



**Indoor Environment Quality + Workplace Environment
Shantz Hall (SH), St. Peter Regional Treatment Center,
Department of Human Services, State of Minnesota
St. Peter, MN
Report 1**

**April 2015, St. Peter, 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 Shantz Hall (SH) and occupants' satisfaction with their work environments located in SH. The SH facility was designed using the B3 Guidelines (formerly known as the Minnesota Sustainability Guidelines or MSBG) and completed for occupancy in 2013. 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 at 15 months post-occupancy. The survey was conducted in February 2015 and is the first of two required survey events for this building.

This SPOES report focuses on employees' satisfaction with the physical environment as related to 25 indoor environment 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). There were no physical measurements taken of environmental conditions such as temperature or acoustic level. This study is limited to employees' perceptions.

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:

- 1.0 - 3.5 dissatisfied (hinders)
- 3.51 - 4.5 neither satisfied (enhances) nor dissatisfied (hinders)
- 4.51 - 7.0 satisfied (enhances)

An IEQ Score is also calculated for employees' satisfaction with IEQ in their primary workspaces. This is a

statistical combination of all IEQ scores, which results in a single IEQ score for all employees on all IEQ variables 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 responded to questions about their satisfaction with their primary workspaces in relation to IEQ criteria from the B3 Guidelines.

In the SPOES questionnaire, the 25 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 13 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 weighted mean 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

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

Additionally, employees' physical activities, commuting practices, and recycling behaviors within the building were investigated.

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.

3.0 Sample Description

3.1 Description of Building

Shantz Hall is located in, St. Peter, MN. The building (see Figure 1) is one of three continuous treatment facilities and services the Minnesota Sex Offender Program. It covers 81,000 square feet over two floors; the original building is over 50 years old. The project was an expansion and renovation and was completed in 2013. It houses staff offices, treatment rooms, and residence rooms for clients. This project relates only to the IEQ of the workplace environment of the staff.



Figure 1. Shantz Hall (Photo: Courtesy of State of Minnesota)

3.2 Description of Respondents

The SH facility had approximately 80 employees were assigned workspace in the facility during the administration of the survey event. The response rate to the questionnaire was approximately 86%. Of those responding, 51% were male and 49% were female. The mean age of respondents was slightly over 38 years, with a range of 27 to 60 years.

The renovation and expansion were completed in 2011. Since that time, 50% of the respondents reported that they had worked at SH for more than 3 years, 6% had been there 2-3 years, 16% had been there for 1-2 years, and 28% of the respondents spent less than 1 year at this site. Relating to hours worked during a typical week in SH, 29% of the employees reported they spend 40+ hours a week in the facility; 33% spend 30-40 hours a week in SH; 27% spend 20-29 hours in SH; and 1% spend less than 20 hours in SH. Relating to the percentage of time employees spend per week in their primary workspace,

51% of the employees reported they spend more than 75% of their time in their primary workspace; 18% spend 51-75% of their time in their primary workspace; 22% spend 25-50% of their time in their primary workspace; and 9% spend less than 25% of their time in their primary workspace.

SH has various types of primary workspaces. Results indicated 55% of the employees share private offices with other people, 23% work in a unit office or unit workstation, 13% work in an enclosed private office, 7% work at a desk in an open area, and 1% work in a laboratory setting. Employees also indicated that 57% of their primary workspaces were located within 15 feet of an exterior window; 42% of the employees were not within 15 feet of an exterior window; and 1% of the employees were unsure.

4.0 Findings and Discussion

4.1 Shantz Hall Facility (Site, Building, and Interior): Overall Satisfaction, Work Performance, and Health

Employees responded to questions concerning the SH 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 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); the gray portion indicates responses that were neither dissatisfied/hindered nor satisfied/enhanced. This graph is simply a visual image of the findings from Table 1.

Table 1. Shantz Hall facility - overall satisfaction, work performance, and health

Shantz Hall Facility (Site, Building, and Interior)	Mean (1-7)	SD	N	Interpretation
Overall satisfaction	4.25	1.40	69	Neither satisfied / dissatisfied
Overall work performance	4.43	1.27	69	Neither enhances / hinders
Overall health	4.13	1.35	69	Neither enhances / hinders

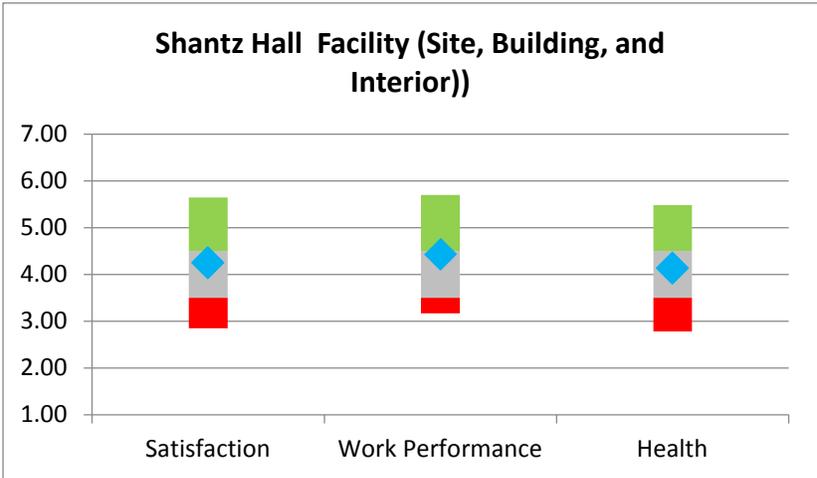


Figure 2. Shantz Hall facility - overall satisfaction, work performance, and health

Results indicated that employees were **neither satisfied nor dissatisfied** ($M = 4.25$) with the SH facility (building, site, and interior) and reported that their overall work performance was **neither enhanced nor hindered** ($M = 4.43$) by the facility. Employees reported that their overall health was **neither enhanced nor hindered** ($M = 4.13$) 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. Primary workspace – overall satisfaction, work performance and health

Primary Workspace	Mean (1-7)	SD	N	Interpretation
Overall satisfaction	4.35	1.60	69	Neither satisfied / dissatisfied
Overall work performance	4.38	1.57	69	Neither enhances / hinders
Overall health	4.31	1.41	68	Neither enhances / hinders

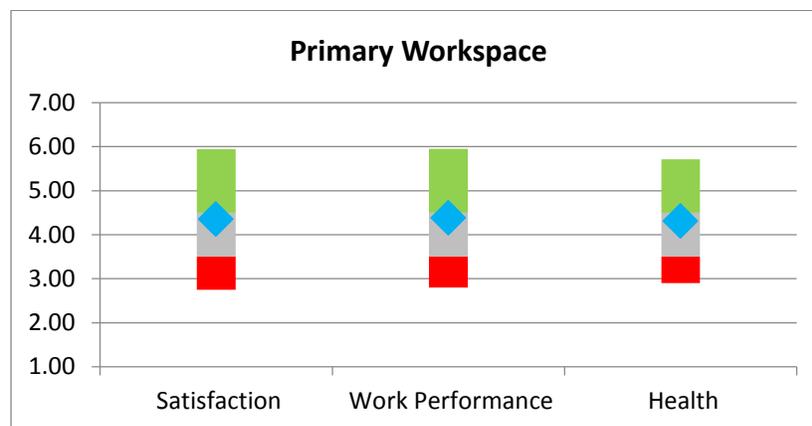


Figure 3. Primary workspace - overall satisfaction, work performance, and health

Results indicated that employee were **neither satisfied nor dissatisfied** ($M = 4.35$) with their primary workspace, their overall work performance was **neither enhanced nor hindered** ($M = 4.38$) by their primary workspace, and their overall health was **neither enhanced nor hindered** ($M = 4.31$) by their primary workspace.

4.3 Primary Workspace: Satisfaction with Indoor Environment 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 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. Primary workspace - satisfaction with IEQ conditions

Shantz Hall Primary Workspace					
IEQ Criteria (1-25) Category Level Criteria are Boldface)		Mean	SD	N	Interpretation (D = Dissatisfied) (S = Satisfied)
1	Overall vibration and movement	4.84	1.35	69	Satisfied
2	Overall daylighting conditions	4.69	1.68	68	Satisfied
3	Amount of daylighting	4.67	1.65	69	Satisfied
4	Amount of electric light	4.55	1.56	69	Satisfied
5	Overall cleaning and maintenance	4.55	1.69	69	Satisfied
6	Adjustability of daylighting	4.51	1.74	69	Satisfied
7	Overall electric lighting conditions	4.42	1.75	69	Neither S or D
8	Overall appearance (aesthetics)	4.41	1.58	69	Neither S or D
9	Overall view conditions	4.36	1.73	69	Neither S or D
10	Adjustability of task lighting	4.29	1.86	68	Neither S or D
11	Overall technology	4.26	1.70	68	Neither S or D
12	Overall furnishings	4.25	1.58	69	Neither S or D
13	Ability to hear desired sounds	4.13	1.75	69	Neither S or D
14	Function of furnishings	4.09	1.52	69	Neither S or D
15	Adjustability of electric lighting	4.06	1.92	68	Neither S or D
16	Air velocity (drafty or stagnant)	3.90	1.65	69	Neither S or D
17	Adjustability of furnishings	3.88	1.63	68	Neither S or D
18	Overall indoor air quality	3.88	1.73	68	Neither S or D
19	Overall acoustic quality	3.84	1.87	69	Neither S or D
20	The humidity (dry or moist)	3.75	1.67	69	Neither S or D
21	Ability to limit undesired sounds	3.70	1.92	69	Neither S or D
22	Temperature (hot or cold)	3.64	1.71	69	Neither S or D
23	Overall thermal conditions	3.62	1.74	69	Neither S or D
24	Overall privacy (sound and visual privacy)	3.42	1.85	69	Dissatisfied
25	Adjustability of thermal conditions	2.96	1.75	68	Dissatisfied

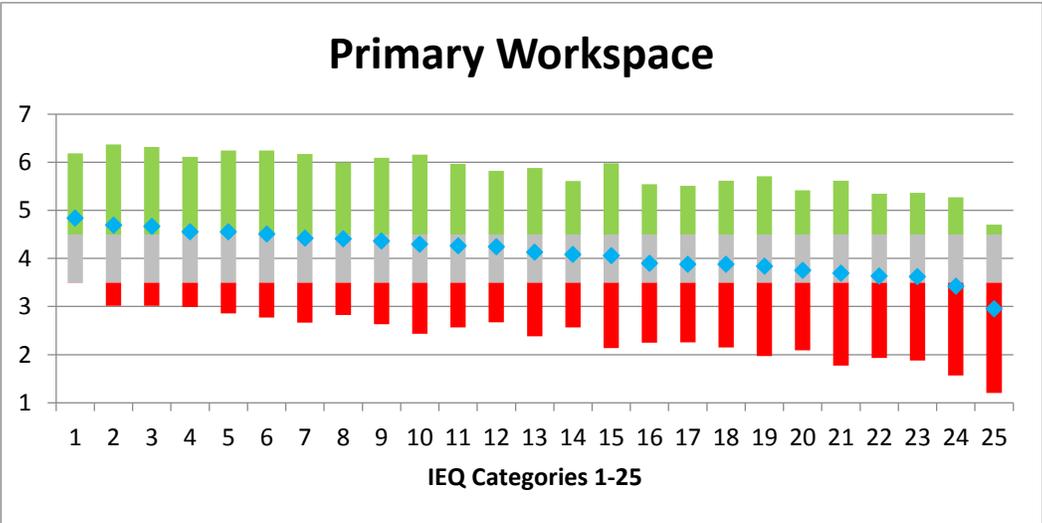


Figure 4. Primary workspace - satisfaction with IEQ categories (IEQ 1-25 are listed in Table 3 above)

Results indicate that employees were satisfied with six of the IEQ criteria in their primary workspaces, i.e., means at or above 4.50. They were neither dissatisfied nor satisfied with 17 IEQ criteria, and dissatisfied with two criteria, Overall privacy (3.42) and Adjustability of thermal conditions (2.96). Even in the satisfied range, there were no mean scores above 5.0 on a 7.0 scale. This indicates minimal level of satisfaction with the IEQ in the primary workspace. With 17 of the 25 criteria falling between 3.62 (Overall thermal conditions and 4.42 (Overall electric lighting conditions), these fall into the ‘neutral’ range and are also ripe for change to improve employees’ satisfaction with their primary workspaces and 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 all overall category level IEQ criteria. At this time, all variables are weighted equally in this calculation as little evidence exists that provides rationale for weighting some variables 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 Shantz Hall is **4.21**.

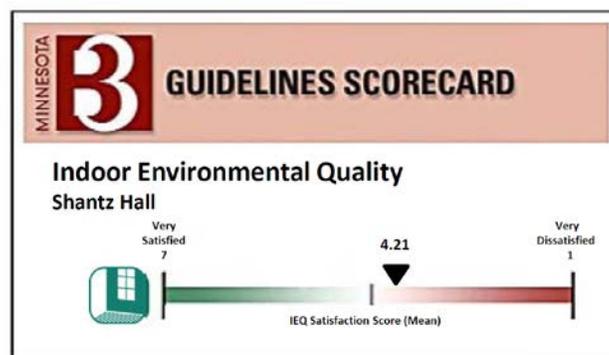


Figure 5. Primary Workspace - IEQ Satisfaction Score

Overall, the employees showed they are neither satisfied nor dissatisfied with IEQ as indicated by the mean score of **4.21**. As shown in Table 3, satisfaction with the **Overall vibration and movement**, **Overall daylighting conditions**, and **Overall cleaning and maintenance** were the criteria with the highest satisfaction and pulled the IEQ Satisfaction Score in a positive direction. However, neutral satisfaction with **eight category level** criteria, and dissatisfaction with one category level criteria, **Overall privacy** pulled the IEQ Score down. These issues can be addressed by building management to increase employees’ satisfaction. Please note that the IEQ Satisfaction Score only uses the category level criteria (those labeled ‘Overall’; see section 2.1, paragraph 3 for explanation). There were neutral and dissatisfied mean scores with other criteria that must be addressed as well. These will be noted in Section 6.2 Recommendations.

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 Shantz Hall facility (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 Shantz Hall facility

Shantz Hall facility (site, building, and interior)	Mean (1-7)	SD	N	Interpretation
Overall physical activity (walking, stair use, etc.)	4.34	1.29	68	Neither enhances / hinders

Results indicated that employees felt that SH neither enhanced / hindered ($M = 4.34$) their physical activities (walking, stair use, etc.). Further, of the 68 respondents to this question, 44% said they were **satisfied** with the facility's influence on their overall physical activity; 40% said they were **neither dissatisfied nor satisfied**; and 16% were **dissatisfied**.

5.2 Commuting Practices

Shantz Hall is located in St. Peter, Minnesota. There is limited public transportation; there is parking adjacent to SH. Table 5 provides results on employees' primary mode of transportation; Table 6 summarizes commuting distances between home and SH; 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 the facility managers 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 – Primary mode of transportation

Commuting one-way	Drive alone (or with children < 16)	Carpool or Vanpool
Primary Transportation	87%	13%

Related to primary modes of transportation, 87% of employees drive alone (or with children under 16), and 13% drive or ride with others (e.g., carpool; or vanpool).

Table 6. Commuting Practices – Shantz Hall commuting distance traveled

Miles Traveled	0-5 miles	6-15 miles	16-30 miles	31-75 miles
Home-to-Shantz Hall (One-way)	28%	47%	16%	8%

Results indicated that 28% of employees commuted 0-5 miles one-way between home and SH, followed by 47% who commute 6-15 miles, 16% commute between 16-30 miles, and 8% commute between 31-75 miles. All of these are one-way miles.

Table 7. Commuting practices – Shantz Hall location and alternative commuting behaviors

Shantz Hall F (SBI) Location	Mean (1-7)	SD	N	Interpretation
Alternative commuting behaviors	3.62	1.50	68	Neither enhances / hinders

Results indicated that the location of SH neither enhanced nor hindered (**M = 3.62**) employees' ability to commute to work in alternative ways, e.g., walk, bicycle, public transit, van or carpool, etc. Further, of the 68 respondents to this question, **43%** said the location **enhanced** their commuting options, **18%** were **neither hindered nor enhanced** by the location of SH, and **35%** indicated that the location **hindered** their ability to commute in alternative ways.

6.0 Conclusions

6.1 Summary

A post-occupancy evaluation was conducted of employees of Shantz Hall at approximately 15 months after it was first occupied. Nearly 86% of the employees responded to the survey.

The survey included questions related to employees' overall satisfaction with the facility (site, building, and interior) and influence of the facility on their overall work performance and health. Employees were **neither satisfied nor dissatisfied** with the facility (**M = 4.25**); they found the facility **neither enhances nor hinders** their overall work performance (**M = 4.43**) and **neither enhances nor hinders** their overall health (**M = 4.13**). In addition, similar results were reported when employees were asked these same questions about their primary workspaces (private office, shared office, laboratory, etc.). They reported **neither satisfaction nor dissatisfaction** (**M = 4.35**) with their primary workspaces and that their overall work performance was **neither enhanced nor hindered** (**M = 4.38**) and their overall health was **neither enhanced nor hindered** (**M = 4.31**) by their primary workspaces. As the range of scores was from 1-7, these scores do not reach the satisfaction level.

Most of the survey questions related to employees' satisfaction with the IEQ categories in their primary workspaces (private office, laboratory, etc.). Employees' responses showed they were **satisfied** with only six of the 25 IEQ criteria. The mean satisfaction scores ranged from **4.51** (Adjustability of daylighting) to **4.84** (Overall vibration and movement). Again, with a range possible of 1 – 7, these are low satisfaction scores. Employees responded **neither dissatisfied nor satisfied** to 17 IEQ criteria; two criteria showed dissatisfaction.

From the employees' responses, an IEQ Score was developed and shows respondents' satisfaction with the IEQ of all category level criteria. For Shantz Hall, the IEQ Satisfaction Score was **4.21**. This score reflects the neutral level of satisfaction all categories. Finally, employees reported that Shantz Hall **neither enhances nor hinders** their physical activity, which is one of the sustainable design criteria that influences occupant behavior.

6.2 Recommendations

The satisfaction scores very low; most of the IEQ criteria are in the neutral or dissatisfied range. This means that much improvement is possible. For IEQ categories that have physical measurement possible, e.g., thermal, acoustic, and lighting, it is recommended that these measurements be taken in both overall workspaces and primary, individual workspaces. Recommendations follow:

Thermal Conditions

- Determine special thermal comfort requirements or problems that may be encountered in the building due to work activities or sitting or design considerations. Focus groups can be useful in identifying problem locations.
- Determine if any employees' task areas differ now from original intent to be sure air flow is the same as originally designed.
- Review conditions that affect thermal comfort using ASHRAE Standard 55-2004 or Human Factors Design Handbook.
- Measure performance variables on site.
- Log complaints related to thermal conditions.

Lighting Conditions

- Identify employees' performance criteria that are to be met to achieve goals.
- Determine if any task areas differ now from original intent to be sure light patterns, quantity, and quality are not impeded by changing walls, ceilings, or fixtures.
- Develop additional quality lighting criteria as needed for special facility issues such as employees' ages, duration of task, influence of daylight quality or quantity.
- Conduct onsite measurements using Illuminating Engineering Society standards for employees' tasks.
- Log complaints related to lighting conditions.
- Identify problem locations that may be affected most by lack of control over daylighting, which can cause glare and eyestrain.

Acoustic Conditions

- Identify acoustic criteria for overall requirements.
- Determine if any task areas differ now from original intent including collaborative work spaces now being located adjacent to focus work areas (individual workstations).
- Develop any additional special 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. Investigate and choose appropriate acoustics modeling software for the project.
- Measure acoustic performance onsite with full systems running.
- Identify employees' privacy concerns via focus groups or log complaints.
- Consider employees' tasks within shared spaces to determine if change can be made for increased acoustic control.

Privacy Conditions

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

Personal Adjustability

- Determine if adjustability issues arise with temperature, lighting, or furnishings via focus group.
- Identify personal, individual problem areas and relate to other IEQ issues via log of complaints.

- Provide education to employees about adjustability of any applicable adjustment options, e.g., furnishings, air diffusers, lighting, temperature control, etc.

It seems obvious that employees' satisfaction can be improved by addressing the categories that had 'dissatisfied' or 'neither dissatisfied nor satisfied' scores. The above recommendations can help address change in these criteria. However, as many mean satisfaction scores hovered in 'neutral,' it is reasonable to begin addressing some of these criteria to further improve employees' satisfaction. Exploring these areas in more detail and making adjustments may increase overall satisfaction at the primary workspace. It must be noted that employee expense is second only to the cost of the actual facility in most business operations. It is a good investment to improve employees' satisfaction, which, in turn affects their performance and their health.

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 neutral satisfaction with the facility and most of the IEQ categories, that is, employees' are neither satisfied nor dissatisfied. 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 responses. Shantz Hall employees raised specific concerns about nearly all of the IEQ features. There were positive comments as well. The number and specificity of the responses are meaningful. These responses can help the design and management teams what the issues are in SH that led to the low scores. Although the sentiments of all employees are not represented here, this information can be used to inform. Generally, the comments are shown as written with some change to protect the respondent.

Building, Services, and Amenities (Site, Building and Interior)

Positive

- It is a very nice building to work in.
- Compared to the old Shantz, the health factor has improved tremendously.
- It's not bad for how old the building is and the recent remodel was a vast improvement.
- The quality of health is 10x better than previously. Before the remodel, I was sick all the time. Whatever they did to the air system has been a huge upgrade.
- The visibility on the unit is excellent. Being able to see all of the dayrooms and group rooms from one location is a very positive change in the physical structure.
- The natural sunlight is wonderful.

Building, Services, and Amenities (Site, Building and Interior)

Acoustics

- Everything is very loud--you can hear doors shutting and creaking all the time.
- Meal times are very loud which can be very distracting. Our job is one of the most important positions here and it requires a lot of focus, attention to detail and multi-tasking. So not only is noise an issue but so is the fact that the lights are on a timer of some sort.
- The noise coming from other areas within the building is very distracting. The temperature climate is not able to be adjusted; therefore it's either cold or hot.
- No speaker in workstation. All overhead announcements are NOT heard by staff in the workstation. Sounds carry from workstation, easily overheard by clients.

Building, Services, and Amenities (Site, Building and Interior)

Cleaning and Maintenance

- Bathroom could be cleaned more.
- Office floor is awful! Constantly dusty.
- The office we were supposed to be in was not made big enough so it forced us to move into the only office that was not finished as far as the floor being sealed or carpet being installed therefore, the floor turns our black uniforms and shoes white by leaving a weird dusting or powder like residue everywhere and who knows what it is exactly, but I wouldn't be surprised if it causes cancer or is a contributing factor to some of our health conditions.

Building, Services, and Amenities (Site, Building and Interior)

Design / Construction

- A strange noise that sounds like "Zing" is heard numerous times throughout the day that seems to be coming from an electrical pipe on the wall not sure if that is normal or possibly another health hazard.
- The unit station was to be redone to match the other side and that has yet to happen. It feels like we

are stuck with what we have and don't have any control over getting done what needs to get done. Excuses are that with new construction there is just not enough time. You should completely finish one project before moving onto another. Something needs to be done with the heating and cooling of the building.

- Problems with showers since we moved in.
- Constant breakers popping shutting off electricity.
- The doors are the biggest complaint... Having doors similar to the Pexton building would be my only change to the building.
- The work performance in control center has gone down as the boards are separated by a barrier.
- The construction to this building was a joke. The door leading into the unit station is bent and rubbing against the floor. The door was also put on backwards! In our break room there is no sink! We can't even wash out hands prior to making our meals. They cut every corner when redoing this building - I am ashamed and saddened of how it turned out and how much money was wasted!!!!
- After the construction there have been many issues with the skim coating over the tiles. Paint is easily scratched off walls.
- This building is a joke!
- This building is not impressive! The molding is falling off, paint is chipping, and even our toilet paper holder was put on upside down! This was a waste of the tax payer's money!
- We have been told that all units were going to be the same and we have yet to see anything happen.
- The restroom is off the unit which is my only complaint.
- Broken sink for months. You seriously didn't repair the piping????????? I'm not taking water from that.
- Remodeled only certain areas. Paint is coming off walls on remodeled areas.
- While it looks nice, things are constantly breaking and needing to be repaired or weren't built correctly in the first place. Interior renovations were poorly designed on many levels (form, function, security.)
- It would be nice if we could enter and exit the Shantz building instead of going through Pexton where some of us have to walk several hundred yards to get to our vehicles.

Building

Function

- The break room is very small and not conducive to a peaceful break time due to copy machine and locker usage.
- Break rooms needs improvement. Pexton has a nice one with a TV and Exercise bike.

Building

Lighting

- Electric lighting too bright, either too hot or too cold and no adjustability for either.
- Ability to adjust lights in office/dimmer.
- The automatic lighting switches off frequently. In order for them to come back on, I have to get up and wave my arms in front of the sensor several times a day.
- If I haven't gotten up from my desk for a certain amount of time the lights will shut off on me and will not turn back on until there is movement in the room. We often work at night, therefore, when the lights go out its very dark in here. This occurs quite frequently during the last 2 hours of a shift and we can wave my arms as if we are trying to fly like a bird for the sensor to pick up on movement, but it doesn't work like that. In order to get the lights to turn back on requires us to actually get up and walk toward the doorway or if we get lucky and someone happens to walk by in the hallway that seems to kick them back on as well, this is very annoying to say the least.

Building, Services, and Amenities (Site, Building and Interior)*Security (Performance, Acoustical Privacy, Visual Access, Hardware, Technology)*

- High Functioning Psychopathic Personalities; all clients are in here because of extremely violent behavior/ crimes. Yet, we have to walk onto the unit where clients have access to us before we as staff can enter the Unit Station where other staff members are located.
- The control center has poor line of sight for the operators.
- Do not like the sliding glass windows; the clients are always trying to listen in on conversations because there is no privacy for staff to communicate with each other.
- [The] unit station is no longer safe for conversations. Easily eavesdropped whether pertaining to work or personal.
- There was nothing done with any of the stairwells, and the only thing changed about the floors, was square carpet tiles put in control center. Control center should have a tint on the windows that face the hallway, and there should not be any camera monitors visible to clients.
- Accessible ceiling tiles again to hide/place contraband? Card readers cannot be de-activated during curfew hours for clients in case of emergency.
- I find it ridiculous that our staff bathrooms offer no privacy whatsoever and are located directly in the hallway without any stalls to block you if someone accidentally opens the door for all clients to see on their way by. Staff bathrooms should have been placed inside the break rooms instead, so we utilize the sink to wash our hands before eating. Since our break rooms do not have a sink, I would imagine that would be a health violation because it's gross. Not being able to have our door propped open so we have to use a door stop which is a major security issue.
- Would like to see key boxes reinstalled into the Shantz sally port for those who work in the Shantz building. It is difficult to get a close parking space (to Pexton) when you are arriving for 3rd watch and a lot of times staff are parking in the Shantz lot or behind Old Center and would be so much nicer to be able to access the building when the weather conditions are poor. It is unpleasant to walk all the way around just to access the key boxes in Pexton, have to exit the building and go back outside and walk to Shantz to get inside.
- There are no longer fire doors separating each hallway, the temperature of the building is very inconsistent, the electrical fixtures were put in the room with convenience not to make the user friendly. There are a lot of areas that should be on camera that are not, counselors have no way off the unit if something major were to happen since they changed the key to the unit door.
- Unit stations not set up well for counselors to view unit, except one spot in the unit station.
- Sound carries. Staff talking in unit station, with the window open, can be heard down the hallways.
- There is a feeling of being trapped in unit station if card readers go down.
- Fire codes should be looked at.
- The key system is bad and the doors that don't automatically cycle and make a loud noise is problematic.
- Because the way the control center was built there is a pillar blocking the line of sight between the two work stations and letting clients out of the building.
- The computers are very outdated and not set up properly. All of these conditions make for a dangerous situation for not just control center staff, but all of Shantz staff as control staff monitor and control movement of this building.
- Better/more camera views--additional monitor for cameras.
- Need to be able to have a shift change with next watch, and with door and windows closed, clients can hear us.
- Conversations even when whispered are very easily heard from our office as well as easily heard from the hallway.

- [The] unit staff do not have privacy. Clients see every move and hear every word in our 8-hour day.
- Probably would have been cheaper to have had people involved with the design of the renovations that had a clue as to what they were doing (and why) I would list off a long list of what's wrong with the building but I know it's already been covered by other people. I will add, incase nobody already mentioned, the dumb door handles that have no place in a secure perimeter. As they have a high propensity to be accidently left unlocked.
- I wish every office had the option of a window covering - especially with the high level of client traffic in the hallways.

Building, Services, and Amenities (Site, Building and Interior)

Thermal / IAQ

- Building is hot, and very dry, which affects health.
- Working in the Shantz Vocational Woodshop; the dust can be very distracting. I often am coughing and cleaning dust out of my nose all week.
- Gets too cold and too hot. Somewhat unpredictable, which makes it hard to dress according to what it will be like inside.
- Constantly dusty.
- Since I have worked in this building I have had numerous issues with headaches, red eyes, issues with asthma and allergies and several sinus infections. Air quality and circulation is still a major issue. Let's just say a lot of things were missed either during the actual construction, budgeting or planning altogether in Shantz and were not corrected nor will probably they probably ever be corrected. Sorry to be so blunt but I like to be honest and direct when answering questions to provide the reader a better understanding. Thanks!
- HEAT AND COOLING is AWFUL; Zones are 20-25 degrees different.
- Kitchen smells infiltrate and won't leave.
- Air is very dry and seems to encourage sinus problems. Unit Stations are often very hot.
- Sometimes the air is so dry that people are getting nose bleeds.
- Improve ventilation systems in the Shantz Vocational Shop.
- The building's heating is horrible. It is never consistent. It will be hotter than heck one day and freezing the next! I can walk down one hallway and it will be very, very hot and then walk down another hallway and it will be freezing! We have talked to the maintenance department on numerous occurrences to get the heating fixed but to no avail. This is an ongoing problem and I am going to hate this building come summer!!! The clients also have daily complaints about the heating.
- The heating and air conditioning has been a very big issue. With cutting corners on this, it has been nearly impossible to have a temp that is fitting on the living units. During the very cold days, it is either very hot, or very cold, no in between.
- My office is consistently very cold which makes it difficult to work well, at times.
- The building always smells like meal prep--which is not always a positive smell.
- The air is very dry so I tend to get bloody noses a lot because of this.
- The air is very dry in Shantz. There doesn't seem to be very good air circulation. The dust that accumulates on a day to day basis is unbelievable.
- We have to submit WO after WO to have these things done and when it is tried to be fixed we go from 58 degrees to 84 degrees. Temperature is never stable. The need to have the unit station function-able is a necessity that has been on hold for months with no resolve.
- Often too cold as desk is by the window.
- The smells can be very overwhelming.

Primary Workspace

Furniture

- Chairs that are not broken and work properly.
- They don't buy chairs made for 24 hour use or by large/heavy people. They break down quickly and take forever to be replaced.
- I have one desk out of three in the office. The office historically is used as a dumping ground for property and items.

Privacy

- This is difficult work to do when you share an office and are interrupted so frequently during the few times you have a block of time to do your work.

Technology

- We still have old computers; we still have only 1 phone in the unit station.
- Needs for my workstation: 2nd phone, speaker for overhead pages, and something for air/temp.

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 are 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).