended that further investment in the building not be made and that planning take into account relocating occupants and taking the building out of inventory when practical. As the building is fundamentally sound, it might play a swing space role as other buildings are renovated assuming minor, cosmetic upgrades were to be made in the interim.

Recommendation

Building should be taken out of inventory as soon as possible - defer upgrades except maintenance essential to sustain operation - replace building due to condition and space that does not support current pedagogy - renovation would yield a poor return on investment.
ARCHITECTURAL NARRATIVE

Overview Building Description:
Middlesex House was a post war residence building. Built as “Building #4” in a 1948 cluster of nearly identical residential buildings, it housed simple, small dorm rooms. The floor plate is narrow (38’ overall) and is composed of a 14’-8” wide room on either side of a 6’-0” corridor. The rooms are very narrow, 9’-0” +/- . Exterior and corridor walls are masonry bearing walls which carry 5 inch reinforced concrete floor and roof decks. The building is vertically compact: 8’-8” floor to floor on floors 1 and 2; 8’-11” floor to the underside of the roof deck on 3; and, 8’-0” floor to floor in the basement. Original drawings show only a partial basement. There is a full basement in the building, however and it is not known when this change was made.

A number of localized interior renovations have taken place over the years, some involving removal of interior partitions to create larger spaces. Most of the building is subdivided as originally built, into dorm room scale spaces in the 125 sf size range.

Re-programming options for the building are limited to office, office support and small conference room uses. Vertical constraints make the options for introducing air conditioning, improving heating and ventilation distribution and even the use of more effective lighting, extremely limited and probably unsatisfactory.

Exterior Building Envelope

The exterior wall is a combination of red brick with a concrete block back-up/bearing wall on the north and south ends where the brick returns along the east and west elevations for a bay. The east and west elevations are painted, solid concrete block. The red brick areas appear to be in good condition while the painted block exhibits significant areas of cracking and surface (paint) failure. The interior surface is furred and plastered. Little can be ascertained about the flashing systems from the original drawings, however, flashing is called for and noted at appropriate points. Windows are double hung, non-thermally broken, metal framed, single glazed units, original to the building. They are in poor condition and are extremely energy inefficient. Archive drawings indicate that the roof was replaced with a tapered insulation and PVC room in late 1996. A roof of this quality should perform well for 20 plus years.

Entrances, Circulation and Accessibility

Accommodations have been made to make the buildings first floor accessible by adding a ramp at the south entry. The ramp and particularly the hand rails are not compliant with the MAAB standards. The entry door has been replaces with a single leaf door that does dimensionally comply. There is no elevator and no accessible route to other levels of the building. Corridor widths are adequate however toilet facilities are not compliant with MAAB standards. Stairs are steeper than current code allows with tread nosing and handrails that would require retrofitting or replacement as part of a renovation of any extent. Door hardware includes knob sets rather than lever handles which current code requires.

Common Area Interior Finishes

Interior partitions are painted block. Ceilings are a combination of painted concrete and adhered acoustic tiles. Floors are a combination of VCT, VAT and carpet which is assumed to have been installed over VAT. None of the materials are high quality and while conditions vary, there is little that could be salvaged. Overall, the quality of the space is poor to fair due to limited natural light, poor ventilation and air quality and a general institutional feel of painted concrete and block.
ELECTRICAL NARRATIVE

Overview Building Description:
The main electrical service and many branch circuit panelboards are obsolete. The service, along with much of the wiring and panelboards should be replaced. Lighting, for the most part, appears to have been updated with fluorescent fixtures, but appears to only be in fair condition. Light switches do not comply with height requirements of modern accessibility standards. The Fire Alarm system has been upgraded to bring the building into compliance with modern life safety codes. The emergency power system appears to be sufficient for present use. Any significant renovation would include a major power system upgrade.

Main Electrical Service .................................................................................................................. 5
- Middlesex House is served by a 208/120 volt, 3 phase, 4 wire system. The Main Service Disconnect Switches are original 60 year old equipment.
- Power is supplied from an interior 112.5 KVA dry type transformer, which has replaced the original oil filled transformers.
- The Main Electric Service should be replaced due to age.
- The electrical usage is presently not metered.

Building Wiring .................................................................................................................................. 5
- Circuit breaker panelboards of varying condition have been added to supplement original branch circuit capacity or replace original. Most would be replaced during any significant renovation. Original fused panels are still in service.
- An abundant amount of surface raceway has been used to update wiring, causing a shabby appearance in corridors and some other areas.
- All wiring would most likely be replaced with any significant renovation.

Fire Alarm ............................................................................................................................................ 1
- The building is served by a recently installed modern, addressable Notifier fire alarm system.
- The system complies with modern life safety and accessibility codes.
- There are smoke detectors throughout the corridors.

Lighting ............................................................................................................................................... 3
- Most of the lighting appears to have been upgraded with fluorescent light fixtures.
- Most light switches are at the originally installed height of 54” which does not comply with the 48” maximum of modern accessibility codes.

Emergency Power and Lighting ...................................................................................................... 3
- Emergency egress lighting and exit signs are provided by recently installed self-contained battery units. They appear to be in good condition, but would most likely be replaced during any significant renovation.

Low Voltage Systems ..................................................................................................................... 4
- Campus wireless network is present.
- There are no classrooms with basic audio-visual instructional equipment.
- There does not appear to be a clock system.
Overall Rating ............................................................................................................................... 3.5

HVAC NARRATIVE

Overview Building Description:
The building is served by old steam convectors and window units. All of the steam heating equipment is very old.
- Room # 010 MER
  - Steam entrance and PRV
  - Condensate receiver and pump
  - Steam to hot water DHW heater
  - Abandoned riveted copper DHW heater
- Could not get into MER 012A (probably an MER for the Vivarium)

Prerequisites:
Ventilation: No
Cooling: No

Age ........................................................................................................................................ 5
Condition ................................................................................................................................ 5
Capacity .................................................................................................................................... 5
Efficiency .................................................................................................................................. 5
Maintainability ............................................................................................................................ 4
Overall Rating ............................................................................................................................ 4.8

PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing ........................................................................................................................................ 5

Most of the plumbing was installed in 1948 and is therefore 61 years old. Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation.

Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection ................................................................................................................................ 5

There is no sprinkler system.
029 - MILLS (NEW AFRICA) HOUSE

BUILDING STATISTICS

Year Constructed: 1948
Approx. Gross Area: 36,300 SF
Stories: 3
Address: 180 Infirmary Way
Use Group: B - Business
UMass Utilization: Academic & Research
Historic Significance: Significant

Rating Summary

Architectural 2.3
Plumbing & FP 5.0
HVAC 4.4
Electrical & Alarm 4.5
Overall Rating 4.1 Poor

Assessment Summary

Asset building - somewhat under-utilized - space configuration serves current programs well - facility’s condition compromises use - limited accessibility, needs improvement

Recommendation

Current use is well suited to the building- coordinate aggressive maintenance around system upgrades - implement staged upgrades to key building component without taking the building off line - renovation/ improvement investment is a good value

Description

The New Africa House is a simple brick building designed in the Federal style. Originally a men’s dormitory building, it is one of three academic buildings located in what was once a central resident area of campus. The building is currently home to the African American Studies department. It is used mostly as offices with several UMass classrooms and conference rooms mixed in. It also houses the Shirley G. Dubois Library collection on the second floor and the Augusta Savage gallery on the first floor. There are under utilized areas in the building. Unlike other comparable smaller scale residence buildings, NAH has acquired a campus identity and civic purpose through past events and the resultant Afro-American Studies program. The building has benefited from periodic investment and is scheduled to receive an elevator and further accessibility upgrades.

The building’s narrow floor plate and residence hall partition layout make it well suited for its current office space and uses. Additional, similar program needs could be accommodated.

Occupancy

<table>
<thead>
<tr>
<th>Area</th>
<th>Usage %</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFRO-AMERICAN STUDIES</td>
<td>6,147</td>
<td>20%</td>
</tr>
<tr>
<td>CAMPUS ACTIVITIES</td>
<td>187</td>
<td>1%</td>
</tr>
<tr>
<td>CAPITAL ASSET BOARD</td>
<td>5,520</td>
<td>18%</td>
</tr>
<tr>
<td>COM COL EDUC OF BLACK MIN</td>
<td>5,149</td>
<td>17%</td>
</tr>
<tr>
<td>COMPUTING/NETWORKING</td>
<td>36</td>
<td>0%</td>
</tr>
<tr>
<td>FINE ARTS CENTER</td>
<td>1,843</td>
<td>6%</td>
</tr>
<tr>
<td>GENERAL BUILDING AREAS</td>
<td>7,565</td>
<td>25%</td>
</tr>
<tr>
<td>GROUNDS/CUSTODIAL</td>
<td>261</td>
<td>1%</td>
</tr>
<tr>
<td>UMASS CLASSROOMS (Total Seat Count = 108)</td>
<td>1,846</td>
<td>6%</td>
</tr>
<tr>
<td>VICE CHANCELLOR FOR STUDENT AFFAIRS &amp; CAMPUS LIFE</td>
<td>1,576</td>
<td>5%</td>
</tr>
</tbody>
</table>

MILLS HOUSE Total 30,130 NSF
ARCHITECTURAL NARRATIVE

Overview Building Description:
Built in 1948 by Louis Warren Ross, the Mills House, as it was formerly known, started its life as a men’s dormitory. In 1969, it was a mixed race residence when a group of African American students barricaded themselves in the building after a racial incident. What started as an act of self defense turned into a full fledged take-over, complete with demands. One of the demands was the formation of a black studies department, which was already being considered by the Faculty Senate. It is possible the incident helped sway some of the Senates’ votes. Regardless, the department of Afro-American Studies was approved and the department moved its offices into the building. Shortly after the building was officially renamed the New Africa House and remains the home of the Afro-American Studies department and the Committee for the Collegiate Education of Blacks and Other Minorities.

The building is mostly offices with a couple classrooms and conference rooms. There is also a library/lounge area on the second floor. Its former life as a dormitory makes the building well suited for offices. Its narrow floor plate provides a double loaded corridor with moderate sized rooms of roughly equal size on both sides.

Floor to floor heights are: Bsmt to 1st and 1st to 2nd, 10’-0”; 2nd to 3rd and 3rd to 4th, 9’-2”; 4th to Ceiling, 8’-0”. These heights would make the ceilings very low if HVAC was added. Some areas, such as the Library, already have HVAC installed. Upgrades of antiquated systems would have to be addressed on a case by case basis.

Exterior Building Envelope.............................................................................................................

Original drawings of the building show a solid masonry bearing wall with no cavity or drainage. There is no evidence of any failures or repairs. The masonry should be repointed and restored as part of any renovation.

The windows are double hung, single glazed, with wood sash and frames. They are original to the building and should be preserved. Drawings indicate that the windows were painted and reputtied and the trim repainted and replaced, as necessary, in 2008 as part of a roof replacement project. Storm windows can be added to increase energy efficiency, but it is desirable to preserve original windows from a historic perspective when possible.

The Gambrel roof consists of slate tiles on the lower East and West slopes and main gable dormers. The smaller dormers and upper slopes of the roof have a single ply membrane roof. The roof was replaced in 2008, which means it is in excellent condition. A membrane roof of this type should have a 15-20 year life with the portions that are slate lasting much longer.

Entrances, Circulation and Accessibility.............................................................................................................

The main entrance is located on the west side of the building. It is elevated and has a stair leading up to it. Making this entrance accessible would be nearly impossible. There is an accessible entrance to the building on the east side by way of a wooden ramp. There are two more entrances to the building. One is on the north side and the other on the south. Both entrances have stoops making them inaccessible, but could be easily adapted.

The stairs are only slightly steeper than code allows and would most likely be allowed to remain if proper handrails and guardrails were installed. The corridors are adequate in width and present no dimensional deficiencies. There are some tables and chairs being stored in some of the corridors, which constitute obstructions and should be removed. In 1988, at the same time the ramp was added to the east side of the building, accessible toilets were added to the men’s and women’s restrooms on the first floor. These are
the only accessible toilets in the building. There is currently a project underway in the building to add an elevator and make the rest of the building accessible.

Common Area Interior Finishes ................................................................. 2

There is no significant architectural detail within the New Africa House worth preserving. The flooring is VAT or carpet. The walls are painted plaster on lathe in most areas. The bathrooms have tile walls and the stairwells are painted CMU. The ceilings are either concealed spline ACT or the underside of the floor slab above, painted.

ELECTRICAL NARRATIVE

Overview Building Description:
The main electrical panel and most branch circuit panelboards are original equipment, over 60 years old. The wiring and panelboards should be replaced. Lighting, for the most part, appears to have been updated with energy efficient lamps and ballasts. Light switches do not comply with height requirements of modern accessibility standards. The Fire Alarm system is obsolete and should be replaced. Visual notification devices (strobes) should be provided in public and common areas, and new manual pull stations should be mounted at 48” or below for compliance with modern accessibility standards. The emergency power system is obsolete. Any significant renovation would include all new systems.

Main Electrical Service...................................................................................... 5

- The New Africa House is served by a 208/120 volt, 3 phase, 4 wire system. The Main Service Disconnect Switches are original Trumbull Electric Company (no longer in business) equipment.
- The electrical usage is metered and recorded by a permanently networked Square D Power Logic digital meter.
- According to the meter, peak demand has been recorded at 23 KVA.

Building Wiring ................................................................................................. 5

- Most of the original branch circuit panelboards, manufactured by Trumbull Electric Company, are fused. Electrical equipment serving much of the mechanical equipment is showing age and wear.
- Circuit breaker panelboards of have been added in various areas to supplement original branch circuit capacity or replace original.
- An abundant amount of surface raceway has been used to update wiring, causing a shabby appearance in some areas.
- All wiring would be replaced with any significant renovation.

Fire Alarm ......................................................................................................... 5

- The original Standard Electric Time Fire Alarm system is still in use. There are not strobes (visible notification devices) in the corridors or classrooms, as is required by modern life safety standards. The pull stations are much too high to comply with the 48” maximum requirement of modern accessibility codes. The system is obsolete.

Lighting ............................................................................................................ 4

- Most of the lighting appears to have been upgraded with fluorescent light fixtures. Many fixtures appear damaged or are showing age.
Most light switches are at the originally installed height of 54” which does not comply with the 48” maximum of modern accessibility codes.

Emergency Power and Lighting
- Emergency power is supplied from a 17.5 KW Onan diesel generator, installed around 1970. The generator supplies power for emergency lighting through an original 100 amp, 208/120 volt, 3 phase Onan transfer switch. The generator and transfer switch should be budgeted for replacement. It is recommended that the emergency load be monitored to determine present load requirements.

Low Voltage Systems
- Campus wireless network is present.
- A few classrooms have basic audio-visual instructional equipment.
- There is not a clock system.

Overall Rating

HVAC NARRATIVE

Overview Building Description:
Building is heated by steam convection. There is no ventilation, although there is a fan in MER 11. Window AC units may be used:
- Room #9 MER
  o Steam entrance and PRV; PRV is old; some insulation has been replaced; seam metering has been provided.
  o Duplex condensate pump
  o Abandoned DHW storage tank.
- Room #11 MER
  o Small ventilation fan for application upstairs

Prerequisites:
Ventilation: No
Cooling: No

Age

Condition

Capacity

Efficiency

Maintainability

Overall Rating
PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing

Most of the plumbing was installed in 1948 and is therefore 61 years old. Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation.

Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection

There is no sprinkler system.
BUILDING STATISTICS

Year Constructed: 1885
Approx. Gross Area: 31,100 SF
Stories: 3 + Basement and Tower
Address: 150 Hicks Way
Use Group: B - Business
UMass Utilization: Academic & Research
Historic Significance: Legacy

Rating Summary

| Architectural | 4.5 |
| Plumbing & FP | 5.0 |
| HVAC | 4.6 |
| Electrical & Alarm | 2.5 |
| Overall Rating | 4.2 Poor |

Description

Located in the heart of campus, to the West of W.E.B. Dubois Library, South College is one of the campus’s “Legacy” buildings. Built in 1885, just after the Old Chapel, South College is the oldest academic building remaining on campus. Much of its richness of the originally Gothic Revival design has been lost in alterations over the years. The building is currently used to house portions of several departments and the Humanities and Fine Arts Dean’s offices. It is in poor condition and has several occupancy restrictions due to fire and life safety failings. The L-shaped footprint, relatively narrow floor plate and extremely narrow corridor are restrictive. Layout revisions could be addressed in the extensive renovation needed.

South College’s prominent location on campus suggest that it could be suited to the needs of a department that required basic office space or for administrative offices. Its condition makes the viability of its rehabilitation questionable.

Occupancy

<table>
<thead>
<tr>
<th>Department</th>
<th>Square Feet</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTHROPOLOGY</td>
<td>1,038</td>
<td>4%</td>
</tr>
<tr>
<td>COLLEGE OF HUMANITIES &amp; FINE ARTS</td>
<td>4,651</td>
<td>19%</td>
</tr>
<tr>
<td>COMMUNICATION</td>
<td>3,194</td>
<td>13%</td>
</tr>
<tr>
<td>COMPUTING/NETWORKING</td>
<td>135</td>
<td>1%</td>
</tr>
<tr>
<td>GENERAL BUILDING AREAS</td>
<td>4,478</td>
<td>18%</td>
</tr>
<tr>
<td>GROUNDS/CUSTODIAL</td>
<td>253</td>
<td>1%</td>
</tr>
<tr>
<td>LIBRARY ADMINISTRATIVE SERVICE</td>
<td>481</td>
<td>2%</td>
</tr>
<tr>
<td>LINGUISTICS</td>
<td>6,691</td>
<td>27%</td>
</tr>
<tr>
<td>MAIL SERVICES</td>
<td>1,532</td>
<td>6%</td>
</tr>
<tr>
<td>MASS REVIEW</td>
<td>817</td>
<td>3%</td>
</tr>
<tr>
<td>NON ASSIGNED SPACE</td>
<td>1,474</td>
<td>6%</td>
</tr>
<tr>
<td>SOUTH COLLEGE Total</td>
<td>24,744 NSF</td>
<td></td>
</tr>
</tbody>
</table>
ARCHITECTURAL NARRATIVE

Overview Building Description:
South College was built to replace the original wood frame, Old South College that was destroyed by fire in 1885. Built on the same site as the old building, the new building was multi-purpose like its predecessor. It contained, “dormitories, classrooms, meeting rooms, and museum space,” according to the Massachusetts Historical Commission Form B. The L-shaped layout contained dormitory rooms on its south wing and classrooms in its east wing with a four and a half story tower at their intersection, which appears to have been common space. In 1939 the building underwent a major renovation to address fireproofing issues as well as a change in program. Due to the fate of Old South College, the architect responsible for the renovation, Louis Warren Ross, used the most advanced fireproofing methods then available. To accommodate these changes several modifications to the facade of the building were made including moving, adding, or replacing windows and doors. A chimney was also removed. There have also been additional renovations throughout the years. Currently the building is used for mostly departmental office space with a few conference rooms and class labs mixed in. The way the spaces are laid out currently are awkward and do not meet code and there are more staircases than required. The narrow floor plates are a good fit for offices, but the narrow corridor is problematic. A complete renovation would be necessary to make the most efficient use of the space and bring the building up to code.

Floor to floor heights are: 1st to 2nd, 11’-3”; 2nd to 3rd, 10’-10”; 3rd to 4th/Roof, 10’-10”; 4th to 5th (tower only), 10’-5”. These heights would be difficult, but not impossible, to incorporate HVAC or other missing systems into.

Exterior Building Envelope

South College is a brick structure with a granite foundation and four brick chimneys. The 5th chimney that was originally part of the structure was removed in the 1939 renovation. There are no original drawings available, however, based on renovation drawings and the period of the building it can be inferred that the wall is a solid masonry bearing wall with no cavity or drainage. There is no evidence of any facade restoration, but repointing and repair would be recommended as part of any renovation. There is documentation that the decorative caps were removed and that the remaining four chimneys were repaired and repointed in 1991.

The windows are mostly double hung, single glazed, with wood sash and frames. There are fixed windows and a few of the double hung windows have operable transoms. Most of the windows are original to the building, except for those that were added or replaced during the 1939 renovation, and should be preserved if possible. The windows can be restored and storm windows can be added to increase energy efficiency.

Each section of the building has a different style roof and termination. The south wing has an end gable roof, the east wing has a hip roof, and the tower has a four face gable. The roof was originally slate. It was replaced with asphalt at some point and remains asphalt shingles. The age of the roof is unknown, but it should be expected to last 15 to 20 years from the date of installation.

Entrances, Circulation and Accessibility

There are five entrances on the first floor of the building, two on the east side and three on the west. All the doors on the first floor are double-leaf wood doors with 3/3 fixed panes and a 3/1 transom on the top half and two panels on the bottom half. There are another three entrances on the basement level. Two of the doors on this level are double-leaf wood doors that have 2/4 fixed panes on the top half and two panels on the bottom half. The other door on this level is a single-leaf wood door with 3/4 panes on the top half and two panels on the bottom half. There is also a loading dock on the basement level that provides access via a tunnel to the W.E.B. Du Bois Library. One of the two main entrances on the east elevation has
an accessible ramp that was added in 1980. An elevator lift just inside the same entrance was installed in 1981, but has since been removed for reasons unknown. Without a chair lift, this building is not accessible. All entrances have either stoops outside the door or enter directly into the stair at a mid-level landing, requiring you to go up or down the stairs to reach a level. There are no accessible toilet rooms or water fountains in the building. These modifications would need to be addressed as part of any major renovation.

The only elevator in the building is a freight elevator that is used to transport items from the loading dock down to the tunnel that connects to Dubois. This elevator does not provide access to any floors above the basement. The stairs are steeper than code allows, lack proper guard rails, and are not properly enclosed to satisfy current codes. Where corridors exist they are narrow. However, most of the building’s circulation is through other rooms, which is not permitted by code as a means of egress.

Common Area Interior Finishes ................................................................. 5

In general, the interior finishes in South College are in poor condition. The floors are a combination of VAT and carpet. The walls are painted plaster on lath. The ceilings are either painted plaster, concealed spline ACT, or stamped metal. Aside from the stamped metal ceilings, there is very little architectural detail worth preserving. There are parts of the building that have been renovated that are in relatively good condition, but in general all the finishes should be replaced during a major renovation.

ELECTRICAL NARRATIVE

Overview Building Description:
The main electrical transformer, main switchboard and many panelboards were updated in 1996. That equipment is in excellent condition. There is capacity for central air conditioning. The fire alarm system is serviceable and can be upgraded to an addressable system. The emergency lighting seems to be sufficient, if not attractive. On the other hand, much of the wiring is very old and outdated. There is an abundance of surface raceway throughout the building causing a shabby appearance.

Main Electrical Service ........................................................................ 1

- The Main Switchboard (MSB) is rated 800 amp, 208/120 volt, 3 phase, 4 four wire.
- The MSB is a modern Square D QED switchboard with molded case breakers, installed in 1996. It is in excellent condition.
- The transformer which feeds the MSB was installed at the same time as the switchboard. It is an Olsun 225 KVA dry type padmount transformer. It is in excellent condition. The primary is fed from two campus 2.4 KV feeders in a primary selective arrangement, providing backup if one feeder should fail.
- The electrical capacity of the switchboard at over 9 watts per square foot is sufficient for supporting central air conditioning and any anticipated mechanical equipment. The transformer limits the available power but is sufficient for any anticipated additional loads.
- The electrical usage is metered and recorded by a permanently networked Square D Power Logic digital meter.
- According to the meter, the peak demand is 63 KVA.

Building Wiring .................................................................................... 4

- Except for the electrical upgrade in 1996, there have been only minor sporadic renovations to the building in the last 40 years. Some of the building wiring appears to be as old 50 to 70 years. Occasionally, original panelboard enclosures have been used as junction boxes, with existing
circuitss extending to new panelboards. Some of the wiring is in excellent condition, some is in poor condition.

- Electrical systems have been upgraded with abundant use of surface conduit and raceway leaving a shabby appearance. There are numerous places where the surface wiring has pulled away and hanging loose, or covers are missing.
- Electrical conduit for lighting on the exterior of the building is showing rust.
- Exterior light fixtures above exit doors are in poor condition or missing with wiring exposed.

Fire Alarm ................................................................................................................................. 3

- A hardwired Simplex 2001 Fire Alarm Panel installed in 1983 serves the building. It is in serviceable condition.
- There are smoke and heat detectors located throughout the building. Some appear to be in better condition than others.
- There are audible and visual alarm devices throughout the building. The visual devices may not achieve intensity levels required by modern codes.
- Pull stations are mounted above the 48” maximum height required by modern accessibility codes.

Lighting ........................................................................................................................................ 3

- While original fluorescent and incandescent lighting fixtures have been replaced with fixtures using modern T8 and compact fluorescent lamps, many of the fixtures are showing age.
- Light switches are generally above the 48” maximum required by modern accessibility codes.
- There are still some incandescent light fixtures in use.

Emergency Power and Lighting ................................................................................................... 2

- Emergency lighting is provided by self-contained battery units in the stairwells, corridors and miscellaneous other locations. They appear to be in good condition and well maintained. Much of the wiring is in surface mounted raceway.

Low Voltage Systems .................................................................................................................. 2

- Campus wireless network is present.
- A Simplex Clock System serves the building. It appears to be in good condition.
- The one classroom-lab has basic audio-visual instruction equipment. Wiring is surface mounted and exposed.

Overall Rating ............................................................................................................................ 2.5

HVAC NARRATIVE

Overview Building Description:
Most of the building is served by steam radiators with Danfoss self-contained radiator valves. There is no cooling or ventilation. Room 108 is served by two Typhoon thru-wall air conditioning units, and there are also three steam radiators in the room. There are other window AC units in some rooms. There is an electric DHW heater.

Prerequisites:
Ventilation: No
Cooling: No

Age............................................................................................................................................. 5

Notes: Originally built in 1885. The age of all of the equipment appears to be well beyond the normal life expectancy.

Condition .................................................................................................................................... 4

Notes: All equipment appeared to be in poor condition.

Capacity...................................................................................................................................... 5

Notes: The weather was very cold at the time of this survey, and the building temperature was being maintained properly. However, there is no ventilation and the cooling was minimal.

Efficiency..................................................................................................................................... 5

Notes: There are no modern energy conserving features such as economizer cooling or heat recovery.

Maintainability ............................................................................................................................ 4

Notes: All equipment appeared to be maintainable, although the condition was not good.

Overall Rating ............................................................................................................................. 4.6

PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing..................................................................................................................................... 5

Much of the plumbing was installed in 1938 and is therefore over 70 years old. Domestic water piping is copper and brass. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation.

Accessibility issues of restrooms and drinking fountains are addressed under architectural reviews.

Fire Protection.............................................................................................................................. 5

There is no sprinkler system.
130 - STOCKBRIDGE HALL

### BUILDING STATISTICS

- **Year Constructed:** 1912
- **Approx. Gross Area:** 70,900 SF
- **Stories:** 4
- **Address:** 80 Campus Center Way
- **Use Group:** A-1 - Assembly
- **UMass Utilization:** Academic & Research
- **Historic Significance:** Legacy

### Rating Summary

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural</td>
<td>2.7</td>
</tr>
<tr>
<td>Plumbing &amp; FP</td>
<td>5.0</td>
</tr>
<tr>
<td>HVAC</td>
<td>4.6</td>
</tr>
<tr>
<td>Electrical &amp; Alarm</td>
<td>1.8</td>
</tr>
<tr>
<td>Overall Rating</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>Fair</td>
</tr>
</tbody>
</table>

### Description

Stockbridge Hall is a historic, “Legacy” campus building, built to support the original agricultural school mission of the College with laboratory and general education space as well as a major performance hall, Bowker Auditorium. Designed in the neoclassical style, with a colonnade entry portico, the building contributes character to the center campus and speaks to the heritage of the institution. The more formal of the two, Stockbridge was designed by the same architect and built at the same time as the Flint Laboratory building to its south. Areas of the building will become available for reprogramming when Plant and Insect Sciences programs relocate in the future.

The building is sound and in fair condition and has a floor plate and overall dimensional flexibility that could support a number of adaptive reuse scenarios, best done as a consideration of a larger renovation plan.

### Assessment Summary

Potential asset building - somewhat under-utilized - space configuration serves current programs well - deficiencies in facility’s systems limits use (esp. basement & attic) - limited accessibility, needs improvement

### Recommendation

Building should be renovated for department that requires special teaching environments - coordinate aggressive maintenance around system upgrades - implement staged upgrades to key building component without taking the building off line - localized renovations needed to optimize use - renovation/ improvement investment is a good value

### Occupancy

<table>
<thead>
<tr>
<th>Category</th>
<th>Size (NSF)</th>
<th>Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLLEGE OF NATURAL RESOURCES &amp; THE ENVIRONMENT</td>
<td>10,509</td>
<td>17%</td>
</tr>
<tr>
<td>COMPUTING/NETWORKING</td>
<td>68</td>
<td>0%</td>
</tr>
<tr>
<td>ENVIRONMENTAL SCIENCE</td>
<td>845</td>
<td>1%</td>
</tr>
<tr>
<td>FINE ARTS CENTER</td>
<td>12,102</td>
<td>19%</td>
</tr>
<tr>
<td>GENERAL BUILDING AREAS</td>
<td>12,517</td>
<td>20%</td>
</tr>
<tr>
<td>GROUNDS/CUSTODIAL</td>
<td>281</td>
<td>0%</td>
</tr>
<tr>
<td>PLANT, SOIL &amp; INSECT SCIENCES</td>
<td>11,817</td>
<td>19%</td>
</tr>
<tr>
<td>RESOURCE ECONOMICS</td>
<td>10,157</td>
<td>16%</td>
</tr>
<tr>
<td>UMASS CLASSROOMS (Total Seat Count = 95)</td>
<td>1,780</td>
<td>3%</td>
</tr>
<tr>
<td>VETERINARY &amp; ANIMAL SCIENCES</td>
<td>2,453</td>
<td>4%</td>
</tr>
<tr>
<td><strong>STOCKBRIDGE HALL Total</strong></td>
<td><strong>62,529</strong></td>
<td></td>
</tr>
</tbody>
</table>
ARCHITECTURAL NARRATIVE

Overview Building Description:
Stockbridge Hall was built and functions today, as two distinct parts, a performance hall and an academic/laboratory block. For the purposes of this study the primary focus is on the academic/lab block which has 3 primary floors, a functional basement and an attic with limited windows but usable space.

Original drawings show 5 “lecture” classrooms on the first floor & 1 in the basement. The remainder of the building was lab space, a small library, an agricultural museum and faculty offices. Spatially, the most notable features were the large (1,480 sf) labs at both ends of the 3rd and 4th floors which received daylight from 3 sides. Only one of the large lab spaces is left intact at the south end of the 3rd floor. There are 2 UMass classrooms and various other class lab, seminar and conference room scale spaces, however, most of the large spaces have been partitioned into office spaces. The floor plate would allow for good quality, moderate scale (1,000 to 1,480 sf) instructional spaces.

Floor to floor heights are: Bsmt. to 1st, 10'-6"; 1st to 2nd, 13'-6"; 2nd to 3rd 13'-6" and 3rd to 4th 12'-6". These would appear to be adequate for potential upgrades to HVAC and other antiquated or missing systems. Beam crossing will need to be studied.

Exterior Building Envelope

Original drawings do not show exterior wall sections, however, based on observations and the period of the building it can be inferred that the wall is a solid masonry bearing wall with no cavity or drainage. No visible signs of failures were noted. Drawing records indicate that extensive repointing and masonry repairs were done in 1997 at the same time that full roof replacement of slate, copper and flat roof sections was accomplished.

Windows are double hung, single glazed, wood sash and frames. They appear to be original and drawing evidence implies that they were last painted in 1997. Windows should be given a more extensive survey as part of future renovation planning and either be replaced with double glazed units or supplemented with combination storm/screen to improve energy efficiency.

Exterior envelope systems appear to be sound and were constructed (and replaced) with enduring, high quality materials that should remain serviceable for many years and warrant further investment. Flat roof sections should be inspected and may warrant replacement in an extensive renovation campaign.

Entrances, Circulation and Accessibility

The main entrance to the building is elevated with a grand stair leading to the formal entry and is not accessible. A long ramp of paved landscaping and wood timber framing was added along the south side of the performance hall wing to a secondary entry between the academic block and performance hall. This work was done at the same time that toilet rooms on the first floor were modified to provide limited handicap access.

The building was built with an elevator which was replaced in a 1997 renovation with a new shaft and cab, compliant with accessibility code dimensions. The elevator does not serve the balcony level of the performance hall which falls at a mid floor level relative to the academic block. Stairs are steep, lack adequate guardrails and are not properly enclosed to satisfy current codes. Corridors are a generous width and present no dimensional deficiency. Corridors extend past the stairs, however, creating a dead end condition that needs to be examined to see if the width of the corridor compensates for the length of the dead end. Egress improvements will be a central concern of any renovation planning. There is no women’s toilet room in the basement and, with the exception of the retrofitted toilets on the first floor, other facilities are not handicap accessible.
Spaces in the academic block of Stockbridge are handsomely detailed giving them attractive qualities that should be preserved and carried over in a renovation or reuse scenario. Flooring is a combination of VCT and VAT tiles. The main lobby ceiling is coffered and handsomely detailed.

**ELECTRICAL NARRATIVE**

Overview Building Description:
The main electrical service has been recently upgraded and is more than adequate for the present load. The building does not have central air conditioning. Window air conditioning units are currently used where air conditioning is desired. The electrical capacity, at approximately 6 watts per square foot, is marginal for powering central air conditioning for the entire building. The Fire Alarm System has been recently upgraded to comply with life safety codes.

Main Electrical Service

- The Main Switchboard (MSB) is rated 1200 amp, 208/120 volt, 3 phase, 4 wire.
- The MSB is modern General Electric equipment with molded case circuit breakers. It is in very good condition. The capacity may be of marginal capacity if central air conditioning is to be considered for the entire building.
- The source of power for the MSB is a recently installed exterior 500KVA dry-type padmount transformer. It is in very good condition.
- The electrical usage is metered and recorded by a permanently networked Square D Power Logic digital meter.
- According to the meter, the peak demand is 77 KVA.

Building Wiring

- On each floor, modern circuit breaker panelboards have been added to supplement original branch circuit capacity. These are in very good condition.
- Many of the walls date from the original construction and original building wire is still in use.
- Some branch circuits are still fed by the older panelboards.
- Surface metal raceway has been used extensively to add wiring where needed.
- Some panelboards may need to be replaced based on the extent of renovation.

Fire Alarm

- A modern addressable Simplex 4020 fire alarm system was installed in 1997, bringing the building up to modern life safety codes.
- The building is equipped with a Simplex 4003 voice evacuation system located in the Bowker Auditorium lighting booth.

Lighting

- The lighting appears to have been upgraded with modern fluorescent fixtures using T8 and compact fluorescent lamps. The fluorescent lighting is in very good condition.
- There is still some incandescent lighting in use.
- Light switches are generally above the 48” maximum required by modern accessibility codes.
Emergency Power and Lighting………………………………………………………………….. 2

- Emergency power to feed exit signs and emergency light fixtures is provided by a 15 KW 208/120 volt, 3 phase, 4 wire Onan generator and automatic transfer switch (ATS). The generator and ATS are in fair condition.

Low Voltage Systems……………………………………………………………………………… 3

- Campus wireless network is present.
- Most classrooms have basic audio-visual instructional equipment.

Overall Rating …………………………………………………………………………………….. 1.8

HVAC NARRATIVE

Prerequisites:
Ventilation: No
Cooling: No

Age…………………………………………………………………………………………………….. 5

Condition ………………………………………………………………………………………… 4

Capacity…………………………………………………………………………………………….. 5

Efficiency…………………………………………………………………………………………… 5

Maintainability…………………………………………………………………………………… 4

Overall Rating…………………………………………………………………………………… 4.6

PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing……………………………………………………………………………………………. 5

Most of the plumbing is over 50 years old. Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation.

Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection…………………………………………………………………………………… 5

There is no sprinkler system.
BUILDING STATISTICS

Year Constructed: 1968
Approx. Gross Area: 87,900 SF
Stories: 11
Address: 200 Hicks Way
Use Group: A-3 - Assembly
UMass Utilization: Academic & Research
Historic Significance: Not Significant

Rating Summary

Architectural 3.0
Plumbing & FP 4.0
HVAC 4.2
Electrical & Alarm 2.7
Overall Rating 3.5 Fair

Description

Thompson Hall, a modern style building consists of two parts, a ten story tower and a single story (low-rise) auditorium block. The low-rise section is also attached to Machmer via an enclosed at grade walkway. The tower houses departmental offices from the College of Social & Behavioral Sciences. The low-rise houses three UMass lecture halls with a partial basement used for toilet rooms, graduate student offices and storage. The rectangular floor plate of the low-rise the lecture halls nested together with generous lobby and circulation around the perimeter. The square floor plate of the tower block has a central core and conference room with offices around the perimeter. While efficient the loop corridor is confining and disorienting at times, limiting the sense of department identity and faculty interaction.

The building is in fair condition, but needs significant and difficult to solve, accessibility and HVAC upgrades to meeting current standards and could benefit from some replanning to open up common areas.

Occupancy

<table>
<thead>
<tr>
<th>Asset Building</th>
<th>Space Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTHROPOLOGY</td>
<td>1,301</td>
</tr>
<tr>
<td>CENTER FOR PUBLIC POLICY ADMINISTRATION</td>
<td>3,056</td>
</tr>
<tr>
<td>COLLEGE OF SOCIAL &amp; BEHAVIORAL SCIENCES</td>
<td>4,989</td>
</tr>
<tr>
<td>COMPUTING/NETWORKING</td>
<td>132</td>
</tr>
<tr>
<td>ECONOMICS</td>
<td>9,485</td>
</tr>
<tr>
<td>GENERAL BUILDING AREAS</td>
<td>32,626</td>
</tr>
<tr>
<td>GROUNDS/CUSTODIAL</td>
<td>144</td>
</tr>
<tr>
<td>POLITICAL SCIENCE</td>
<td>8,163</td>
</tr>
<tr>
<td>SOCIOLOGY</td>
<td>7,063</td>
</tr>
<tr>
<td>UMASS CLASSROOMS (Total Seat Count = 780)</td>
<td>7,038</td>
</tr>
<tr>
<td>THOMPSON HALL Total</td>
<td>73,997 NSF</td>
</tr>
</tbody>
</table>

Recommendation

Current use is well suited to the building- coordinate aggressive maintenance around system upgrades - implement staged upgrades to key building component without taking the building off line - localized renovations needed to optimize use - renovation/ improvement investment is a good value
ARCHITECTURAL NARRATIVE

Overview Building Description:
Designed by architect James A. Britton, AIA, the modern style Thompson Hall was originally thought of as an addition to Machmer. The lecture hall wing still has the three lecture halls that are UMass classrooms. The rooms bordering the lecture halls used to be men’s and women’s staff lounges and work rooms. They are now support spaces, departmental spaces, or additional small classrooms. The office tower continues to contain offices and conference rooms. The partitions have changed very little throughout the building. The square floor plate of the tower, a central core and conference room is wrapped by offices around the perimeter. Opening the corridor to the outside to bring in natural light would be highly desirable. The lecture hall wing has a generous circulation space around the perimeter of the floor plate and all of the rooms in the center. Due to the high volume of traffic this wing sees during class hours, this layout is also very effective, but might be an opportunity for other activities during off hours. It is recommended that this space be modified as necessary to accommodate accessibility needs that are lacking. The program seems to be working well.

Floor to floor heights are: Bsmt. to 1st, 18’-10 3/8”; 1st to 2nd, 12’-3 2/3”; 2nd thru 10th, 10’-1”; 10th to Roof, 12’-6”.

Exterior Building Envelope

Exterior walls are brick face on a CMU backup with precast concrete trim and accents. There does not appear to be any cavity, waterproof membrane, or insulation shown in construction drawings. No signs of exterior wall failure were noted and there is no evidence of any masonry repair or repointing. However, the wall seems to be functional and sound.

Insulated, non-thermally broken, aluminum frame, operable windows appear to be original to the building. They are vertical pivot type and should be replaced for internal comfort and energy conservation when other exterior envelope or general building upgrades are considered.

Thompson currently has a flat, built-up tar and gravel roof over fiberboard with rigid insulation pitched to internal roof drains. The roof has been replaced at least twice. The tower only in 1983, the auditorium only in 1988, and once completely in 2000. A roof of this quality is expected to last 20 to 25 years.

Entrances, Circulation and Accessibility

Although Thompson is in good condition, it does have several serious accessibility issues that need to be resolved to make it a fully functional building. Four of the entrances into the auditorium are at grade, allowing accessibility. The two entrances on the west side of the building enter into a mid-level of the stairs. The rear entrance of all three lecture halls are accessible. However, the lecture halls themselves are not accessible as there is no level floor space near the accessible entrance to accommodate a wheel chair. The slope in the floor is too steep to allow access to the level area in front of the stage. The stage is also not accessible.

Another accessibility problem in the lecture hall wing is the toilet rooms. They are in the basement and there is no elevator in this part of the building. The only way to reach an accessible toilet would be to exit the building, travel outside to the eastern corridor entrance and enter the tower to use the first floor toilet room.

The corridors have minor obstructions from the exterior columns, but are still dimensionally adequate to meet code. The stairs are slightly steeper than code allows, but can remain if proper handrails and guardrails are installed.

The office tower also has accessibility problems. The main entrance is at the top of a short flight of stairs.
There is an at grade entrance at the east side of the connecting corridor, by Machmer. Unfortunately, there are stairs in the middle of the corridor, preventing interior passage from the lecture hall wing to the office tower. There are two elevators that appear to be an adequate size that allow access to all the floors of the tower. The only accessible toilets are on the first floor. All toilet rooms should be renovated to meet accessibility requirements.

Corridors are narrow and have several obstructions. The stairs are slightly steeper than code allows, but can remain. The tread nosing and handrail profiles do not conform to current codes and would need to be modified or replaced.

Common Area Interior Finishes ................................................................. 3

The finishes in Thompson are in good condition. The floors are bluestone in the lobby of the lecture hall wing and VCT in all other areas. The bathrooms have tile floors and walls. The walls are mostly painted plaster on metal lathe. Some walls are exposed brick. The ceilings are concealed spline tiles. Upgrades to the finishes and lighting in the building, especially the lecture halls, could bring this building back to a high quality space.

ELECTRICAL NARRATIVE

Overview Building Description:
Electrically, the low rise Lecture Hall structure and the high rise Tower can in some ways be considered separate buildings. There have not been many changes to the systems from the original construction in either. The building as a whole appears to be well maintained. Some lighting has been updated with fluorescent, but the original incandescent exists in many areas such as the Lecture Halls and Tower lobby. The clock system has been updated with a modern Simplex system.

In the Tower, some life safety improvements have been made. The electric fire pump was added during a fire protection upgrade, drawings dated 1982. There is an automatic transfer switch and redundant backup feed from an exterior padmount transformer. The transfer switch is in good condition, but the fire pump appears to be somewhat rusted and leaky. One valve tamper switch at the fire pump is not connected and monitored. Additional exit signs have been provided on each floor, powered by a dedicated central battery power supply located in the basement main electrical room, drawings dated 1983. A modern Simplex 4100 fire alarm system was installed within the last few years. Strobes and audio devices were added throughout many corridors and some rooms.

The Lecture Halls appear to be unchanged. The original hard wired Honeywell Fire Alarm Control Panel in the basement electrical room of the low rise still serves the Lecture Halls.

The electrical service and distribution capacity for both Tower and Lecture Halls are adequate for present and anticipated future loads. Most of the original electrical equipment is still in use. The original FPE (Federal Pacific Electric Company) electrical distribution equipment, including medium voltage switches, transformers, switchboards, circuit breakers and original Arrow Hart motor control center should be tested, scanned for hot spots and evaluated. This equipment should be should be replaced as soon as the budget allows.

Main Electrical Service........................................................................................................ 4

- Because of the size of the facility, and distance between the Lecture Halls and the Tower, Thompson Hall utilizes a three-tiered electrical distribution system. There is a 2.4 KV incoming voltage, which
is distributed to two dry type, unitary substation transformers. There is a 250 KVA Substation US-LH in the basement low rise main electrical room, and a 750 KVA Substation US-OB in the basement main electrical room in the Tower. The substations transform the 2.4 KV to the 480/277, 3 phase, 4 wire utilization voltage. The power is further distributed to other small transformers located on each floor to transform 480 volt down to the 208/120, 3 phase, 4 wire utilization voltage.

- All of the original FPE equipment should be tested and evaluated. It is nearing end of useful life and should be refurbished or replaced when the budget allows.
- Electrical usage in the Tower is metered and recorded by a permanently networked Square D Power Logic digital meter located at the 480/277 volt switchboard of Substation US-OB
- According to the meter, peak demand has been recorded for the Tower at 227 KVA.

Building Wiring ........................................................................................................................................... 4

- Overall, the building wiring generally appears to be in acceptable condition and well maintained.
- The original Federal Pacific Electric Company (FPE) branch circuit panelboards and circuit breakers are not considered reliable by many professionals due to fire hazards associated with their residential line of circuit breakers and panelboards which caused the FPE Company to go out of business. (There is a Federal Pacific Company still in business not associated with the FPE Company.) There has not seemed to be many complaints with the commercial equipment, but at 41 years old, it is best to replace it when the opportunity arises.

Fire Alarm .................................................................................................................................................. 2

- There is a modern Simplex 4100 addressable fire alarm system serving the Tower.
- The original Honeywell hard-wired fire alarm system serves the Lecture Halls.

Lighting .................................................................................................................................................... 2

- Most of the lighting appears to have been upgraded to fluorescent in the Tower but not the Lecture Halls.

Emergency Power and Lighting .................................................................................................................. 2

- There is a battery/inverter system in a dedicated room in the basement of the Tower serving emergency lighting in the Tower. It appears to be in good condition. There is also a dedicated battery system for exit signs located in the main electrical room.
- There is another battery/inverter system in a dedicated room in the basement under the Lecture Halls serving emergency lighting in the low rise portion of the building. The inverter appears to be in good condition, but there is corrosion on the battery terminals.

Low Voltage Systems .................................................................................................................................. 2

- Campus wireless network is present.
- There is a clock and bell system which appears to be networked to a central control unit in Dickinson Hall.
- The Lecture Halls have basic audio-visual instructional equipment.

Overall Rating ............................................................................................................................................. 2.7
HVAC NARRATIVE

Overview Building Description:
The HVAC systems in this building are all air systems, and most appear to be original. In general, they appear to be in only fair condition. There is a new chiller in the Basement MER. The mechanical space is adequate, and new equipment could be phased in.

- **Basement MER**
  - Old Air handling systems (SB – 1; SB – 2; SB – 3; SB – 4; HV – 1; and EB – 4)
    * Access doors are off some units and cold air is dumping into MER from outdoor air duct
  - Two Trane absorption chillers appear to be a bit older;
  - Four chilled water pumps (Two large and two smaller), two condenser water pumps and two hot water pumps; none appear new; check drawings for age
  - Older steam to hot water converter for hydronic hot water; note on unit says new coil in 2001
  - Steam PRV
  - Mitsubishi split condensing unit (Model PU3DEK1)
  - Fire pump in this room
  - Newer cooling towers on roof (BAC 15219)

- **Air Handling Room adjacent to large lecture rooms**
  - All equipment appears to be original
  - Three air handling systems and one return fan in each room
    * SB-1L, SB-2L and SB-4L in one room
    * EB-1; EB-18 and three AHIs in the other room

Prerequisites:
Ventilation: Yes
Cooling: Yes

**Age**............................................................................................................................................. 5

**Condition**.................................................................................................................................... 4

**Capacity**...................................................................................................................................... 4

**Efficiency**..................................................................................................................................... 4

**Maintainability**.......................................................................................................................... 4

**Overall Rating**............................................................................................................................ 4.2

PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing........................................................................................................................................... 4

Most of the plumbing was installed in 1968 and is therefore 41 years old. Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation.
Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection

The high-rise has sprinklers; the low-rise does not. The sprinkler system is 41 years old.
BUILDING STATISTICS

Year Constructed: 1972
Approx. Gross Area: 112,100 SF
Stories: 8
Address: 135 Hicks Way
Use Group: B - Business
UMass Utilization: Academic & Research
Historic Significance: Not Significant

Rating Summary

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural</td>
<td>1.5</td>
</tr>
<tr>
<td>Plumbing &amp; FP</td>
<td>1.5</td>
</tr>
<tr>
<td>HVAC</td>
<td>4.2</td>
</tr>
<tr>
<td>Electrical &amp; Alarm</td>
<td>2.2</td>
</tr>
<tr>
<td>Overall Rating</td>
<td>2.3</td>
</tr>
<tr>
<td>Description</td>
<td>Fair</td>
</tr>
</tbody>
</table>

Tobin Hall’s modern (Brutalist) style is in the same family as Herter Hall and other concrete campus buildings. The building was designed specifically for the Psychology department who have been the only occupant other than a few UMass classrooms. It is in fair condition and has had significant investment in structural, waterproofing and HVAC work in recent years. The deep rectangular floor plate necessitates multiple double-loaded corridors of various configurations which results in a significant amount of interior space, appropriate for psychology but perhaps not for many other uses. Offices and Classrooms are organized around the perimeter with natural light with experiment and research spaces on the interior.

The building is being used as it was originally designed and has an abundance of specialized spaces. Additional space could be taken by eliminating the remaining UMass classrooms. Evolving program and research needs point toward repurposing existing space for special uses.

Assessment Summary

Asset building - highly utilized - space configuration constrains current programs - facility’s condition enlivens use - designed for accessibility but not in compliance with current standards

Recommendation

Current use is well suited to the building (with conversion of UMass Classrooms to department space) - implement staged upgrades to key building component without taking the building off line - localized renovations needed to optimize use - renovation/ improvement investment is a good value

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL BUILDING AREAS</td>
<td>39,120</td>
</tr>
<tr>
<td>GROUNDS/CUSTODIAL</td>
<td>1,765</td>
</tr>
<tr>
<td>PSYCHOLOGY</td>
<td>51,841</td>
</tr>
<tr>
<td>UMASS CLASSROOMS (Total Seat Count = 261)</td>
<td>4,293</td>
</tr>
<tr>
<td>TOBIN HALL Total</td>
<td>97,019</td>
</tr>
</tbody>
</table>
ARCHITECTURAL NARRATIVE

Overview Building Description:
Built by the Coletti Brothers, the same architects as Herter Hall, Tobin Hall strongly resembles its big brother. The original drawings of Tobin Hall show it as a, “Second Addition to Bartlett Hall.” Connected by a bridge on the 4th floor, Tobin was originally built as an extension of the Psychology department’s space in Bartlett. Still occupied by them today, the space layout and partitions have changed very little. The building was originally built with four classrooms and now contains seven. However, it is the department’s desire to convert all the classrooms in the building into departmental space for Psychology. Since this building was customized for the Psychology department is makes the most sense for them to continue to occupy it. Expansion of the building would be difficult.

The building mass is rectangular in shape. The first floor serves as the base that elevates the rest of the building above the surrounding area. Floors two and three are surrounded by the exterior plaza (the roof of the first floor) and colonnade, making the interior space much narrower and only allowing two double-loaded corridors. The fourth, fifth, and sixth floors overhang the plaza below. Their wider interior spaces allow a third double-loaded corridor to be added, creating two interior experimental blocks on the floor. Perimeter rooms are also added to the East and West ends of the building on these floors. The general layout of the building across all the floors is a series of double-loaded corridors running lengthwise through the building. Offices, classrooms, and other spaces requiring direct access to the outside are positioned along the perimeter of the building. Experimental rooms, laboratories, control rooms, and storage areas are located in the inner blocks of the building, since most of them do not require or desire windows.

Floor to floor heights are: 1st to 2nd, 2nd to 3rd, 3rd to 4th, 11’-9”; 4th to 5th, 5th to 6th, 11’-5”; 6th to Roof, 11’-3”. The building has HVAC duct work as well as additional duct work for exhaust hoods and other laboratory ventilation. There should be adequate space for upgrades to the HVAC systems where necessary.

Exterior Building Envelope

The walls in Tobin Hall are a combination of cast-in-place and pre-cast concrete. Construction drawings show that the walls are not continuously insulated and have no vapor barrier. The interior GWB is installed on 3/4” rigid insulation on top of resilient furring channels. No signs of failure were noted. Routine maintenance of sealant is critical in concrete construction in order to prevent water infiltration and cracking or spalling of the concrete. While the wall assembly does not meet today’s standards, it does appear to be functional. Thermal modeling should be done before considering adding insulation or altering the wall assembly, as moisture might inadvertently and detrimentally introduce condensation into the wall.

The original windows installed were double-glazed, non-thermally broken, aluminum frame windows. There are insulated aluminum panels between the 1st and 2nd story windows. There is no documentation of window replacement. The exterior aluminum and glass doors were replaced in 1991 and are in good condition. A full window replacement with thermally broken window frames and new insulated glass would help improve the building’s energy efficiency, but does not appear to be immediately necessary.

Originally Tobin Hall had a built-up roof over a light weight insulating concrete fill. The roof was replaced when it failed in 1978 and again in 2002. It now has a gravel-covered, built-up system with tapered insulation. A roof of this type, if properly installed and maintained, should last about 20 plus years.

Entrances, Circulation and Accessibility

With all of the bridges and plazas that Tobin has there are entrances to the building on the first, second, third, and fourth floors. The main entrance to the building are on the West side. The entrance on the first floor has a grand stair leading up to it and is not accessible. The other three entrances on the first floor are at grade. Two of those entrances are loading docks and the third connects to a corridor. The main entrance
at the second floor is level with the plaza. However, the only way to reach the plaza from the exterior of the building is the grand staircase on the West side or several other sets of stairs on the North and East elevations. The third floor only has one entrance from grade at Bartlett Hall, over a small bridge into the main corridor of the third floor. Both the exit from Bartlett and entrance to Tobin at this level are at grade and accessible. The entrance on the fourth floor is via the bridge from Bartlett Hall and also accessible. All entries should be accessible, however, an accessible entrance from the lower parking lot level is critical. As noted above, the building has a loading dock.

The entire building is accessible from the building’s two elevators located on the Eastern side of the building. The main corridors are 8'-0" wide and secondary corridors are 6'-0" wide. Both are dimensionally adequate, however several obstructions were noted. These obstructions are a code violation and would need to be removed. The stairs meet current code for steepness. Handrails need to be replaced to provide adequate guardrail protection and to meet code standard spacing between vertical members.

Toilet rooms have been modified on some floors to allow for handicap access. Although the modifications are workable, they are not fully compliant with current code standards. Floors four and above have no handicap toilets.

The building has several dead end corridors that are longer than the 20’-0” maximum allowed by code. Some of these corridors have been resolved by removing the rooms at the end of the corridor and allowing them to reconnect to the path of egress. Similar modifications for the rest of the dead end corridors should be investigated to bring the building up to code.

Common Area Interior Finishes .................................................................

The interior finishes in Tobin are basic, but in generally good condition. The floors are VAT with vinyl base in the corridors and quarry tile and matching base in the entrances and lobbies. The bathrooms have quarry tile on the floor and base with ceramic tiles on the walls. The walls in other areas are painted block, painted GWB, or vinyl wall covering over GWB. The ceilings are 2x2 ACT. The ceilings in the lobbies have a cove light feature in the center of the ceiling. There are a few ceiling tiles that are damaged and need to be replaced. Many of the doors still have knobs that should be replaced with levers. Generally this space is in very good condition. Some additional upgrades to the finishes and lighting could give this building a fresh new look and many more years of service.

ELECTRICAL NARRATIVE

Overview Building Description:
The electrical distribution equipment is original and showing some age. It is good quality equipment that appears to be in fair condition. Lighting, for the most part, appears to have been updated with energy efficient lamps and ballasts. It is recommended to replace the medium voltage interrupters on the incoming primary feeders and add Kirk Key interlocks to reduce the potential for a dangerous back feed condition. Also, panelboards in mechanical rooms and elsewhere in the building should be budgeted for replacement on a case by case basis. Fire alarm notification devices should be provided in classrooms. Manual pull stations should be lowered for accessibility compliance. The emergency power system should be upgraded.

Main Electrical Service..............................................................................

- Tobin Hall is served by a 480/277 volt, 3 phase, 4 wire system. The main service and distribution equipment is original Westinghouse gear. In the Main Electrical Room 105, there is the 480/277 volt, 2000 amp Main Distribution Switchboard (MDS, on the drawings) with an 1800 amp
Main Circuit Breaker. The MDS feeds a 500 KVA transformer T1, power panelboards, lighting panelboards, and the larger mechanical loads. Transformer T1 feeds Switchboard MSDA (also located in Electrical Room 105) rated 1600 amp, 208/120 volt, which serves the normal power receptacle panelboards. Replacement parts are still available and the equipment appears to be in fair condition.

- The configuration is such that the MDS can be fed from one of two redundant 750 KVA Main Transformers. Each transformer is fed from one of two campus 13.8 KV feeders. The arrangement is considered “primary selective” in that only one transformer is intended to be energized at a time. During the survey, the MDS was being fed from the “preferred” source. The transformers and medium voltage switches are original equipment. The transformers appear to be in good condition. The medium voltage switches do not have external manual operator handles. The switches appear to be remotely operated. It is recommended that the existing switches be replaced with ones that have external operator handles and that a double set of Kirk Key interlocks be installed on both the primary and secondary disconnects of each transformer to reduce the possibility of dangerous electrical feedback.
- The electrical capacity is sufficient for the present load and anticipated future loads.
- The electrical usage is metered and recorded by a permanently networked Square D Power Logic digital meter.
- According to the meter, peak demand has been recorded at 601 KVA.

Building Wiring .......................................................................................................................................................................................... 2

- Most of the circuit breaker panelboards are original, manufactured by Westinghouse. Power panels feeding mechanical equipment are showing wear and rust in some cases. Parts and circuit breakers are still available. Replacement should at least be considered on a case by case basis.
- Circuit breaker panelboards have been added in various areas to supplement original branch circuit capacity or replace original.
- Some electrical equipment has been replaced along with mechanical upgrades.
- A moderate amount of surface raceway has been used to update wiring, mostly in classrooms and offices.

Fire Alarm .......................................................................................................................................................................................... 2

- The original fire alarm system has been replaced by an addressable Simplex 4020 Fire Alarm System. This was most likely installed to monitor the sprinkler system, drawings dated 2001. Strobes and audible notification devices have been provided throughout corridors and many public spaces, but they have not been installed in classrooms as is required by the modern code. The pull stations have been installed as replacements for the originals and, in most if not all locations, they are much too high to comply with the 48” maximum requirement of modern accessibility codes.

Lighting .......................................................................................................................................................................................... 2

- Much of the lighting appears to have been upgraded to modern T8 technology and appears to be in fair condition.
- Most light switches are at the originally installed height of 54” which does not comply with the 48” maximum of modern accessibility codes.

Emergency Power and Lighting ............................................................................................................................................................. 3

- Emergency power is supplied from a 30 KW Onan diesel generator. The generator supplies power for emergency lighting through an original 100 amp, 208/120 volt, 3 phase ASCO transfer switch. It was noted that the normal line and load wiring consists of aluminum cable. The wiring all appeared to be in good condition. It is especially recommended that infrared temperature scanning
be done at regular intervals where aluminum wiring is involved (it should be done with copper also, but not as critical). The generator and transfer switch should be budgeted for replacement. It is recommended that the emergency load be monitored to determine present load requirements.

Low Voltage Systems
- Campus wireless network is present.
- Many classrooms have basic audio-visual instructional equipment.
- There is modern Simplex clock system.

Overall Rating

HVAC NARRATIVE

Remarks:
This building is served by a series of central air handling systems. All are very old and appear to be in poor condition.
- Room #113 MER
  - Chillers
    - New centrifugal and absorption chillers
- Two Roof MERs
  - New cooling towers

Prerequisites:
Ventilation: Yes
Cooling: Yes

Age
Condition
Capacity
Efficiency
Maintainability
Overall Rating

4.2

PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing

Most of the plumbing was installed in 1972 and is therefore 37 years old. Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation.
Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection

The sprinkler system was installed in 2001.
Building Statistics

Year Constructed: 1959
Approx. Gross Area: 110,500 SF
Stories: 3
Address: 30 Eastman Lane
Use Group: A-3 - Assembly
UMass Utilization: Academic & Research
Historic Significance: Not Significant

Rating Summary

| Architectural | 2.2 |
| Plumbing & FP | 5.0 |
| HVAC | 4.4 |
| Electrical & Alarm | 3.3 |
| Overall Rating | 3.7 Fair |

Description

The Totman Physical Education Building, built in an academic Art Deco style as the Women’s Physical Education Building, has been evolving away from a gymnasium function to science and other program use such as kinesiology, exercise science and dance for some time. Boyden Gym presumably replaced some of the functions of the building and with the opening of the new recreation building, other parts of Totman will be further under utilized. Dance uses portions of the building that are not well suited to their needs. In addition to the central gymnasium, there is also a swimming pool that needs repair but continues to be a valuable campus asset.

Converting the specialized spaces in the building to other purposes is difficult and potentially expensive.

Assessment Summary

Asset building - somewhat under-utilized (status of science programs is changing due to new recreation building, fall of 09) - space configuration constrains current programs (esp. dance) - facility’s condition compromises use - limited accessibility, needs improvement

Recommendation

Building should be renovated for department that requires special teaching environments - coordinate aggressive maintenance around system upgrades - implement staged upgrades to key building component without taking the building off line - renovation/ improvement investment is a good value

Occupancy

<table>
<thead>
<tr>
<th>Occupancy Category</th>
<th>Usage</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athletics Administration</td>
<td>28,898</td>
<td>31%</td>
</tr>
<tr>
<td>Campus Recreation/Sports Clubs</td>
<td>1,678</td>
<td>2%</td>
</tr>
<tr>
<td>Computing/Networking</td>
<td>19</td>
<td>0%</td>
</tr>
<tr>
<td>General Building Areas</td>
<td>30,498</td>
<td>32%</td>
</tr>
<tr>
<td>Grounds/Custodial</td>
<td>321</td>
<td>0%</td>
</tr>
<tr>
<td>Kinesiology</td>
<td>24,524</td>
<td>26%</td>
</tr>
<tr>
<td>Music &amp; Dance</td>
<td>6,605</td>
<td>7%</td>
</tr>
<tr>
<td>UMass Classrooms (Total Seat Count = 85)</td>
<td>1,480</td>
<td>2%</td>
</tr>
<tr>
<td>Totman Phys Ed Bldg Total</td>
<td>94,023 NSF</td>
<td></td>
</tr>
</tbody>
</table>
ARCHITECTURAL NARRATIVE

Overview Building Description:
Totman is organized around a hierarchy of spaces with the gymnasium centrally located on the upper level. The gym appears to have been built without bleachers but with a stage platform to the south and a folding partition to subdivide the gym into unequal sections. The swimming pool and men’s and women’s locker rooms (located under the spectator gallery) are to the west. The building has undergone a series of localized renovations, most significantly the removal of the central, women’s locker room facilities to make space for exercise science and kinesiology. Dance has also taken space on the stage of the gymnasium and in what was built as a bowling alley in the basement, a room with tightly spaced columns not well suited for dance. The building also had a game room, archery, fencing, general offices and a grand lobby. With the exception of the first floor offices on the southwest corner, most of the main spaces are cut off from natural light and ventilation.

Totman is well built and in generally good condition. There is no planning or construction module due to the nature of the program. This is both a reuse positive and negative. The arrangement of the gym effectively brings natural light into the deep floor plate. Subdividing the large floor plate could compromise exposure to natural light. For the most part the first floor spaces are internal, cut off from the outside by a perimeter corridor and lack natural light. There is also a large amount of basement space that is not conducive to most educational or academic office needs. If the gymnasium is converted to an alternative use (eliminating basketball), the spaces underneath would become more usable as the noise transmission to the lower level would be greatly diminished. Programs that could benefit from the large, high ceiling spaces and do not need natural light might fit in a repurposing scenario.

It was reported that a pool crack repair project will be needed in the near term.

Exterior Building Envelope
The building is brick masonry with limestone trim and entry framework. No significant deterioration or failure was noted. However, UMass has noted that, there is water penetration in the basement foundation walls, particularly the east wall. Windows are single glazed, metal frame with significant areas of glass block in the gym and pool wall systems. The windows should be replaced to increase occupant comfort and energy efficiency and the glass block closely examined for repointing or replacement. Drawing records indicate that the roof was last replaced in 1986. A re-roofing project should be anticipated within the next 10 years.

Entrances, Circulation and Accessibility
An elevator has been added along with accessible toilet facilities and a ramp to the lower level of the basement going a long way toward making the building accessible. Further refinements to upgrade door hardware to lever handles, access to the gym stage, etc. should be included in future renovation plans. Corridors are over sized and more than adequate in width. Stairs are steeper than current code allows. However, with upgrades to the nosings and replacement or alterations to the hand and guardrails, compliance alternatives should be sufficient to make the stairs acceptable.

Common Area Interior Finishes
Finishes are durable and in generally good condition. They were chosen for a gym building and upgrades may be beneficial if a change is made to more academic users.
ELECTRICAL NARRATIVE

Overview Building Description:
The main electrical switchboard and most branch circuit panelboards are 50 years old. They are original Federal Pacific Electric equipment and should be budgeted for replacement. Lighting, for the most part, appears to have been updated with energy efficient lamps and ballasts. Light switches do not comply with height requirements of modern accessibility standards. The Fire Alarm system should be upgraded to comply with modern life safety codes. Visual notification devices (strobes) should be provided in public and common areas, and new manual pull stations should be mounted at 48" or below for compliance with modern accessibility standards. The emergency power system should be evaluated and budgeted for upgrade.

Main Electrical Service

- Totman Physical Education Building (TOTM) is served by a 208/120 volt, 3 phase, 4 wire system. The exterior padmount transformer is rated 500 KVA, which appears to be in good condition.
- The Main Switchboard (MSB) is original Federal Pacific Electric gear, rated at 1600 amp. This is 50 years old and should be replaced soon. The electrical capacity may need to be increased to support future mechanical loads. With an electrical capacity of just over 5 watts per square foot, the service size is marginal for support of central air conditioning.
- The electrical usage is metered and recorded by a permanently networked Square D Power Logic digital meter.
- According to the meter, peak demand has been recorded at 147 KVA.

Building Wiring

- Most of the circuit breaker panelboards are original, manufactured by Federal Pacific Electric Company (FPE). Replacement panelboards should be budgeted. FPE branch circuit panelboards and circuit breakers are not considered reliable by many professionals due to fire hazards associated with their residential line of circuit breakers and panelboards which caused the FPE Company to go out of business. (There is a Federal Pacific Company still in business not associated with the FPE Company.) At 50 years old and with the manufacturer out of business, they are considered at the end of their life.
- Electrical equipment serving much of the mechanical equipment is showing age and wear. Replacement should at least be considered on a case by case basis.
- Circuit breaker panelboards have been added in various areas to supplement original branch circuit capacity or replace original. Most of those are in very good condition.
- A moderate amount of surface raceway has been used to update wiring, mostly in classrooms and offices.

Fire Alarm

- The original Standard Electric Time Fire Alarm Control Panel has been supplemented with very basic, lower end Simplex 4020 Fire Alarm Control Panel. The original horns and manual pull stations are still in use. There did not appear to be any strobes (visible notification devices) in the corridors or classrooms, as is required by modern life safety standards. The pull stations are much too high to comply with the 48" maximum requirement of modern accessibility codes.

Lighting

- Much of the lighting appears to have been upgraded to modern T8 technology. It appears to be in good condition.
• Most light switches are at the originally installed height of 54” which does not comply with the 48”
  maximum of modern accessibility codes.

Emergency Power and Lighting ........................................................................................................... 3

• Emergency power is supplied from a 17.5 KW Onan diesel generator, installed around 1970.
The generator supplies power for emergency lighting through an original 100 amp, 208/120
volt, 3 phase Onan transfer switch. The generator and transfer switch should be budgeted for
replacement. It is recommended that the emergency load be monitored to determine present load
requirements.

Low Voltage Systems .......................................................................................................................... 3

• Campus wireless network is present.
• Most classrooms have basic audio-visual instructional equipment, but are showing age.
• There is modern Simplex clock system controller, but there did not seem to be many system clocks
  in the building.

Overall Rating .................................................................................................................................... 3.3

HVAC NARRATIVE

Overview Building Description:
The HVAC systems are mostly all air systems, and most appear to be original. There is no cooling
• Room # 7A MER
  o Four air handling systems appear to be original
    * SB – 1 serves Room 24
    * SB – 2 serves Rooms 101, 150, 155, 156 and 158
    * SB – 5 serves Judo and Fencing
    * SB – 6 serves Dance Studio
• Room # 9 MER
  o Two large DHW heater/tanks
  o Pool heater
  o SB-7 heating and ventilating unit
  o Steam entrance
• Room # 30
  o Two SB units (heating & ventilating)
  o Control compressor

Prerequisites:
Ventilation: Yes
Cooling: No

Age ................................................................................................................................................... 5
Condition .......................................................................................................................................... 4
Capacity ........................................................................................................................................... 5
Efficiency ........................................................................................................................................... 4
PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing ........................................................................................................................................ 5

Most of the plumbing was installed in 1959 and is therefore 50 years old. Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation.

Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection ................................................................................................................................... 5

There is no sprinkler system.
Wilder Hall is one of several historic, Legacy buildings located on Stockbridge Road. Its (new) green terra cotta roof makes it stand out amongst its neighbors. The eclectic style mixes elements of Mission Revival with the Arts & Crafts style. Considered the first building in the United States to be designed specifically for the purpose of housing a landscape architecture program, Wilder Hall is a landmark that should be preserved. The rectangular floor plate and window layout favors large, open rooms and the scale of the building makes it well suited for a single department/program user much as it currently does.

The building has seen significant investment but could benefit from and contribute significantly more to the campus if it were to have a comprehensive rehabilitation.

**Occupancy**

<table>
<thead>
<tr>
<th>Description</th>
<th>NSF</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>BILINGUAL COLLEGIATE PROGRAM</td>
<td>2,517</td>
<td>31%</td>
</tr>
<tr>
<td>EVERYWOMAN'S CENTER</td>
<td>4,009</td>
<td>49%</td>
</tr>
<tr>
<td>GENERAL BUILDING AREAS</td>
<td>1,353</td>
<td>17%</td>
</tr>
<tr>
<td>GROUNDS/CUSTODIAL</td>
<td>194</td>
<td>2%</td>
</tr>
<tr>
<td>NON ASSIGNED SPACE</td>
<td>98</td>
<td>1%</td>
</tr>
<tr>
<td><strong>WILDER HALL Total</strong></td>
<td>8,171</td>
<td>NSF</td>
</tr>
</tbody>
</table>

**Recommendation**

Building should be renovated for department (or program) that requires special teaching environments - coordinate aggressive maintenance around system upgrades - implement staged upgrades to key building component without taking the building off line - restoration investment is offset by historic value of the building to campus.
ARCHITECTURAL NARRATIVE

Overview Building Description:
Wilder Hall was designed by Walter R.B. Willcox originally to house the Landscape Architecture department. The two and a half story brick building contained several classrooms, offices, and studio spaces. Today the building is occupied by the Everywoman’s Center and the Bilingual Collegiate Program. Few modifications have been made to the space layout because most of the interior masonry partitions appear to be bearing walls. This would make modifications to the space challenging. Therefore the ideal occupant for this building would be one that could make use of the space layout as is. Due to the variety of room sizes, a single small department could probably utilize the space most efficiently. The smaller rooms on the 1st floor work well for offices and support spaces. The basement contains medium size rooms that could work well as seminar rooms or departmental class labs. The 2nd floor is divided into three large spaces, that could be used as classrooms or studio space, and 3 smaller support spaces that could be more office spaces or specialty spaces.

Exterior Building Envelope

There are no original drawings available for Wilder Hall, but based on observations and the period of the building it can be inferred that the walls are solid masonry bearing walls with no cavity or drainage. No visible signs of failure were noted. However, a vine was once trained to climb on the East elevation of the building and could have damaged the mortar. The trim is done in terra cotta as well as the building’s nameplate, over the door, and sloping brackets, on the inside edge of the recessed doorway, at the main entrance. Below the roof eaves in the attic story, rectangular brick panels are part of the building’s brick trim. There is no evidence of any masonry repairs or restoration.

The distinctive roof is green terra cotta tile, reflective of the Mission Revival style, and was replaced in 2009. A roof of this type should last 75-100 years. Both the Mission Revival and Arts & Crafts style are evident in the low pitched hip roof, deep over hangs, and exposed wood rafters of Wilder Hall. Two chimneys flank each of the central gables on the East and West sides of the building.

Entrances, Circulation and Accessibility

Both the East and West entrances to Wilder Hall have been adapted to meet accessibility standards. The original doors have been replaced with compliant doors with automatic openers. Both doors are at grade. Any elevation adjustments that were required were done with landscape grading.

There are two handicap accessible toilets in the building. One is on the first floor and the other is in the basement. There are no toilets on the second floor. There is also no elevator in the building making the second floor completely inaccessible and leaving the two floors that do have access isolated from each other. The drinking fountain on the first floor is too tall to meet accessibility standards and other details such as door clearances and lever handles would have to be addressed in a renovation of any scale.

The building only contains one internal stair. In order to provide a second means of egress from the building, a fire escape was added to the exterior of the building in 1957. This would not be allowed on a new building, but due to the historical nature of this building further investigation is required to determine if this stair is acceptable. The internal stair is steep, but not particularly narrow. There is no guardrail and the handrails do not satisfy current codes. There are limited corridors in the building and they seem adequate in
The interior walls of Wilder are painted brick, with simple but attractive detailing around the arched openings. Since many of them appear to be load bearing they would be difficult to remove or modify and planning should respect these limitations. The flooring is a combination of VAT and VCT tiles. The ceilings are plaster and in good condition. The stair railings are a simple wood design, but are worth preserving and adapting because they are original to the building.

ELECTRICAL NARRATIVE

Overview Building Description:
The fire alarm system needs to be upgraded to meet applicable life safety and accessibility standards. Much of the wiring is very old and outdated. There is an abundance of surface raceway throughout the building causing a shabby appearance.

Main Electrical Service:
- Wilder Hall utilizes a 208/120 volt, 3 phase, 4 four wire electrical system. The Main Panelboard is a modern Siemens Type S1 rated 300 amp, dated 1999. It is in good condition.
- The main transformer is an exterior padmount, rated 75 KVA. It is in good condition. The primary is fed from two campus 2.4 KV feeders in a primary selective arrangement, providing backup if one feeder should fail.
- The electrical capacity of the switchboard at over 10 watts per square foot is sufficient for supporting central air conditioning and any anticipated mechanical equipment. The transformer limits the available power but is sufficient for any anticipated additional loads.
- The electrical usage is not metered at the building and no peak demand data is available.

Building Wiring:
- Some of the wiring is in excellent condition; some is in poor condition (such as an old two prong receptacle).
- Electrical panels that have been added (other than at the main service) are residential style loadcenters with plug-on circuit breakers. These are not considered institutional grade and will not hold up over time. It is recommended that they be replaced during any renovation.
- Electrical systems have been upgraded with abundant use of surface conduit and raceway leaving a shabby appearance in some areas.

Fire Alarm:
- There is an antiquated fire alarm system.
- There did not appear to be any visual alarm devices (strobes) throughout the building as is required by modern life safety standards.
- Pull stations are mounted above the 48” maximum height required by modern accessibility codes.

Lighting:
- Most of the lighting is in good condition, having been upgraded with fixtures using modern T8 and compact fluorescent lamps. There are some older fluorescent fixtures that are showing age.
Light switches are generally above the 48” maximum required by modern accessibility codes.
There are still some incandescent light fixtures in use.

Emergency Power and Lighting

- Emergency lighting is provided by self-contained battery units in the stairwells, corridors and miscellaneous other locations. Some units are in better condition than others.
- Some exit signs appear to use incandescent lamps and are showing age. They should be replaced.
- Most of the wiring is in surface mounted raceway or conduit.

Low Voltage Systems

- There were no systems noted in the survey.

Overall Rating

HVAC NARRATIVE

Overview Building Description:
Steam radiators and convectors provide heat. No cooling or ventilation. One pipe steam radiators in the vestibule; some two pipes convectors around the building. Convectors has self contained control valves.
- MER # 7
  - Steam entrance; PRV appears old; insulation is also old, but not bad.
  - No visible condensate pump

Prerequisites:
Ventilation: No
Cooling: No

Age

Condition

Capacity

Efficiency

Maintainability

Overall Rating

PLUMBING & FIRE PROTECTION NARRATIVE

Plumbing

Most of the plumbing was installed prior to 1950 and is therefore over 50 years old. Domestic water piping is copper. Waste and vent piping is cast iron. Piping should be replaced throughout any area under...
renovation. Restrooms should be included in the renovation. Backflow preventers, water heaters, circulation pumps and dielectric couplings should be tested and evaluated as part of the renovation.

Accessibility issues of restrooms and drinking fountains are addressed under the architectural review.

Fire Protection

There is no sprinkler system.
REFERENCES


7. UMass Facilities & Planning Building plans 04/2009 - Not to scale original and renovation drawings for each building were referenced during the creation of this report.