

MINNESOTA



## POST-OCCUPANCY EVALUATION

### Indoor Environmental Quality + Workplace Environment Washburn Center for Children – Glenwood (WCC-G) Minneapolis, MN

March 2016, Minneapolis, MN  
Sustainable Post-Occupancy Evaluation Survey (SPOES)  
B3 Guidelines

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## 1.0 Overview

The purpose of this report is to examine the connection between sustainable design criteria used in the design of the Washburn Center for Children – Glenwood (WCC-G) facility and occupants' satisfaction with their work environments located in the facility. The WCC-G facility was designed using the B3 Guidelines (formerly known as the Minnesota Sustainable Building Guidelines or MSBG) and completed for occupancy in December, 2014. The B3 Guidelines track specific state-funded, B3 buildings as a means of demonstrating real outcomes aimed at the conservation of energy resources, creation and maintenance of healthy environments, and occupants' satisfaction with their work environments. The Sustainable Post-Occupancy Evaluation Survey (SPOES) was developed to assess human outcomes in workplace, classroom, and residence hall settings in compliance with the B3 Guidelines project tracking requirements. This is a report of occupants' (hereafter called employees) responses from the survey conducted in March 2016.

This SPOES report focuses on employees' satisfaction with the physical environment as related to 26 indoor environmental quality (IEQ) criteria such as lighting, thermal, and acoustic conditions in their primary workspaces, i.e., offices. Employees' satisfaction with the facility (site, building, and interior) and the effect of the facility's physical environment on their perceptions of their work performance and health also are included. Finally, a brief look at employees' commuting and physical activities within the building are reported. The report provides descriptive information about employees' perceptions of the IEQ of their work environments. In addition, this information serves the broader development of knowledge regarding the influence of IEQ on employees.

## 2.0 Method

SPOES consists of a self-administered, Internet-based, questionnaire submitted to and completed by employees. The SPOES questionnaire has been tested for **validity** (measures what it is intended to measure) and **reliability** (repeatability or replicability of findings). Employees rate their level of satisfaction on a **Likert-type scale** (measurement scale) from 1 (very dissatisfied) to 7 (very satisfied) with IEQ of the facility and their primary workspaces. They also rate the influence of their physical environment on their perception of their work performance and health on a scale from 1 (hinders) to 7 (enhances).

The report provides a descriptive summary of the results stated as a **mean** (average of all responses), **standard deviations** (SD) (how different scores are from each other and the mean), and **number of responses** (N) for each question analyzed. The mean for a 7-point scale is 4.00. Lower or higher means reflect stronger tendencies towards dissatisfaction/satisfaction and hinders/enhances. Means that are close to the center of the scale (4) are considered to be neither dissatisfied/hinders or satisfied/enhances.

When interpreting **mean** responses, the following labels were used:

- 1.00 - 3.50 dissatisfied (or hinders)
- 3.51 - 4.50 neither dissatisfied (or hinders) nor satisfied (or enhances)
- 4.51 - 7.00 satisfied (or enhances)

An IEQ Score is also calculated for employees' satisfaction with IEQ criteria in their primary workspaces. This is a statistical combination of all category-level (explained below) IEQ scores, which results in a single IEQ score for all respondents and is reported in an IEQ Scorecard.

## 2.1 Description of the Questionnaire

Employees first rate their level of satisfaction with the facility (site, building, and interior) and the influence of their physical environment on their perception of their work performance and health. Then they respond to questions about their satisfaction with their primary workspaces in relation to IEQ criteria from the B3 Guidelines. Additionally, employees' demographic, physical activity, and commuting practice data are collected to provide context for the study.

In the SPOES questionnaire, the 26 IEQ criteria listed below are evaluated. There are two levels of criteria, categories and attributes. As shown in the list, the 'overall' criteria are boldfaced and called 'categories' or 'category level' criteria. A category is broader or more general such as Overall View Conditions or Overall Indoor Air Quality. Some categories have 'attributes' or 'attribute level' criteria and provide greater detail about the category. For example, Overall Thermal Conditions is a category level question, and there are four attribute level questions related to thermal conditions such as adjustability, air velocity (draft), humidity, and temperature. Overall Acoustic Conditions is a category with attributes of employees' ability to hear desired sounds and their ability to limit undesired sounds. There are 12 category-level and 14 attribute level questions. Means are calculated and reported for all category and attribute-level criteria.

An IEQ Satisfaction Score is also calculated for employees' satisfaction with IEQ in their primary workspaces. This is a statistical combination of the 12 category-level criteria only and results in a single, mean IEQ Satisfaction Score for all employees' satisfaction with the physical conditions of their primary workspaces. Attribute-level criteria are not included in the IEQ Score because unequal weight would be given to criteria that have both category and attribute-level questions.

In the following list, **category (boldface)** criteria are listed in alphabetical order. If a category has attributes, they are listed with the category.

### **Overall Acoustic Quality**

- Ability to hear desired sounds
- Ability to limit undesired sounds

### **Overall Appearance (aesthetics)**

### **Overall Cleaning and Maintenance**

### **Overall Daylighting Conditions**

- Amount of daylighting
- Adjustability of daylighting

### **Overall Electric Lighting Conditions**

- Amount of electric lighting
- Adjustability of electric lighting
- Adjustability of task lighting

### **Overall Furnishings**

- Function of furnishings
- Adjustability of furnishings

### **Overall Indoor Air Quality**

### **Overall Privacy**

### **Overall Technology**

- Access to electric outlets

### **Overall Thermal Conditions**

- Adjustability of thermal conditions
- Air velocity (drafty/stagnant)
- Humidity (dry or moist)
- Temperature (hot or cold)

### **Overall Vibration and Movement**

### **Overall View Conditions**

## 2.2 Limitations

Employees' participation is voluntary, and responses are self-reported. As is true with all survey research, the responses indicate employees' perceptions. There were no physical measurements, e.g., temperature, humidity, or lighting levels of the environment taken. This study is limited to employees' perceptions.

### 3.0 Sample Description

#### 3.1 Description of Building

The WCC-G facility is located at 1100 Glenwood Ave., Minneapolis, MN. The building (see Figure 1) is a new, three-story 56,000 square foot facility where WCC-G staff provide mental health services for children. The space features classrooms, therapy rooms, an outdoor playground, gym, restrooms, and training rooms for clinicians. In addition to offering therapeutic care for children experiencing social, emotional, and behavioral challenges, the facility houses a large meeting space where WCC-G clinicians and professionals from the community receive training in the best practices of children's mental health. The building also received LEED Gold certification from the U.S. Green Building Council. Workplace employees evaluated the IEQ of the overall facility and their primary workspaces.



Figure 1. Washburn Center for Children-Glenwood (Photo courtesy of WCC-G)

#### 3.2 Description of Respondents

This survey was administered to 151 employees with workspace in the facility during March 2016. The response rate to the questionnaire was approximately 47%. Of those responding, 11% were male, 88% were female, and 1% indicated 'other.' The mean age of respondents was 35.5 years, with a range from 23-68 years.

The WCC-G was a new building and was completed and ready for operation in December, 2014. Since that time, 21% have worked at the new facility for one-two years, and 14% of respondents spent less than one year at this site. The balance, 65% of respondents, reported that they worked at the WCC-G for three or more years, which would have included tenure at the previous facility. Relating to hours worked during a typical week at WCC-G, 38% of employees reported they spend 40+ hours a week in the facility; 38% spend 30-40 hours a week at WCC-G; 11% spend 20-29 hours at WCC-G; and 13% spend less than 20 hours in the WCC-G facility.

Relating to the time employees spend per week in their primary workspace, 51% of employees reported they spend more than 75% of their weekly time in their primary workspace; 17% spend 51-75% of their time in their primary workspace; 25% spend 25-50% of their time in their primary workspace; and 7% spend less than 25% of their time in their primary workspace. These responses indicate the amount of time employees are exposed to IEQ conditions in their workplace environment. Employees also indicate that 100% of their primary workspaces were located within 15 feet of an exterior window; which was one of the design goals for the facility.

#### 4.0 Findings and Discussion

#### 4.1 WCC-G Facility (Site, Building, and Interior): Overall Satisfaction, Work Performance, and Health

Employees responded to questions concerning the WCC-G facility (site, building, and interior) and their overall satisfaction with the facility, overall perceptions of their work performance in relation to the facility, and their overall perception of their health in relation to the facility. Table 1 shows the means and standard deviations of their responses as well as how the responses are interpreted. Figure 2 is a graph that shows the mean for each question, which is identified with a blue mark. The standard deviation is shown by the green/red, vertical bar with green representing satisfied (or enhanced) and red representing dissatisfaction (or hindered). Gray represents the 'neither/nor' range of responses. In cases where there were no dissatisfied responses, the bar may be all green or gray and green. This graph is simply a visual image of the findings from Table 1.

Table 1. WCC-G facility - overall satisfaction, work performance, and health

WCC-G (Site, Building, and Interior)				
Overall	Mean	SD	N	Interpretation
Satisfaction	6.32	0.76	76	Satisfied
Work Performance	5.96	1.01	76	Enhanced
Health	5.63	1.18	76	Enhanced

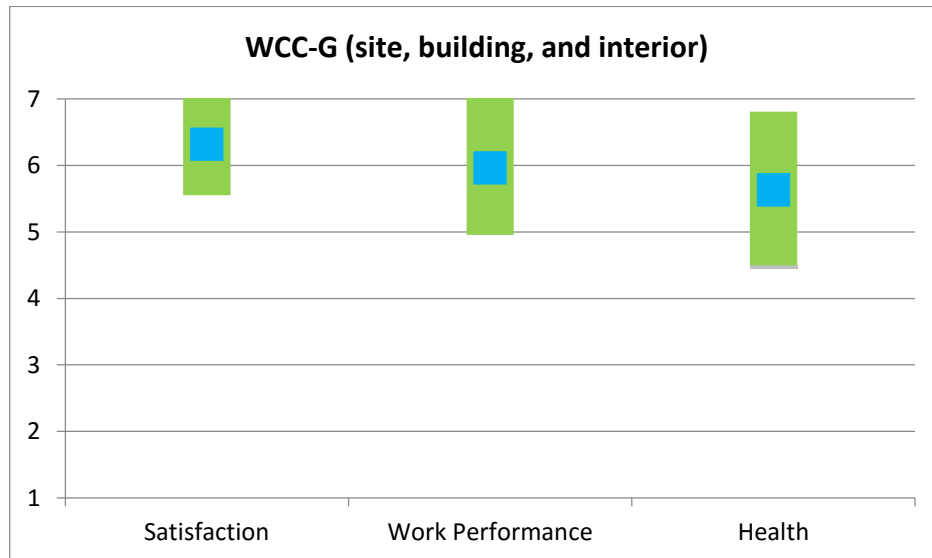


Figure 2. WCC-G facility - overall satisfaction, work performance, and health

Results indicate that employees were **satisfied (M = 6.32)** with the WCC-G physical environment of the facility (building, site, and interior) and reported that their overall work performance was **enhanced (M = 5.96)** by the facility. Employees reported that their overall health was **enhanced (M = 5.63)** by the facility.

#### 4.2 Primary Workspace: Overall Satisfaction, Work Performance, and Health

Employees responded to questions concerning their overall satisfaction and overall perceptions of their work performance and health as related to their primary workspace (e.g., private office, workstation, or other primary workspace). Table 2 shows the means and standard deviations of their responses as well as how the responses are interpreted. Figure 3 is a visual image of the findings from Table 2; an explanation of the graph was given for Figure 2.

Table 2. WCC-G primary workspace – overall satisfaction, work performance and health

WCC-G Primary Workspace				
Overall	Mean	SD	N	Interpretation
Satisfaction	6.04	1.10	75	Satisfied
Work Performance	5.91	1.15	76	Enhanced
Health	5.51	1.17	75	Enhanced

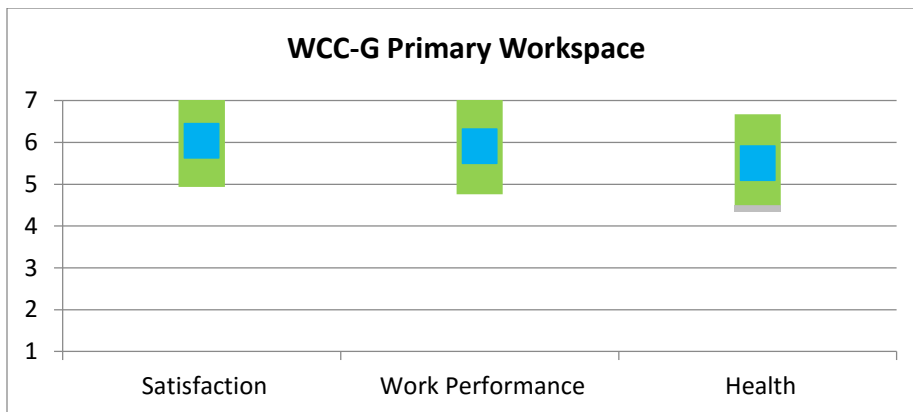


Figure 3. WCC-G primary workspace - overall satisfaction, work performance, and health

Results indicate that employees were **satisfied (M = 6.04)** with their primary workspace, their overall work performance was **enhanced (M = 5.91)** by their primary workspace, and their overall health was **enhanced (M = 5.51)** by their primary workspace.

#### 4.3 Primary Workspace: Satisfaction with Indoor environmental quality (IEQ)

Employees responded to questions concerning their satisfaction with IEQ categories (thermal conditions, indoor air quality, acoustic conditions, etc.) related to their primary workspace (e.g., private office, workstation, or other primary workspace). Table 3 shows the means and standard deviations of their responses in order from highest to lowest mean, as well as how the responses are interpreted. Figure 4 is a visual image of the findings from Table 3; an explanation of the graph was given for Figure 2.

Table 3. WCC-G primary workspace - satisfaction with IEQ criteria

#	IEQ Criteria (1-26) (Category level criteria are <b>bold face</b> )	Mean	SD	N	Interpretation (S = Satisfied) (D = Dissatisfied)
1	Amount of daylighting	6.26	1.32	73	Satisfied
<b>2</b>	<b>Overall daylighting conditions</b>	<b>6.22</b>	<b>1.25</b>	<b>72</b>	<b>Satisfied</b>
<b>3</b>	<b>Overall view conditions</b>	<b>6.22</b>	<b>1.16</b>	<b>73</b>	<b>Satisfied</b>
<b>4</b>	<b>Overall appearance (aesthetics)</b>	<b>6.15</b>	<b>1.08</b>	<b>71</b>	<b>Satisfied</b>
<b>5</b>	<b>Overall cleaning and maintenance</b>	<b>6.15</b>	<b>1.04</b>	<b>73</b>	<b>Satisfied</b>
6	Adjustability of daylighting	6.10	1.37	73	Satisfied
<b>7</b>	<b>Overall indoor air quality</b>	<b>6.01</b>	<b>1.13</b>	<b>73</b>	<b>Satisfied</b>
<b>8</b>	<b>Overall vibration and movement</b>	<b>6.00</b>	<b>1.38</b>	<b>71</b>	<b>Satisfied</b>
<b>9</b>	<b>Overall furnishings</b>	<b>5.97</b>	<b>1.33</b>	<b>73</b>	<b>Satisfied</b>
10	Function of furnishings	5.89	1.42	73	Satisfied
11	Ability to hear desired sounds	5.88	1.45	73	Satisfied
12	Amount of electric light	5.86	1.43	73	Satisfied
<b>13</b>	<b>Overall electric lighting conditions</b>	<b>5.83</b>	<b>1.42</b>	<b>71</b>	<b>Satisfied</b>
14	Access to electric outlets	5.81	1.42	72	Satisfied
15	Humidity (dry or moist)	5.73	1.22	73	Satisfied
<b>16</b>	<b>Overall technology</b>	<b>5.72</b>	<b>1.40</b>	<b>72</b>	<b>Satisfied</b>
17	Adjustability of furnishings	5.64	1.47	73	Satisfied
18	Air velocity (drafty or stagnant)	5.63	1.30	73	Satisfied
19	Adjustability of task lighting	5.58	1.60	73	Satisfied
<b>20</b>	<b>Overall privacy (sound and visual privacy)</b>	<b>5.47</b>	<b>1.54</b>	<b>73</b>	<b>Satisfied</b>
<b>21</b>	<b>Overall acoustic quality</b>	<b>5.16</b>	<b>1.76</b>	<b>73</b>	<b>Satisfied</b>
22	Adjustability of task lighting	5.11	1.81	72	Satisfied
23	Ability to limit undesired sounds	5.06	1.85	71	Satisfied
<b>24</b>	<b>Overall thermal conditions</b>	<b>4.85</b>	<b>1.51</b>	<b>73</b>	<b>Satisfied</b>
25	Temperature (hot or cold)	4.41	1.75	73	Neither S or D
26	Adjustability of thermal conditions	4.12	1.89	73	Neither S or D

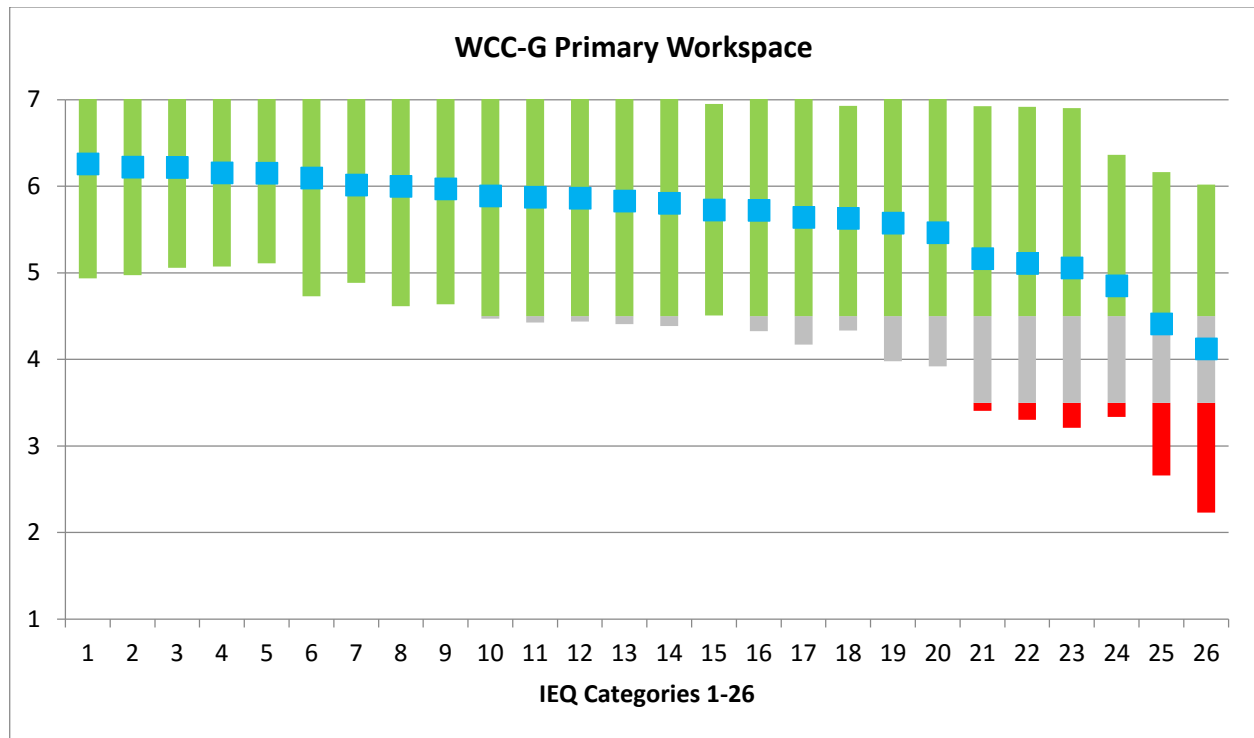


Figure 4. WCC-G primary workspace - satisfaction with IEQ criteria (IEQ 1-26 are listed in Table 3)

Results indicate that employees were **satisfied** with 24 of the IEQ criteria in their primary workspaces; means ranged from 4.85 (Overall thermal conditions) to 6.26 (Amount of daylighting). Employees were **neither satisfied nor dissatisfied** with only two IEQ criteria, temperature (4.41) and adjustability of thermal conditions (4.12). Importantly, employees were **dissatisfied** with none of the IEQ criteria at their primary workspaces. The criteria in the ‘neutral’ satisfaction range are related and should be reviewed and considered for change. Potential for change will be addressed in Section 6.2 Recommendations. Further explanation of these scores also can be found in Appendix A. Open-Ended Responses.

#### 4.4 IEQ Satisfaction Scorecard

The IEQ Satisfaction Score is determined by calculating a mean of the 12 ‘Overall’ category level IEQ criteria. At this time, criteria are weighted equally in this calculation as little evidence exists that provides rationale for weighting some criteria heavier than others. The IEQ mean is representative of a fair overall IEQ score and can serve as a benchmark of employees’ satisfaction with the physical environment of their primary workspace. As shown in Figure 5, the **IEQ Satisfaction Score** for WCC-G is **5.8**, which falls into the **satisfied** range. The large number of categories with scores above 6.0 contribute to this positive IEQ Score.





Figure 5. WCC-G primary workspace - IEQ Satisfaction Score

As shown in Table 3, satisfaction with six categories scored 6.0 or higher. However, the relatively low, yet still positive scores, for Overall thermal conditions category (4.85) and Overall acoustic quality (5.16) pulled the IEQ Score a bit lower. Keeping this in mind, this is a highly positive IEQ Score. Please note that the IEQ Satisfaction Score only uses the category level criteria (those labeled 'Overall'; see section 2.1, paragraph 3 for explanation).

### 5.0 Physical Activity Engagement and Commuting Practices

In the final section of the survey, employees responded to questions regarding their overall physical activity while at WCC-G (site, building, and interior) and their commuting practices.

#### 5.1 Physical Activity Engagement

Providing employees with opportunities for alternative paths of travel around the workplace, e.g., taking stairs as opposed to the elevator, provides opportunities to engage in additional types of physical activities. Engaging in physical travel throughout the work environment can be associated with healthier lifestyles.

Table 4. Overall physical activity (walking, stair use, etc.) affected by the WCC-G facility

WCC-G Facility (site, building, and interior)	Mean	SD	N	Interpretation
Overall physical activity (walking, stair use, etc.)	6.16	1.07	70	Enhanced

Results indicate that employees felt that WCC-G **enhanced (M = 6.16)** their physical activities (walking, stair use, etc.).

## 5.2 Commuting Practices

WCC-G is located just west of downtown Minneapolis on Glenwood Avenue. It is a stand-alone building. The facility is located on a major bus route served by Metro Transit. There is surface lot parking available to staff free of charge and an underground parking garage. There are two bike racks with one located in the heated and secure underground parking garage.

Table 5 provides results on employees' primary mode of transportation; Table 6 summarizes commuting distances between home and the WCC-G facility; and Table 7 summarizes employees' ability to commute using alternative choices (walk, public transit, bike, van, or carpool, etc.). These results, although not related to IEQ, do offer WCC-G insight into employees' commuting behaviors and opinions. These data can provide important information about commuting practices that can reduce transportation energy consumption.

Table 5. Commuting Practices – WCC-G Primary mode of transportation

Primary mode of transportation (N=70)	Drive Alone (or w/children <16)	Van or Carpool	Public	Other
WCC-G employees	89%	3%	3%	6%

Related to primary modes of transportation, 89% of employees drive alone (or with children under 16), 3% carpool or vanpool with others, 3% take public transportation, and 6% do a combination of commuting methods including biking in good weather and taking public transportation in inclement weather.

Table 6. Commuting Practices – WCC-G Commuting distance traveled

Miles Traveled (N=70)	0-5 miles	6-15 miles	16-30 miles	31-45 miles
Home-to-WCC-G (One-way)	26%	49%	18%	7%

Results indicate that 75% of employees commuted 0-15 miles one-way between home and the WCC-G, followed by 18% who commute 16-30 miles, and only 7% between 31-45 miles to the WCC-G facility. All of these are one-way miles.

Table 7. Commuting practices – WCC-G location and alternative commuting behaviors

Alternative Commuting	Mean	SD	N
Ability to commute in alternative ways	3.93	1.84	70

Results indicate that location of the WCC-G **neither enhances nor hinders** (M = 3.93) employees' ability to commute to work in alternative ways, e.g., walk, bicycle, public transit, van or carpool, etc. Although, of the 70 employees who responded, 40% said the location **hindered** and 36% said the location **enhanced** their ability to commute in alternative ways.

## 6.0 Conclusions

### 6.1 Summary

A post-occupancy evaluation was conducted of employees of WCC-G at approximately 15 months after it was first occupied. The WCC-G facility is used by employees of the Washburn Center for Children to treat children with social, emotional, and behavioral challenges. This survey reports the responses from employees and their satisfaction with the physical environment of the facility and their primary workspaces.

The survey included questions related to employees' satisfaction with the facility (site, building, and interior) and influence of the facility on their work performance and health. Employees were **satisfied** with the facility (**M = 6.32**); they found the facility **enhanced** their work performance (**M = 5.96**) and **enhanced** their health (**M = 5.63**). In addition, positive results also were reported when employees were asked these same questions about their primary workspaces (private office, shared office, etc.). They reported **satisfaction** (**M = 6.04**) with their primary workspaces, that their work performance was **enhanced** (**M = 5.91**), and that their health was **enhanced** (**M = 5.51**) by their primary workspace. As the range of scores was from 1-7, scores showed high levels of satisfaction.

Most of the survey questions related to employees' satisfaction with IEQ criteria in their primary workspaces (private offices, etc.). Employees' responses showed they were **satisfied** with the 24 of the 26 IEQ criteria. The mean satisfaction scores ranged from **4.85** (Overall thermal condition) to **6.26** (Amount of daylighting), which met the design team's expectation as they provided all employees with a window within 15 feet of their workspace. This shows a highly positive level of **satisfaction**. Employees responded **neither dissatisfied nor satisfied** to only two IEQ criteria (temperature and adjustability of thermal conditions), which are related and can be addressed. Employees were **dissatisfied** with none of the IEQ criteria.

From employees' responses, an IEQ Score was developed and shows respondents' satisfaction with the IEQ of all category level criteria. For WCC-G, the IEQ Satisfaction Score was **5.8**. This score reflects the high satisfaction level with the IEQ categories. Finally, employees reported that WCC-G **enhanced** their physical activity, which is one of the sustainable design criteria that influence occupant behavior.

## 6.2 Recommendations

All IEQ criteria satisfaction scores are in the positive direction, however, improvement on the 'neutral' criteria may be possible. For IEQ categories that can be physically measured (e.g., thermal, acoustic, and lighting), it is recommended that these measurements be taken in the primary workspaces, especially those relating to thermal conditions. Although the balance of the criteria received satisfied scores, it is always appropriate to be proactive as the building ages. Exploring these areas in more detail and making adjustments may increase overall satisfaction at the primary workspace. It must be noted that the expense of building and operating a facility is second only to employee-related expenses over the life of the building. Therefore, maintaining or improving employees' satisfaction is a sound investment, which, in turn affects their performance and their health. Following are specific recommendations that will keep the satisfaction scores positive.

### Acoustic Conditions

- Identify acoustic criteria for overall requirements.
- Determine if any task areas differ now from their original spatial layout/use (i.e., collaborative work spaces now located adjacent to focused work areas, individual workstations).
- Develop specialized acoustical performance requirements to support functional programming employees' tasks (e.g., sources of recurrent noise that need to be controlled, special user populations that may have distinct auditory performance limitations, or multiple uses of building spaces that may have different acoustic criteria). Identify and apply appropriate acoustics modeling software for the project.
- Measure acoustic performance onsite with full building systems (heating, ventilation, and air conditioning) running.

- Identify employees' privacy concerns via focus groups and/or log complaints relative to acoustical conditions for further evaluation.
- Consider employees' tasks within shared spaces to determine if spatial layout changes can be made for increased acoustic control.

### **Lighting Conditions**

- Identify employees' lighting performance criteria that are to be met to achieve goals by conducting onsite measurements of existing illumination and compare them to standards for employees' tasks as identified by the Illuminating Engineering Society (IES).
- Determine if any task areas differ now from original intent to be sure illumination quantity and quality are not impeded by physical changes to the space (i.e., walls, ceilings, furnishings, fixtures, or equipment).
- Develop additional quality lighting criteria as needed for special facility (e.g., influence of daylight quality or quantity) or employee (e.g., age, task duration) issues.
- Log complaints related to lighting conditions for further evaluation.
- Identify poor lighting conditions in the workspace caused by a lack of control over daylighting, which can cause glare and eyestrain.

### **Personal Adjustability**

- Determine what adjustability issues arise with temperature, lighting, or furnishings via a focus group.
- Identify personal, individual problem areas and relate them to other IEQ issues via a log of complaints relative to adjustability.
- Provide education to employees about any existing/achievable adjustment options, e.g., furnishings, air diffusers, lighting, temperature control, etc.

### **Privacy Conditions**

- Identify employees' privacy concerns via focus groups or log complaints relative to privacy to determine if visual or audio privacy is most affected.
- Determine if any task areas or responsibilities differ from original intent and develop alternatives or modifications.
- Consider adding noise masking equipment and/or visual screening depending on the nature of the complaints.
- Document and compare acoustic privacy problem areas with acoustic measurements to pinpoint specific problem areas.

### **Thermal Conditions**

- Measure thermal performance conditions on site.
- Log complaints related to thermal conditions for further evaluation.
- Determine special thermal comfort requirements or problems that may be encountered in the building due to physicality of work activities, duration of sitting, or design/layout considerations. Focus groups can be useful in identifying problem locations.
- Determine if any employees' task areas differ now from original layout to determine if air flow is meeting systems design intent.
- Review conditions that affect thermal comfort using ASHRAE Standard 55-2004 or *Human Factors Design Handbook* (see B3 Guidelines).

This study investigated employees' satisfaction with the facility and primary workspaces. IEQ satisfaction is individual, but the results of the survey show a central tendency of high satisfaction with

the facility and all but two of the IEQ categories. The results can be used as a diagnostic tool to aid in improving IEQ conditions for employees and to set the benchmarks from which improvement can be measured in the future.

## Appendix A. Open-Ended Responses

Employees had the opportunity to raise specific concerns on the overall facility and their primary workspaces. Important information can be gleaned from the open-ended survey responses. WCC-G employees raised few concerns and, in fact, had mostly positive responses. However, the comments do give insight into specific issues that could be addressed by building management. Generally, the comments are shown as written.

### Overall Positive

- I honestly have no real complaints. This is the nicest facility that I've ever worked at and I often mention how much I love it when I tell other people about where I work.
- Love the new building.
- Love the new building!
- LOVE the windows and natural light!
- I like the natural light and sustainable features.
- Love the pond/walking trail nearby, great that we're off a bus line, turn onto Glenwood from building is difficult, especially during traffic (long wait at times, obstructed view if cars parked on side), water fountains and composting great.
- It is a beautiful facility and having a window significantly impacts the quality of my time at my workspace.

### Space

- It would be great to have more impromptu collaborative space and outdoor space to work.
- I think it makes sense to have a mail-room located on the second floor of the building to make it more convenient to get to the mailboxes.

### Lighting

- Provide task lighting at the desk...some are not interested in fluorescent bulbs.

## Appendix B. Glossary

### **Descriptive statistics**

Statistics used to summarize large sets of data (i.e., means, frequencies, medians). Descriptive statistics describe only the sample under consideration and are not intended to infer results to the larger population.

### **Frequency**

A descriptive statistic that provides information about how many of a particular response or measurement is observed.

### **Likert-type scale**

A measurement technique, employed in questionnaires and interviews, that utilizes a range of standardized response categories such as strongly agree, agree, etc.

### **Mean**

The average score of a set of data calculated by adding all scores together, then dividing by the number of scores.

### **N**

The number of subjects or participants responding to the questions, or a single question, in the study.

### **Reliability**

The repeatability or replicability of findings; the same results are produced each time. Instruments and procedures should produce the same results when applied to similar people in similar situations, or on a second occasion.

### **Standard deviation**

A statistic used to measure the variability of a group of scores (how different scores are from each other and the mean). For example, if the range of scores is 1-7 and the mean (average) is 5.0 with a standard deviation of 1.0, then the scores are closely clustered around the mean, i.e., there is one unit of variation among all scores. If the mean was 5.0 and the SD was 3.0, there is a broader range of variation among the scores...a smaller SD means the scores are similar and the mean score is likely to be more accurate and more useful (this is better!).

### **Validity**

The extent to which an instrument or procedure measures what it is intended to measure (internal validity). The generalizability of results to another population (external validity).