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Division of
Facilities Management
Design & Construction

Lewis & Clark State Office Building

Post Occupancy Evaluation

Final Report

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LEWIS & CLARK EMPLOYEE SURVEY

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LEWIS & CLARK EMPLOYEE SURVEY
Executive Summary

Background

The Division of Facilities Management, Design and Construction (FMD&C), within the State of Missouri Office of Administration, wished to gain comprehensive information regarding the office environment in the recently constructed Lewis & Clark State Office Building. FMD&C wished to survey the Department of Natural Resources (DNR) employees working in the building regarding the many common and unique features of the work environment. With this information, FMD&C hoped to assess the ability of the office space to support the employees in their everyday work activities.

FMD&C wanted to determine, empirically and quantitatively, which characteristics of the workplace environment have the most impact on bottom line measures like performance, health related experiences, and workspace, building, and job satisfaction. From that knowledge, the State could develop more effective workplace standards that would more effectively support workers' needs.

To develop, distribute and analyze this survey, FMD&C sought the assistance of a consultant experienced in Post Occupancy Evaluation (POE). FMD&C hired the team of Dr. Sue Weidemann and CP&Associates to help craft a survey and provide analysis of the results. Dr. Weidemann previously spent 12 years as a principal member of BOSTI, a nationally recognized leader in workspace evaluations. Now consulting on her own, Dr. Weidemann still utilizes data from previous BOSTI studies to draw comparisons with current projects.

Development of the DNR employee survey ("Evaluating the Lewis & Clark Work Environment") occurred in June and July of 2007: it was distributed to all DNR employees at the Lewis & Clark State Office Building of the building in late September. After receiving the responses from 216 employees (a very respectable 65% return rate), Dr. Weidemann analyzed the information (reported in greater detail in the full report with appendixes). This document will briefly summarize some key findings.

On a final note: the Lewis & Clark State Office Building has received much attention for its Platinum LEED certification and several previous surveys have focused on the many sustainable features attributing to its rating. The issues addressed by this survey are comprehensive and cover many aspects of the office environment, and while sustainable features were evaluated along with more common office features, the real focus here is the study of this building as an office facility.

Major Findings

In order to understand the relationships between employee experiences of the building, and their evaluation of various aspects of the building, the first issue that must be understood is the nature of the work that employees do. Please note that throughout this summary and the full report of the POE, the numerous job types were reduced to four job categories to make easier comparisons of the data. These four job categories are Management, Administrative, Technical & Scientific, and Professionals.

Most Important and Most Frequently Occurring Work Activities

The *most frequent* activity is that of working quietly, alone, in one's own workspace with three of the four work classifications spending around 60% of their time doing so. Managers spent less time in this activity than the other groups, a little less than half of their time quietly working in their own workspace; their management tasks required more interactions. Other frequent activities included: interaction with others (either in workspaces or other areas of the building) and telephone calls in one's own workspace.

As with previous office research, the activity reported as the most important work activity was that of doing quite work, alone in one's own workspace. This was true across the board, for all job types, with over 95% of employees responding that this activity was 'important'. Using the phone and meeting with others in their own, or others', workspace were the next most important activities.

Interestingly, three of the four job categories reported that they needed to do undistracted work in their own workspace. More than half of these respondents reported interruptions and distractions, such as phone calls and worker interactions, as frequent problems.

Conclusion:

Being able to do quiet work, alone, in one's own workspace is critical for all employees. Yet noise-producing activities such as talking on the telephone and interactions with other workers are frequently occurring and important activities that people must engage in as a part of their work. It is essential that work environments support both of these very important activities.

Support of Frequent and Important Activities by the Office Environment

Employees generally reported that the work environment did not support these frequent, and important, work activities well. The percentage of employees who responded that the office environment supported their work activities were generally in the range of 25% or less. Most of these respondents were in open office cubicles. Only Managers, half of whom are in private offices, responded more favorably to how well the office environment supported their work activities.

Conclusion:

Evaluations indicate that the office environment does not adequately support either frequent or important employee work activities. A better understanding of this can be seen in the examination of workspace type, and its impact on employees.

Employees' Workspace Experience: Offices vs. Cubicles

Most survey respondents work in cubicles (82%); with the balance of respondents in private offices. Comparing all survey questions for those in cubicles versus those in private offices revealed important differences regarding workers' perceptions of the office environment and how well it supported their work. Additionally, when limiting the analysis to

the job category of Managers the differences are even starker. See the full report for further explanation of these findings.

The following findings represent all survey respondents; with differences between cubicles and private offices noted.

Workspace Evaluations:

Quite Work: Respondents all agreed that in terms of the *importance* of doing quiet work and using the telephone in their workspaces. However, dramatic differences exist regarding the ability of the office environment to *support* those activities with the majority of those in private offices responding that it does, but with less than 15% of those in cubicles agreeing).

Interruptions: Employees in private offices reported an average of almost 11 interruptions per day with an average recovery time of a couple of minutes for each occurrence. The picture is much different for those in cubicles where interruptions and recovery times nearly doubled, resulting in nearly a full hour of lost time each day

Conclusion

In general, all issues related to the layout, finish and personal control of an individual's workspace and the respondent's sense of productivity within this workspace received significantly higher evaluations from workers in offices compared to those in cubicles. As noted above, the 'Managers only' comparison underscores this finding.

Evaluations of Building Features:

Lighting: Light features, including daylighting, indirect lighting and lighting controls, received high evaluations from those in cubicles and offices alike. While all respondents felt they had enough access to daylight, those in offices reported less favorable access to outside views than those in cubicles (offices were generally located in the interior portion of the building).

Water: More than two-thirds of respondents felt that water-saving features in the building were important, and are not an inconvenience, with those in private offices giving these features consistently higher marks. The waterless urinals, however, received unfavorable marks with many respondents, especially those in open office environments noting odors as a significant issue.

Air: Most respondents were satisfied with air quality around their workspace but less satisfied with the level of personal control. As is typical, there was less agreement about workspace temperature levels and control with less than half of the respondents finding the temperature and their ability to control it satisfactory.

Recycling: Two-thirds of the respondents felt the recycling chutes are a positive feature and conveniently located for their needs.

Interior Spaces: The atrium, teaming rooms, and interview rooms received positive evaluations by all respondents (over 60%). The food service court received fewer positive evaluations by those in cubicles (around 42%) compared to those in private offices (around 55%). Again, open-ended responses indicated that odors associated with the food court were a common problem; these would be more noticeable to those in cubicles.

Break Areas: Forty percent of all respondents felt that there were good break areas outside of the building; with positive comments noted regarding the benches and the exterior patio. However, those in cubicles were less positive about places to take breaks inside the building (less than 30% positive). In contrast, those in private offices were more positive (45%), saying in open-ended responses that they took breaks in their offices (something more difficult to do, for those in cubicles).

Exterior Features: The parking shuttle service to the remote parking lot received relatively few positive evaluations. More than two-thirds of the respondents reported interest in having a walking path to the shuttle parking lot as an option to the shuttle service. The natural landscaping around the building also received poor marks by many. Coincidentally, respondents in the open office (cubicles) also report significantly greater allergens, likely due to the natural ventilation available through operable windows. Those in private offices gave slightly higher evaluations to these exterior features, but still well below 50% positive.

Conclusions:

Overall, many features within the office environment and the building support the DNR employees in their work. Still, some features require re-evaluation within the context of state office planning and design standards (and perhaps, at the Lewis & Clark site). The full report provides specific data clarifying these issues.

Beliefs about the Building:

Sustainability and Employees: The majority of all respondents found it important to support sustainability and environmental awareness with two-thirds of those in cubicles agreeing and ninety percent of those in offices. However, in grading the importance of working in a sustainable building, these numbers dropped to three-quarters of those in offices agreeing and less than half of those in cubicles.

Sustainability and the Public: Less than half of the respondents felt that sustainable features in public spaces, in and around the building, adequately represented the Department's mission to the public. They were slightly more convinced, however, that these same features were effective in interpreting sustainability issues to the public. Again, those in offices responded slightly more favorably.

Conclusions:

A number of respondents made specific suggestions about improving these sustainable features in and around the building. The comments indicate that such improvements would both benefit employees and improve the building's ability to interpret sustainable issues for visitors.

Workplace Features: Impact on Performance

The employee's immediate workspace had the greatest impact on their ability to be productive and accomplish work in the office. The impacts of general interior features have a similar impact, but to a lesser magnitude. The exterior features have the least effect on employees' performance.

The following items, grouped by area and arranged according to importance, show the most important issues affecting performance; this information will help in prioritizing issues to address in future office planning or when renovating the DNR office. The first item in each group is roughly equivalent to the first in other groups, in terms of strength. Addressing the top item from each group is more important than dealing with an entire group alone.

Workspace features:

- Support for individual quiet work
- Acoustics to minimize distractions
- Support for workspace meetings & telephone use
- Workspace environment (comfort, storage, lighting quality/control, pleasing finishes)

Interior building features:

General beliefs and perceptions:

- Employee support for sustainability and interpretation of sustainability to the public
- Good building maintenance and feeling safe in the building
- Physical comfort in the building

Design Features:

- Building lighting features
- Colors and material finishes in the building
- Energy and Water related features (low flow toilets & faucets, energy efficiency …)

Support for Interactions:

- Satisfaction with opportunities for interactions and informal learning & meetings
- Satisfaction with shared spaces (food court, atrium, break areas …)
- Supporting group work (working collaboratively and meetings outside one's workspace)

Exterior building features:

- Well designed, relaxing outdoor spaces to take a break
- Positive evaluations of the natural vegetation and landscaping

Workplace Features that Impact Workspace and Job Satisfaction

Satisfaction is an important concept as it is a good indicator of how people currently feel about working in an organization and it also has a strong bearing on employee retention (although retention was not examined in this work). This study measured employees' satisfaction with their workspace, the building, and their job. As with performance indicators, specific workplace features have a more powerful impact on the specific outcomes of workspace or building satisfaction and somewhat less so on overall job satisfaction. Furthermore, the workplace had a stronger impact on satisfaction than on performance measures.

The following items, grouped by area and arranged according to importance, will help in prioritizing issues to address in future office planning or when renovating the DNR office.

The first item in each group is roughly equivalent to the first in other groups. Addressing the top item from each group is more important than dealing with an entire group along.

Workspace features:

- Good workspace acoustics, minimizing distractions
- Support for individual quiet work
- Well designed (storage, furnishings; electrical, day lighting, and control over it)
- Support for workspace meetings and telephone use

Interior building features:

General beliefs and perceptions:

- Interpretation of the building to the public, and employee support for sustainability
- Building maintenance and feeling safe in the building
- Physical comfort in the building

Design features:

- Building furnishings, materials, finishes, colors; Building light features
- Energy and Water related features (low flow toilets & faucets, energy efficiency)
- Other features: convenience of recycling, adequate access to outdoor views and daylight, environment supports breaks, few unpleasant odors, floor air vents

Support for interactions:

- Satisfaction with shared spaces (food court, atrium, break areas …)
- Satisfaction with group work (collaboration and meetings outside one's workspace)
- Support for group meetings outside the workspace

Exterior building features:

- Positive evaluations of natural vegetation and landscaping
- Good places for outside breaks; positive evaluations of the shuttle services

Primary Implications for Future Design and Planning

The work environment should be thought of as a 'tool' to support the work activities that employees need to do. Design that supports that work will result in higher levels of satisfaction (and thus retention) as well as greater levels of performance. The following are general implications from the employee survey results. The full report provides more specific results regarding particular features.

1. Offices vs. Cubicles: Nearly all employees will spend the majority of their time working alone, quietly, in their workspace. Enclosed offices support this work activity better than open office cubicles since they mitigate noise and distractions and casual interruptions. Enclosed offices also provide a better environment for informal learning and meetings that must occur in workspaces. And clearly, they will limit the disruptive effects of telephone use, as well.

2. Shared Resources: As we attempt to provide equal access to desirable features such as natural light and views, the issue becomes one of how to allow for these features and provide enclosure for workspaces at the same time. There are now various solutions available in the market that incorporate clear panels to allow access to light and views while providing a buffer to the distractions that reduce productivity.

Note: While enclosed workspaces, as described in items 1&2, are initially more expensive, their payoff comes quickly, with increased employee performance, satisfaction and retention. The cost of people (employees) accounts for 82% of the primary cost of business over 10 years; whereas the initial workplace costs account for only about 5% of the 10 year cost (*BOSTI Associates, 2001*).

3. Shared Space: Providing opportunities for employee interaction, collaboration and informal learning is another key factor affecting employee satisfaction and performance. Providing such spaces that are easily available to employees yet not immediately adjacent to open workspaces where they can become a further distraction to employee performance is essential.

4. Sustainability: When an organization pursues specific design features that are beyond the common design features in the buildings of the day, great care must be taken to provide the employees and other building visitors with information regarding these features. By educating all employees, they will act as knowledgeable ambassadors, able to highlight key features for visitors and future employees.

1. Evaluation Process

Purpose

A previous survey of employees in the Lewis & Clark State Office Building, whose results were presented in early spring of 2007, focused entirely on LEED and U.S. Green Building Council issues. Its intent was to describe the building, to assess whether the building used resources efficiently, and to gather information from the occupants about building's comfort levels with regard to four energy related dimensions (lighting, acoustics, air quality, and temperature).

The State of Missouri, through the Division of Facilities Management, Design and Construction, wished to gain further, more comprehensive information about many other features of the work environment, in addition to the sustainable issues. In essence, they sought a broader, more extensive evaluation of the building. They wished to determine, empirically and quantitatively, which characteristics of the workplace environment have the most impact on bottom line measures like performance, health related experiences, and workspace, building and job satisfaction. From that knowledge, priorities for future workplace design can more effectively be developed. In particular, often scarce resources could then be directed to the workplace characteristics and issues which really impact these important workplace outcomes.

They felt that the results of such a survey (a work environment survey; not a 'green' survey) would assist in one of their core missions… to deliver better workplace environments for state employees. With the knowledge gained from this survey they felt they would be better prepared to address state wide office standards and adjust policy regarding the delivery of future state office projects.

Development of the Survey

As a result of this perceived need, a consultant team, consisting of Dr. Sue Weidemann and CP & Associates, began the process of preparing such a survey. An initial step in this process was to review the results of the earlier LEED oriented survey, and to meet with members of DNR, the original design team, and persons from the FMD&C. The focus of this meeting was to discuss features of the original building design which might be of importance in further evaluating this unique Lewis & Clark facility.

Following this meeting, the employee work environment survey ("Evaluating the Lewis & Clark Work Environment") was developed, through a series of drafts which were reviewed by various stakeholders in the process. This survey is quite comprehensive, containing a core set of questions which had been developed and reliably used by BOSTI Associates, for the analyses of many national and international workplace evaluations. It also has a number of additional items that were developed specifically for this location. Nearly all the questions were structured so that the respondent needed to check only one of several possible responses, although written comments are encouraged and are included in the analysis.

The items in the survey follow a logical sequence, beginning with simple factual information about the respondent (e.g., job categories and group affiliation), followed by more detailed questions about time spent in the office at different types of work activities. It then asks for evaluations of the workplace itself (e.g., workspaces, meeting rooms, other work areas, and other special features of the workplace). In the Lewis & Clark survey, some of the special features also include the employees' experiences with various LEED related characteristics which were not included in the previous survey. Note: While there are questions that deal with 'green' issues, this survey is about the whole office environment. Finally, the important business outcome measures of job performance and satisfaction, etc. are also included.

Data Collection Process

An announcement email was sent to Lewis & Clark employees, prior to the distribution of the survey, explaining the purpose of the survey, and how it would be distributed and returned. The survey ("Evaluating the Lewis & Clark Work Environment") was then distributed to all employees of the building in late September of 2007, via in-house distribution. It contained an explanatory letter, along with a DNR contact for questions, and provided an envelope for its return. Employees were asked to return it to General Services in the mailroom at 1101 Riverside Drive, in Jefferson City. Mailroom staff then collected the surveys and forwarded them to the Office of Administration. They were then packages and sent to Dr. Sue Weidemann, for data entry and analysis.

There were approximately 334 employees who received them via interoffice distribution. Two hundred and seventeen (217) people responded. Of those, one survey was not usable (no response variation, and many missing responses); it was deleted from further analyses. Thus 216 people (for a 65% return rate) were used for all analyses. (However, because some people did not respond to all questions, the number of valid responses will vary from question to question.)

Analysis and Reporting

Standard statistical analyses, using the SPSS analysis program, were used to examine the responses of the survey respondents.

Descriptive analyses (e.g. frequency distributions, bar chart illustrations) were used. Comparative analyses (e.g., t-tests and analyses of variance) were used to determine if there were statistically significant differences between/among different response groups. And multivariate correlational analyses were used to determine the strength and direction of relationships among variables (survey items) for the group as a whole, in order to understand the relative importance of various workplace features upon job satisfaction and performance.

These analyses are the basic methods of looking at data, in general, and for workplace evaluations, in particular. They have been used throughout the research done by Dr. Weidemann (both in her research at the University of Illinois, and while Director of Research at BOSTI Associates, a highly recognized workplace assessment group). These types of analyses, taken as a complete and complementary process, have proven to be very valuable for the provision of information for future planning of workplaces,

Organization of the Employee Survey Results

The remainder of this report contains four major sections. In Section 2, general information about the respondents is provided. Basically, it provides a description of the sample of people who responded to the survey. (The response rate was 65%, which is quite acceptable.)

The next two major sections (Sections 3 and 4) show how those respondents evaluated the work environment in terms of comparisons of different groups of respondents. Section 3 reports on people in different Job Types; Section 4 provides information about comparisons of respondents who are in offices vs. those who are in cubicles. For each survey question, results will be presented first for the whole sample of respondents, and then for Managers only, who were either in offices or cubicles.

The last section of the results in the report (Section 5, the Impact of the Environment on Important Outcomes) is the most important, in terms of providing information for future planning and design (or information for modifications of existing workplaces). It shows which of the many different workplace features and experiences have the strongest impacts on important outcomes like job satisfaction and performance. It is this information that allows priorities for decision making to be determined. Basically, when resources are limited, resources should be directed towards those issues which most strongly affect employee performance and job and workplace satisfaction. These are issues which also have an effect on retention, a crucial factor for retaining good employees (although retention was not examined in this work).

Finally, there is an Appendix section. Appendix A shows the verbatim responses for employees who responded to the open-ended questions. For each question, a summary of the categories of responses that were made, as well as the number of responses in each category, will be shown in a figure.

Appendix B shows the statistical information relative to the indices created for Section 5. These indices were used in the analyses to determine extent to which various workplace features affected satisfaction and performance. They show the specific survey items which created the indices, and the alpha reliability of each index.

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2. The Respondents

This section of the report describes the respondents of the survey, in terms of a number of different aspects, e.g., information about their jobs, their levels, their locations, and types of workspaces they occupied. It forms the basis for the subsequent analyses and result sections.

In general, the results will be reported in terms of the specific questions asked on the survey.

Who Were the Respondents?

The following tables provide general information about the characteristics of the 216 respondents. For example, the Table 1 below (Q1 Organization) shows the number ('frequency') of people in each of the Organization categories who responded. It also shows the percentage of each category, with respect to the total number of respondents. (The 'percent' shows the percentage in each group, including the percent of people who did not respond to the question. The 'valid percent' shows the percentage in each group, in relationship only to those who answered the question.)

Table 1. What Organization are you in? (Q1 Organization)

Q1 Organization		Statistics		
		Frequency	Percent	Valid Percent
	Accounting	12	5.6	5.8
	Administration	4	1.9	1.9
	DEQ-Admin	11	5.1	5.3
	DNR-ITSD	2	.9	1.0
	Communication & Publication	3	1.4	1.4
	Directors Office	15	6.9	7.2
	Energy Center	15	6.9	7.2
	Field Services Division	5	2.3	2.4
	Fiscal Resources Program	4	1.9	1.9
	General Services Program	6	2.8	2.9
	Historic Preservation Program	6	2.8	2.9
	Human Resources	11	5.1	5.3
	Internal Audit	2	.9	1.0
	Land Reclamation Program	9	4.2	4.3
	Ombudsman Office	2	.9	1.0
	Public Drinking Water Branch	18	8.3	8.7
	Soil & Water Conservation Program	16	7.4	7.7
	Water Pollution Control Branch	57	26.4	27.4
	Water Resources Center	8	3.7	3.8
	Other	2	.9	1.0
	Total	208	96.3	100.0
Missing	People who did not answer the question	8	3.7	
Total		216	100.0	

The following tables further describe the respondents. Most of the following results will be presented in terms of responses by different job types/job functions.

Job Type

Job type has always been an important characteristic to consider in workplace evaluations. While people who have differing job functions typically perform many of the same basic job activities (e.g., quiet work, alone; meeting with others in their workspace; using the telephone; etc.), they may do so in differing percentages of time for the activities. So if the work they need to do varies in terms of the amount of time they spend doing it, it suggests that the work environment should support the work that each job type needs to do the most. This information will be shown later, in the third section of the report, about Job Type responses (Job Type Comparisons). Table 2 below simply reports how many respondents reported being in the following job type categories.

Table 2. What best reflects your primary job function? (Q2 Job Type)

Q2 Job type		Statistics		
		Frequency	Percent	Valid Percent
	Acct/Audit/Budget	20	9.3	9.6
	Admin/Support	36	16.7	17.3
	Clerical	21	9.7	10.1
	Engineers	10	4.6	4.8
	Manager/Suprvsr	48	22.2	23.1
	Specialists/Scientists	67	31.0	32.2
	Technical Support	5	2.3	2.4
	Other	1	.5	.5
	Total	208	96.3	100.0
Missing	Did not answer	8	3.7	
Total		216	100.0	

While the above listings of Job Types are specifically reflective of the Lewis & Clark Building, these categories were then condensed into a smaller, more generic, set of job type categories, for additional analyses. These more generic job types have been used extensively in previous research (Weidemann, BOSTI Associates), and allow the comparison of information across various organizations. Additionally, the use of all the Lewis & Clark categories for subsequent analyses in this report was problematic for two reasons. First, the sample size for **Technical Support** was too small to allow it to be statistically considered as a category by itself. Secondly, with only 5 respondents in that group, it was felt that it might be possible to identify a respondent, going against the promise of anonymity. **Thus these seven groups were collapsed into four generic groups for the primary analyses to be shown in this section of the report.**

These four groups are:

- **Managers** (Managers & Supervisors)
- **Administrative** (Administration & Support)
- **Technical** (Engineers/Scientists/Specialists/Technical Support)
- **Professionals** (Accounting/Audit/Budget)

Respondent information

Other information gathered from the respondents included their age and gender. See Table 3 below.

Table 3. What is your age category? (Q32a Age)

Q321 What is your age category?		Statistics		
		Frequency	Percent	Valid Percent
Age Categories	18-25	6	2.8	3.1
	26-30	13	6.0	6.6
	31-35	22	10.2	11.2
	36-40	29	13.4	14.8
	41-45	34	15.7	17.3
	46-50	28	13.0	14.3
	51-55	33	15.3	16.8
	56-60	22	10.2	11.2
	61-65	6	2.8	3.1
	66-70	2	.9	1.0
	71-75	1	.5	.5
	Total	196	90.7	100.0
Missing	*No answer*	20	9.3	
Total		216	100.0	

As can be seen, the most common age category was for people from 41-45 years of age. Note that 9 percent of the respondents did not answer this question.

Women made up a slight majority of the total number of respondents (Table 4, below).

Table 4. What is your gender? (Q32b)

Q32b What is your gender?		Statistics		
		Frequency	Percent	Valid Percent
	Female	107	49.5	53.5
	Male	93	43.1	46.5
	Total	200	92.6	100.0
Missing	*No answer*	16	7.4	
Total		216	100.0	

However, this gender percentage varies, depending upon their Job Type. See Table 5 on the following page.

The ratio of males to females varies quite a bit, depending on Job Type, as is typical. Clerical have the highest ratio of women to men (18:1); Engineers and Technical support have the highest ratio of men to women (4:1).

Table 5. Job type by gender

			Q32b What is your gender?		
Q2 Job type			**Female**	**Male**	Total
	Acct/Audit/Budget	# Respondents	15	4	19
		% within Job type	78.9%	21.1%	100.0%
	Admin/Support	# Respondents	30	6	36
		% within Job type	83.3%	16.7%	100.0%
	Clerical	# Respondents	18	1	19
		% within Job type	94.7%	5.3%	100.0%
	Engineers	# Respondents	2	8	10
		% within Job type	20.0%	80.0%	100.0%
	Manager/Suprvsr	# Respondents	15	31	46
		% within Job type	32.6%	67.4%	100.0%
	Specialists/Scientists	# Respondents	24	37	61
		% within Job type	39.3%	60.7%	100.0%
	Technical Support	# Respondents	1	4	5
		% within Job type	20.0%	80.0%	100.0%

NOTE: Some respondents wrote in the margins of the survey that they did not provide information about their jobs and work locations, and sometimes their age and gender, because they felt that providing such information would allow them to be identified. That is part of the reason for the higher numbers of 'missing' data for these variables (as shown in the tables above). This kind of finding is not unusual, and tends to be higher in situations when people are concerned about being associated with negative experiences or perceptions. Even though they were assured of anonymity, which should have allowed them to express their responses more freely, some seemed uncertain that this would be possible.

Respondent Workspaces: Location and Type

Other important information about the respondents includes the location and nature of their workspaces. It is reasonable to expect that people working in different building locations or in different types of workspaces might respond differently to their work environment.

The following tables provide information about these aspects.

Table 6 shows that there are generally somewhat more respondent workspaces on the west end of the building.

Table 6. On what floor is your workspace located? (Q3 Floor)

Q3 Workspace Floor		Statistics		
		Frequency	Percent	Valid Percent
Valid	1 West	5	2.3	2.4
	1 East	10	4.6	4.7
	2 West	34	15.7	16.1
	2 East	26	12.0	12.3
	3 West	40	18.5	19.0
	3 East	29	13.4	13.7
	4 West	44	20.4	20.9
	4 East	23	10.6	10.9
	Total	211	97.7	100.0
Missing	Did not answer	5	2.3	
Total		216	100.0	

Table 7 indicates that there are a greater number of employees located on the south side of the building.

Table 7. On what side of the building is your workspace located? (Q4)

Q4 Workspace Side		Statistics		
		Frequency	Percent	Valid Percent
Valid	North	78	36.1	39.8
	South	113	52.3	57.7
	Middle	5	2.3	2.6
	Total	196	90.7	100.0
Missing	System	20	9.3	
Total		216	100.0	

Several people reported that they worked in the middle of the building. (That was not one of the options on the survey; they simply wrote the response on the survey.)

Workspace Type

The following tables provide information about the respondents' workspace type. In all of the research conducted by Dr. Sue Weidemann, with BOSTI Associates (the most recent of which is summarized in 'Disproving Widespread Myths about Workplace Design'), one of the most powerful general factors affecting the performance and satisfaction of employees has to do with their experiences in the workspace they occupy. The data will show that employees spend most of their work time, in their workspaces. Thus the workspace becomes a critical workplace tool.

The highest percentage of respondents reported being in 'middle' cubicles. Some noted that they were in the 'middle' of a group of more than 3 cubicles. Because of the proximity of others working nearby, in an open work environment, it is also important to examine the nature of the work (working alone with focused concentration versus meeting or talking with others) that people do the most, while in their workspaces. This information will be presented in later sections.

Table 8. What type of workspace do you work in now? (Q19WStype)

Q19WStype: Your workspace type		Statistics		
		Frequency	Percent	Valid Percent
Valid	Private office (walls/ceiling)	36	16.7	17.8
	Cubicle on aisle nearest window	58	26.9	28.7
	Middle cubicle(s)	69	31.9	34.2
	Cubicle closest to interior wall	39	18.1	19.3
	Total	202	93.5	100.0
Missing	Other	12	5.6	
	No answer	2	.9	
	Total	14	6.5	
Total		216	100.0	

It is also useful to see what Lewis & Clark employee Job Types were located in which kinds of workspaces. That information is shown in Table 9, below.

Table 9. Job types (Q2) by Workspace type (Q19)

			Q19: Your workspace type				Total
Q2 Job Type			Private office (walls/ceiling)	Cubicle on aisle nearest window	Middle cubicle(s)	Cubicle closest to interior wall	
	Acct/Audit/ Budget	Count	2	7	5	6	20
		%	10.0%	35.0%	25.0%	30.0%	100.0%
	Admin/ Support	Count	1	18	10	5	34
		%	2.9%	52.9%	29.4%	14.7%	100.0%
	Clerical	Count	0	10	6	3	19
		%	.0%	52.6%	31.6%	15.8%	100.0%
	Engineers	Count	0	1	5	2	8
		%	.0%	12.5%	**62.5%**	25.0%	100.0%
	Manager/ Suprvsr	Count	30	6	5	6	47
		%	63.8%	12.8%	10.6%	12.8%	100.0%
	Specialists/ Scientists	Count	2	13	34	16	65
		%	3.1%	20.0%	**52.3%**	24.6%	100.0%
	Technical Support	Count	0	2	1	0	3
		%	.0%	66.7%	33.3%	.0%	100.0%
Total		Count	35	57	66	38	196

These four workspace types were collapsed, for later comparisons, into two workspace categories (people working in a private office or in a cubicle). Analyses for these two basic

workspace types are presented in a later section of this report (Section 4: Office-Cubicle Comparisons). That distribution of respondents is shown below, in Table 10.

Table 10. Workspaces: Private offices and cubicles (Recategorized)

Q19 Workspace is a cube or private office		Statistics		
		Frequency	Percent	Valid Percent
	Private Office	**36**	16.7	**17.1**
	Cubicle	**174**	80.6	**82.9**
	Total	210	97.2	100.0
Missing	Other	4	1.9	
	No answer	2	.9	
	Total	6	2.8	
Total		216	100.0	

It is clear that the majority of workspaces in the Lewis & Clark building, for responding employees, are cubicles (almost 83%)

Time Spent in the Lewis & Clark Building

The following tables provide information about how much time the employees spend in the Lewis & Clark State Office Building, as well as about where they worked before coming to the building.

Table 11. Average Time Spent in the Lewis & Clark Building (Q5 & Q6)

Survey Items	Job Type Groups	Count	Average Time
Q5a **Days/Wk** usually in L&C Bldg	Managers	48	4.9
	Technical	82	4.7
	Professionals	20	4.9
	Administrative	57	4.9
	Total	**207**	**4.8**
Q5b **Hours/Day** usually in L&C Bldg	Managers	48	8.3
	Technical	81	8.1
	Professionals	20	8.1
	Administrative	57	8.2
	Total	**206**	**8.2**
Q6 **Months** worked in L&C Bldg	Managers	46	22.5
	Technical	76	22.5
	Professionals	20	24.0
	Administrative	57	23.3
	Total	**199**	**22.9**

There were no statistically significant differences between the different Job Types, in terms of the average (mean) amount of time they spent in the building.

Previous Work Location

Because employees at Lewis & Clark were relatively new to the building, and because they had come from various other office locations, they were asked to report where they had worked previously and how long they had worked there. Peoples' perceptions and experiences in the Lewis & Clark Building may be influenced by this prior experience. The following tables show that information.

Table 12 shows where the respondents had worked before coming to the Lewis & Clark building. (In this table, 'Count' refers to the number of people in each category responding to the question.)

The respondents are shown by the generic Job Type categories that have been used in previous research.

Table 12. Where did you work before coming to the Lewis & Clark Building? (Q7)

		BOSTI Job Type Categories				
Q7 Location of previous work		Managers	Technical	Professionals	Administrative	Total
101 Adams St.	Count	4	7	0	2	13
	% across	30.8%	53.8%	.0%	15.4%	100.0%
	% down	*8.7%*	*9.3%*	*.0%*	*3.6%*	*6.6%*
100 E High St.	Count	0	2	0	2	4
	% across	.0%	50.0%	.0%	50.0%	100.0%
	% down	*.0%*	*2.7%*	*.0%*	*3.6%*	*2.0%*
619 E. Capitol Ave.	Count	0	0	9	0	9
	% across	.0%	.0%	100.0%	.0%	100.0%
	% down	*.0%*	*.0%*	*45.0%*	*.0%*	*4.6%*
1659 E. Elm St.	Count	20	23	2	14	59
	% across	33.9%	39.0%	3.4%	23.7%	100.0%
	% down	*43.5%*	*30.7%*	*10.0%*	*25.0%*	*29.9%*
Jefferson Bldg	Count	15	28	4	24	71
	% across	21.1%	39.4%	5.6%	33.8%	100.0%
	% down	*32.6%*	*37.3%*	*20.0%*	*42.9%*	*36.0%*
Other Locations	Count	7	15	5	14	41
	% across	17.1%	36.6%	12.2%	34.1%	100.0%
	% down	*15.2%*	*20.0%*	*25.0%*	*25.0%*	***20.8%***
Total	Count	46	75	20	56	197
	% across	23.4%	38.1%	10.2%	28.4%	100.0%
	% down	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*

Note that 20% of the employees came from locations other than in Jefferson City.

Table 13 shows how long the different types of respondents had worked in their previous location, prior to coming to the Lewis & Clark building.

Table 13. How long did you work in that (previous) location? (Q8)

Job Types	# Responding	Average # of Months
Managers	43	**75.0**
Technical	73	**68.3**
Professionals	20	**70.5**
Administrative	52	**74.2**
Total	188	71.7

There were no statistically significant differences among the Job Type Groups, in terms of how long they had worked in their previous location.

Commuting to the Lewis & Clark Building

Several questions on the employee survey asked for information about commuting to work, and getting to the building.

Commute Time

Table 14. How long is your current home-to-office commute, ONE WAY, in minutes? (Q9a)

Job Types	# Responding	Mean # of Minutes
Managers	47	**26.2**
Technical	76	**23.5**
Professionals	20	**25.0**
Administrative	57	**24.6**
Total	200	**24.6**

Again, there were no statistically significant differences among the Job Types. They averaged a one-way commute time of almost 25 minutes. (Note: It is not clear whether the respondents included the time they spent waiting for, and using the shuttle, in this time. This question should have been more explicit.)

Commute Mode

Although it was expected that most people would be coming to work by car, one of the questions specifically asked about various modes of commute. Table 15, below, shows those responses. (In this table, 'Count' refers to the number of people in each category responding to the question.)

Table 15. What mode of commute do you use most frequently? (Q9b)

Q9b Usual commute mode			Managers	Technical	Professionals	Administrative	Total
	Car	Count	36	70	18	42	166
		% across	21.7%	42.2%	10.8%	25.3%	100.0%
	Carpool	Count	9	9	2	13	33
		% across	27.3%	27.3%	6.1%	39.4%	100.0%
	Walk	Count	1	1	0	0	2
		% across	50.0%	50.0%	.0%	.0%	100.0%
	Other	Count	1	0	0	1	2
		% across	50.0%	.0%	.0%	50.0%	100.0%
Total		Count	47	80	20	56	203
		% across	23.2%	39.4%	9.9%	27.6%	100.0%

It is clear, and not surprising, that the most predominant mode of travel to work is by car.

Shuttle Bus Wait

People were also asked how long they usually waited for the shuttle bus, if they parked in the remote parking lot. Table 16 below provides the average number of 'wait' minutes reported by each Job Type, as well as for the total sample.

Table 16. If you park in the remote parking lot, about how many minutes do you usually wait until the shuttle arrives? (Q10)

Job Type Groups	# Responding	**Average # of minutes waiting**
Managers	28	6.8
Technical	54	7.5
Professionals	15	6.1
Administrative	29	6.5
Total	126	**6.9**

As a total group, respondents reported that they waited an average of almost 7 minutes for the shuttle bus. (That is almost a third of their one-way commute time, which may account for some of the expressed dissatisfaction with their wait for the shuttle.)

Conclusion

It is clear, from the high response rate for the employee survey (65%) and from the information obtained about the respondents, that the responses of these employees can be considered to be generally representative of the employee population. Such representation allows more valid inferences about the results of further analyses. Furthermore, there are sufficient sample sizes, for different types of employee groups, to allow statistical analyses to be appropriately completed.

The following major section (Section 3: Job Type Comparisons) will focus specifically on how these different Job Type groups use, perceive, and experience the workplace environment.

3. Job Type Comparisons: Workplace Responses

The results presented in this section of the report will be for four generic Job Types: Managers, Technical, Professional, and Administrative personnel. The seven job type categories (see Table 2) found in the Lewis & Clark population were collapsed into these four groups. Table 17 shows this breakdown, by reporting the number of people in each category. One of the values of condensing these specific job types into the generic job types is that it allows more reliable analyses, because the analysis groups are larger. Also, the results based on the more generic labels are more easily generalized, across different organizations. Also, the work activities of the specific job types which are in the same generic job type have been found to be similar, while there are typically differences found between job types.

Table 17. Breakdown of Lewis & Clark Job Type Categories into the Four Generic Job Type Categories

	Generic Job Type Categories (BOSTI Associates)				Total
Q2 Job type	Managers	Technical	Professionals	Administrative	
Acct/Audit/Budget	0	0	**20**	0	20
Admin/Support	0	0	0	**36**	36
Clerical	0	0	0	**21**	21
Engineers	0	**10**	0	0	10
Manager/Supervisor	**48**	0	0	0	48
Specialists/Scientists	0	**67**	0	0	67
Technical Support	0	**5**	0	0	5
Total	**48**	**82**	**20**	**57**	207

Activities in the Workplace: Amount of Time Doing Them

Previous workplace research, by Sue Weidemann and the BOSTI Associates, has shown that these generic Job Types spend their work time in similar kinds of tasks (e.g. talking on the phone, working alone in their workspace, etc.) However the percent of time they spend doing each task may vary somewhat. The following charts show, for each Job Type, the responses to the question which asked 'What percent of your time, on average, is spent on the following work activities?"

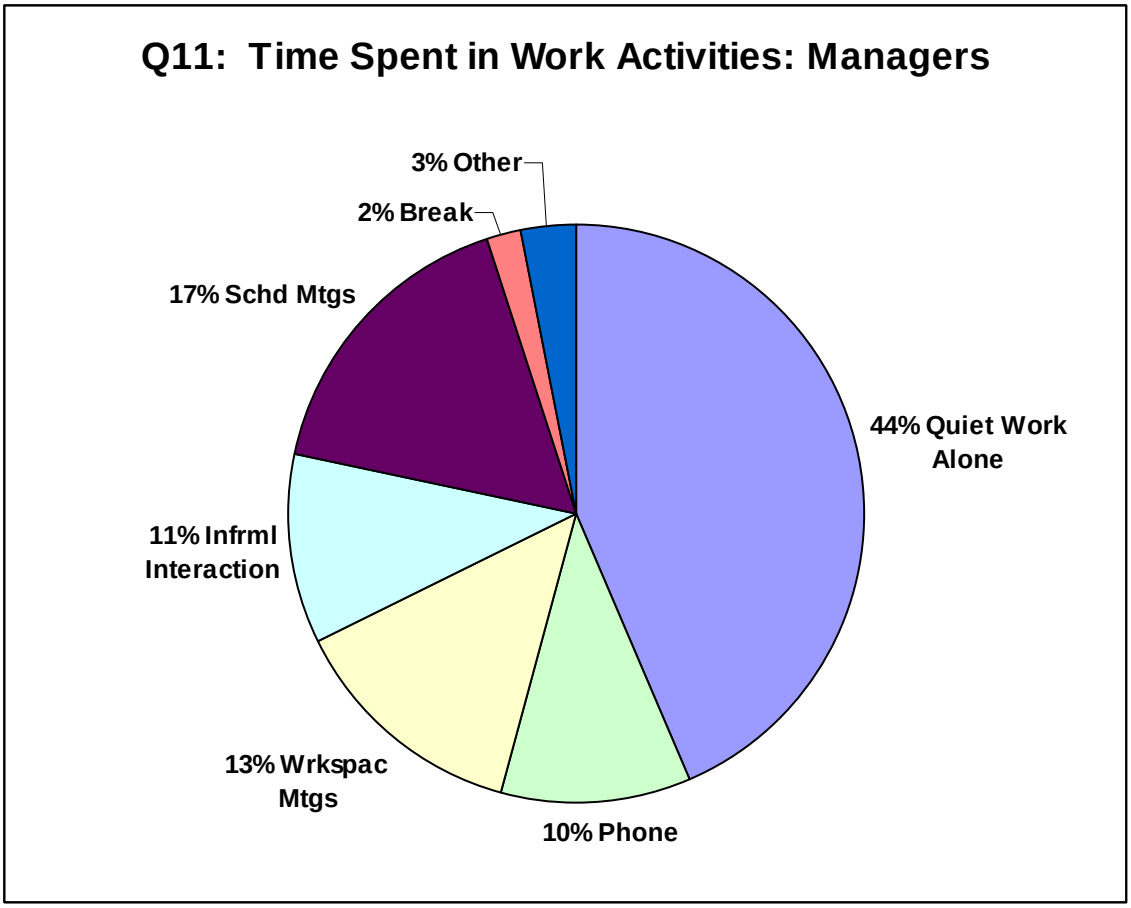
Note: In the following charts, several of the work activities in Question 11 of the survey were collapsed into a single category. Specifically, meetings with 1 other, and with 2 or more others in the workspace became '**Workspace Meetings'**; time reviewing large documents, and time doing other activities became "Other", and time going to someone else's workspace to chat, etc. and time spent In impromptu meetings NOT in any workspace became "**Informal Interactions**".

Analysis of variance comparisons showed that there were statistically significant differences among the different Job Types for: the amount of time spent on '**Quiet Work Alone** in Workspace', the amount of time on the '**Phone**' in the workspace; for the time spent in

'**Workspace Meetings'**, and for the time spent in '**Scheduled Meetings'**. So it is clear that these Job Types will have differing levels of need for support of these activities. Environmental support for the activities that people have to do the most often is critical. Lack of support for that work can impact work outcomes, like job satisfaction and performance.

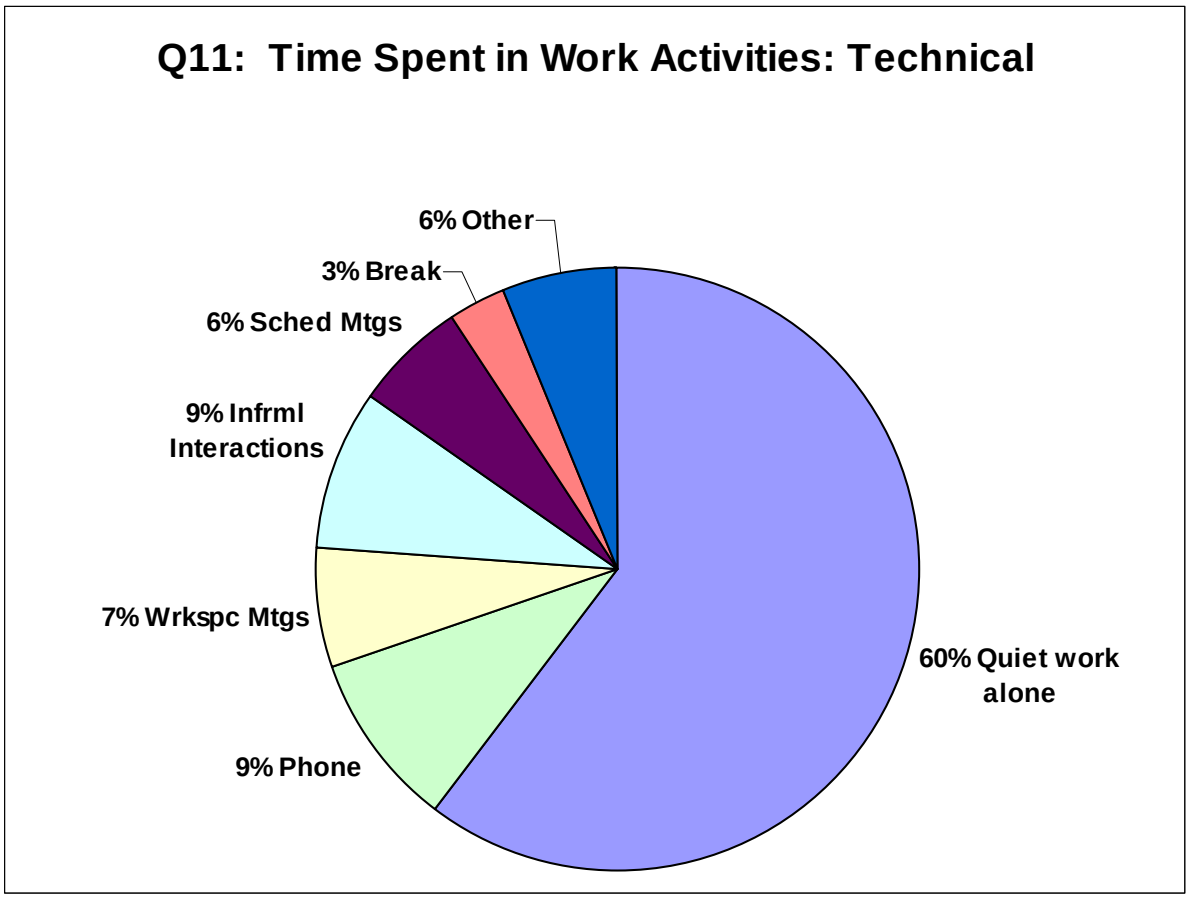
The following figures illustrate the percent of time that respondents reported spending on each work activity, for the different Job Types.

Figure 1. Managers



While much of a manager's time is spent doing quiet work, alone in their workspace (44%), it is still less than any of the other three Job Types. In contrast, they do spend more time than any of the other Job Types in scheduled meetings and meetings in their workspace (30% combined).

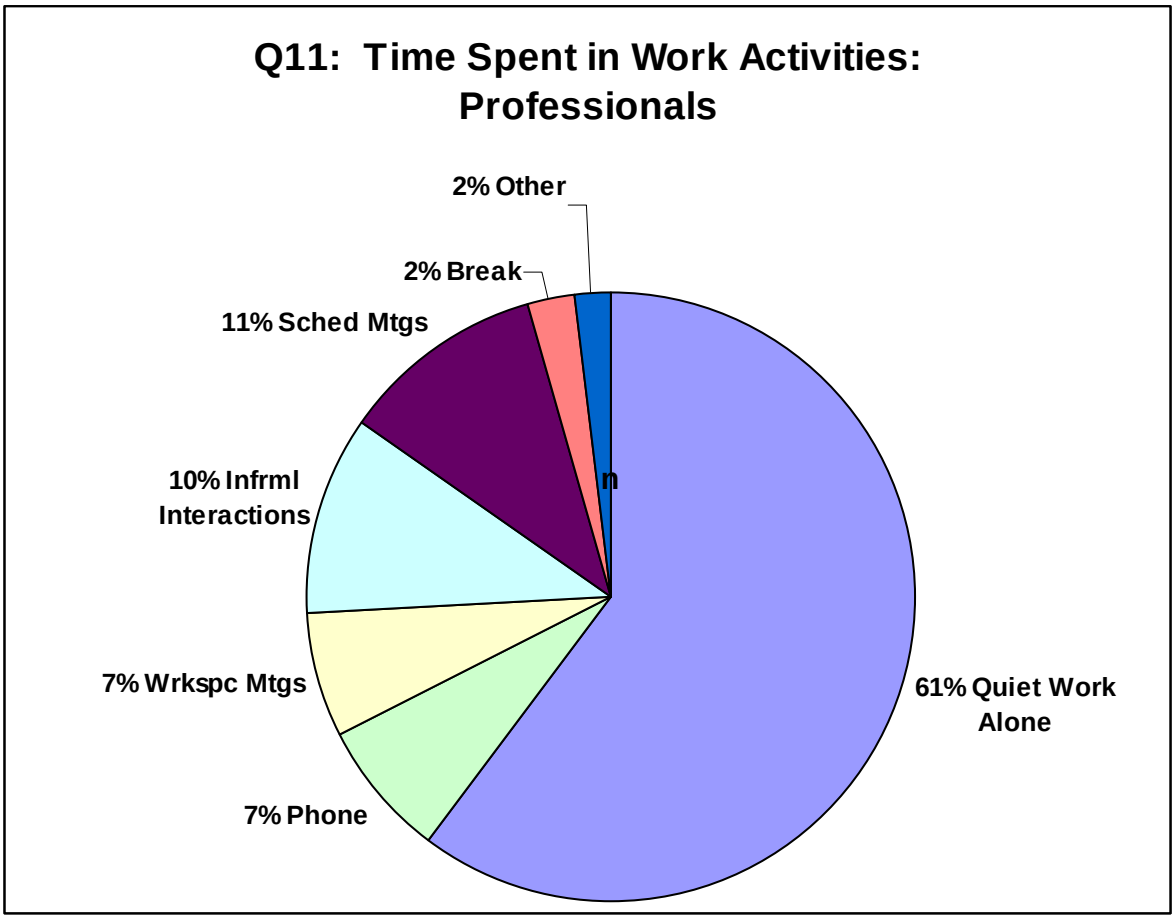
Figure 2. Technical (Engineers, Specialists/Scientists, Technical Support)



Technical people (Engineers, Specialists, Scientists, Tech Support) spend most of their time doing quiet work (reading, writing reports, etc.) in their workspace (60%).

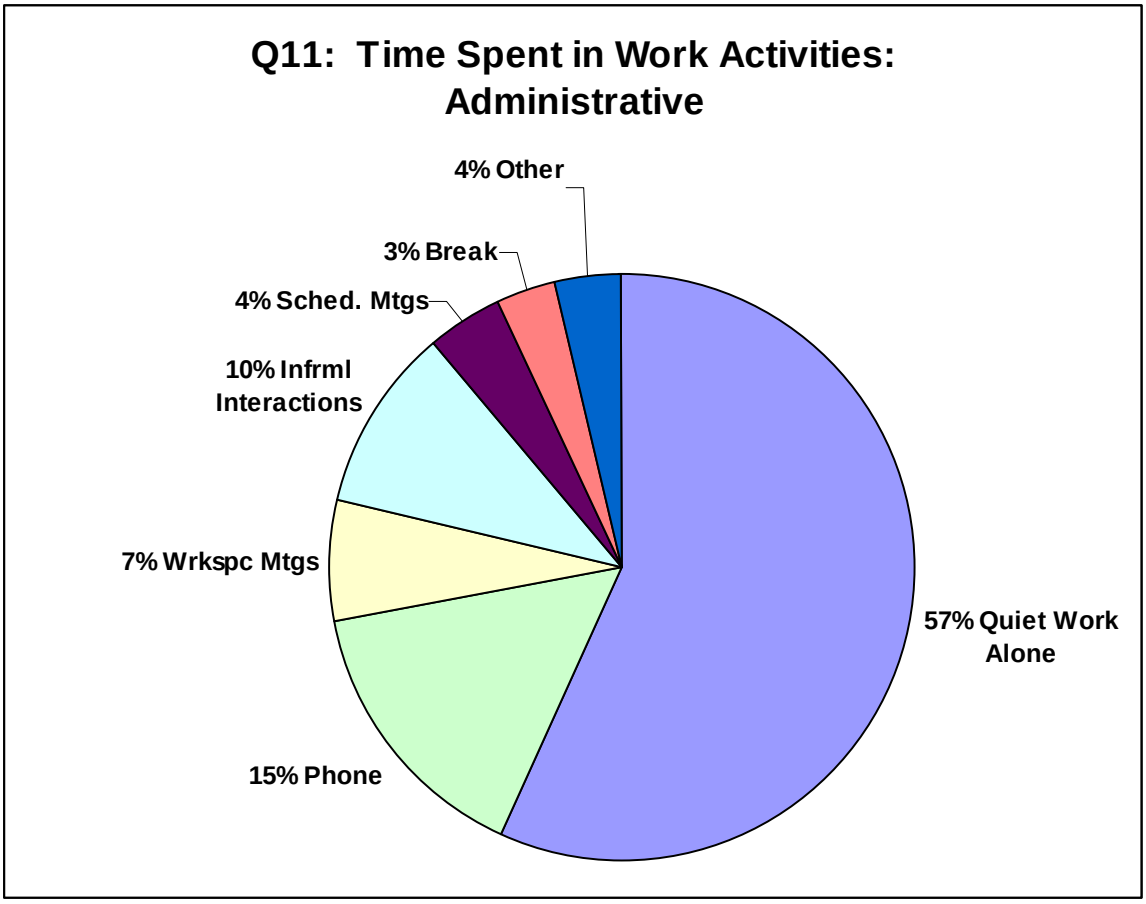
They, along with Administrative personnel, spend less time in scheduled, and in workspace meetings (13% and 11%, respectively) than the other Job Types.

Figure 3. Professionals



Professionals (Accounting, Audit, and Budget) spend the most time doing quiet work, alone, in their workspace (61%) and the second-most amount of time in scheduled and workspace meetings (18%). They spend the least amount of time on the phone (7%), in comparison to the other Job Types.

Figure 4. Administration



Administrative people, not surprisingly, spend more time on the telephone (15%) than the other three Job Types. They also spend the most of their time doing quiet, solo work (57%). They spend only 11% of their time in scheduled meetings and in workspace meetings, fewest of any of the four job types.

General Comments

When compared to the other job types, managers spend less time, on average, in doing 'Quiet work…using computers, reading, writing, working alone in their workspace' than the other groups. This is not surprising; managers need to interact with others, as part of their function. However, it is important to note that they report that they spend almost half (44%) of their time in quiet, focused, concentration. Furthermore, it is typical that managers report a need for a private office in order to handle various activities related to supervision, including working on confidential files.

In terms of other workspace related activities, the charts show that Technical personnel (Engineer/Specialists/ Scientists/Tech Support) and Professionals spend the <u>least</u> amount of time in noise-generating activities (phone, workspace meetings) in the workspace, and the greatest amount of quiet work, alone. They should receive environmental support for that necessary focused concentration.

Most of the remainder of this section will present responses about the workplace for these four job type groups. Results are presented in terms of the percentage of respondents who responded positively. For example, if a 5 point scale were used to evaluate satisfaction with an item, the two positive responses on the scale were summed together. (Note: The percentages of those actively negative, and those who were neutral, are not shown; they would be the remaining percent of responses for each item.)

Additionally, items, for which there are statistically significant differences among the Job Type groups, will be identified by double asterisks next to that item, in each figure. (Analysis of Variance was used to determine significance of group differences. The level of significance used was p= .05 or less, meaning that the chance of such a result being due to chance, rather than being a real difference, is 5 or fewer times out of 100 such tests for those variables. This is the generally accepted level of statistical significance.)

Importance and Support for Work Activities (Q12)

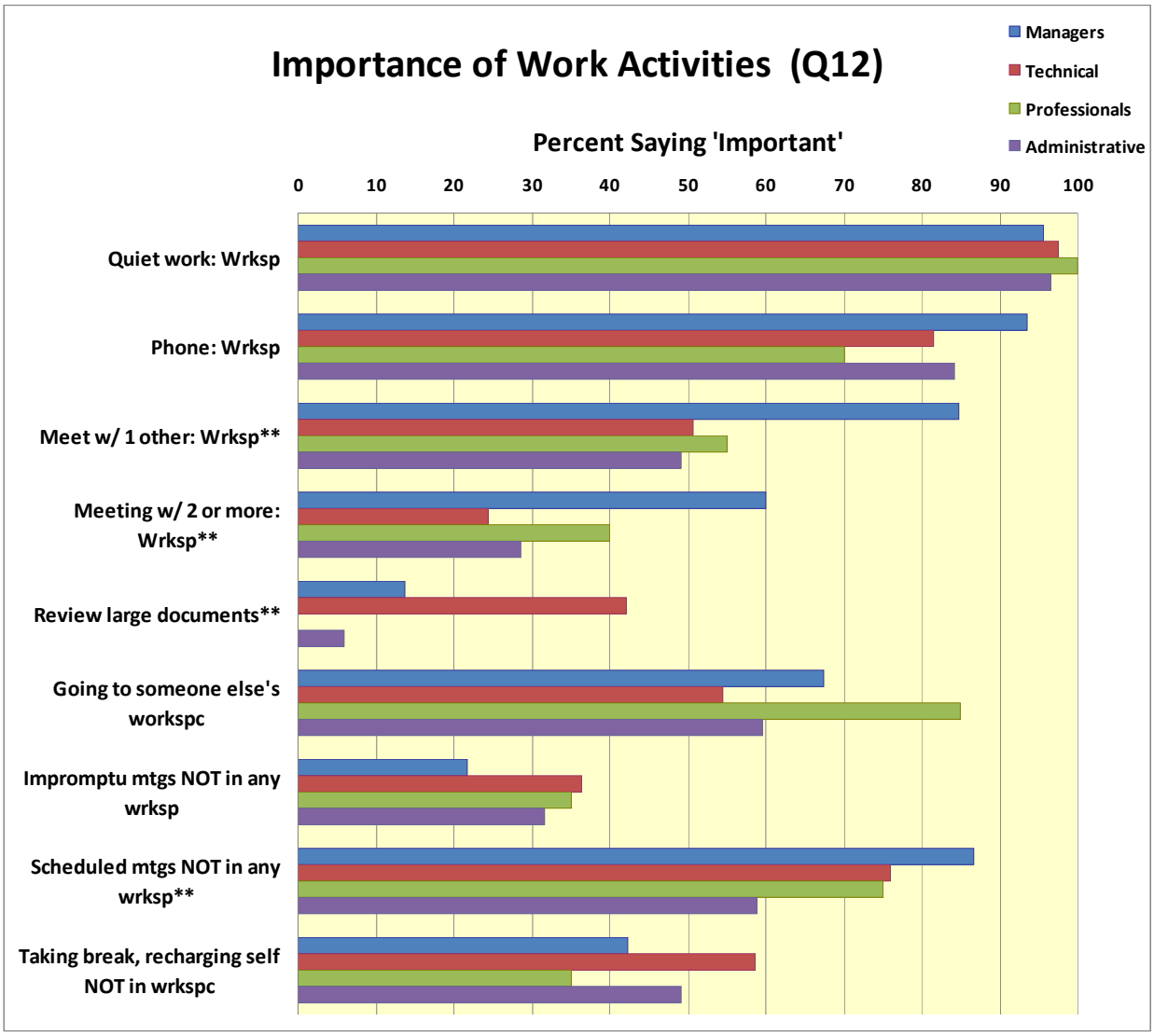
The next two figures (Figures 5 and 6) will show how the respondents felt in terms of the importance of these work activities (for them to do their job well), and how well or poorly they felt the work environment supported those work activities. Clearly, the work environment should also support the activities that employees feel are most important to them, in order to do their job well.

Figure 5 shows the percentage of respondents who felt that the work activities were 'Important' or 'Very Important' (these two most positive response categories were combined for reporting results in the charts).

While there were many significant differences among Job Types for the amount of time spent doing various work activities, that finding was less so for their evaluation of the importance of the activity. As seen above, there is very high, and similar, agreement about the importance of being able to do quiet work, alone, in their workspace. That is also true for the importance of using the telephone.

It is clear, and understandable, that managers feel it is important to be able to meet with others in their workspace, more so than the other Job Types. They also report greater importance for having scheduled meetings. See Figure 5 below.

Figure 5. Importance of work activities (Q12)

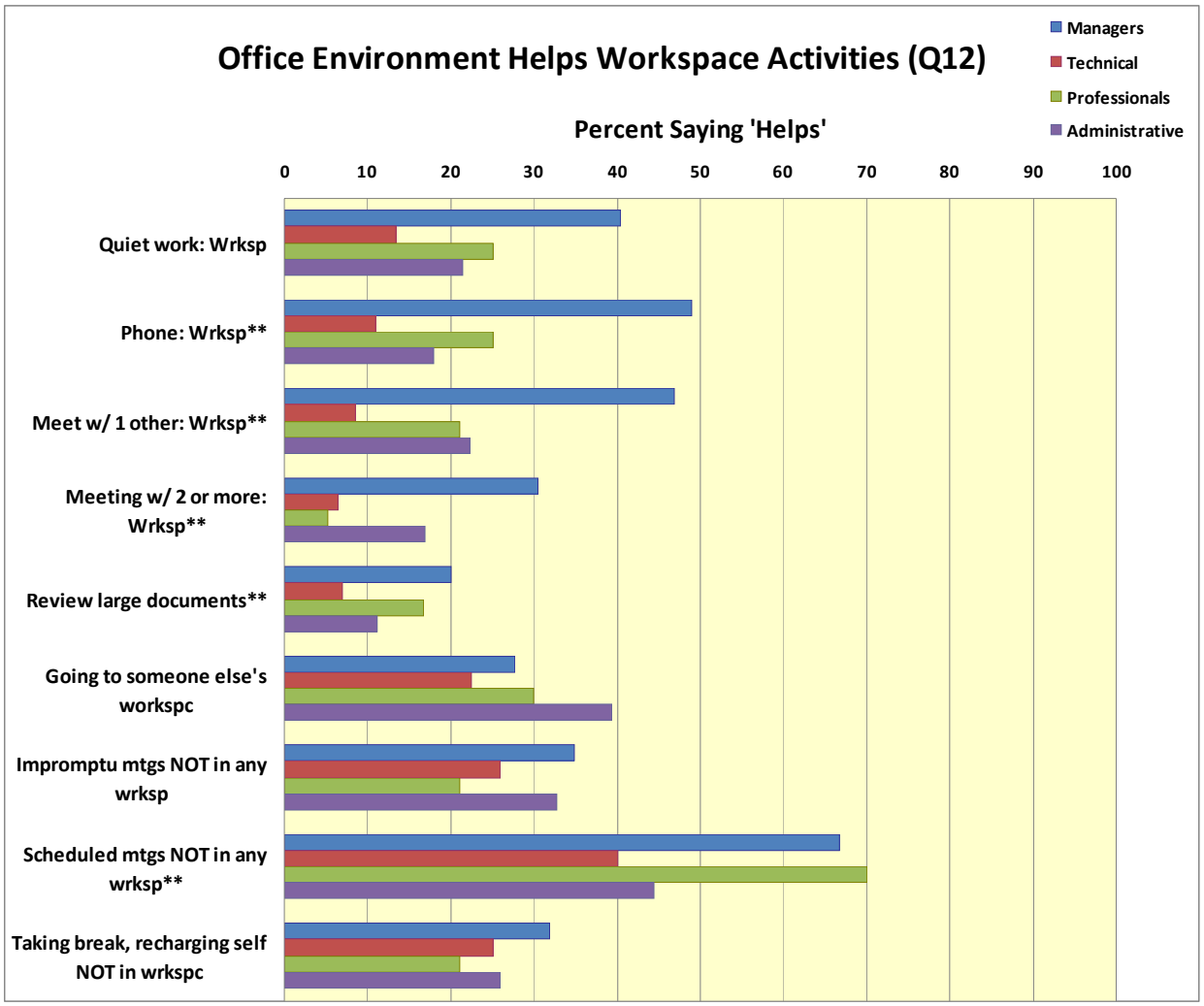


**Activities with statistically significant differences among the Job Types are shown with two asterisks.

These findings for Figure 5 are rather obvious results. However, the critical analysis is to examine how they felt about whether or not the office environment supported the work that they need to do. That is shown in the following chart, Figure 6, which shows the percentage of respondents who felt that the office environment 'Helps' that work activity. ('Helps' is the combination of the two most positive responses, also).

It can be seen in Figure 6 that people are not nearly so positive about the support for their work by the office environment. In fact, less than 50% of the people feel that there is helpful support for all activities; the only exception is for support for scheduled meetings NOT in their workspace. Indeed, the most important activities, and the ones most often done (quiet work alone, telephone use in the workspace) are felt to be poorly supported. The only exception is for Managers, most of whom have a private office. (The analysis comparing responses of

Figure 6. How well does the work environment support work activities? (Q12)



**Items with statistically significant differences among the Job Types are shown with two asterisks

those in offices vs. cubicles is in Section 4, which will provide results for the full sample of respondents, as well as for Managers only. This latter analysis will show a clearer impact of workspace type, because it is dealing with only one Job Type)

Concentration, Disruptions, and Recovery

This need for being able to do quiet work, etc. must also be considered in light of the number of distractions and interruptions that people may have during the day. Table 7, below, provides the average number of disruptions that the different Job Types reported experiencing in a typical day. Also in the table is the reported average number of minutes they said it took them to recover (back to original concentration levels) after those disruptions. (Note: A number of people simply said 'all day', or 'too many to count', or 'hundreds'. Those people were given the score for the reasonable high number shown in the distribution of other responses. Thus, these results may be seen as a somewhat conservative estimate of reported 'time lost'.

Table 7. Noise, interruptions, and time to recover (Q13 & Q14)

		Respondents	Average Times
Q13a **Times/Day**: **Noise disruptions**	Managers	45	8.5
	Technical	80	12.1
	Professionals	20	7.2
	Administrative	54	9.6
	Total Sample	199	**10.1**
Q13b **Times/Day: People drop in my workspace**	Managers	45	3.8
	Technical	80	3.5
	Professionals	20	3.9
	Administrative	54	4.5
	Total Sample	199	**3.9**
Q13c **Times/Day**: **People drop in, talk to OTHERS** **	Managers	43	3.3
(*Stat. Signif. Difference among groups)*	Technical	80	5.8
	Professionals	20	3.1
	Administrative	54	4.7
	Total Sample	197	**4.7**
Total # of Reported Interruptions (Average of Q13a+b+c)	Managers	46	15.1
	Technical	81	21.2
	Professionals	20	14.2
	Administrative	55	18.4
	Total Sample	202	**18.4**
Q14 **Average # of minutes to return to pre-distraction concentration**	Managers	46	3.6
	Technical	78	4.3
	Professionals	20	3.7
	Administrative	54	3.8
	Total Sample	198	**3.9**

**Items with statistically significant differences among the Job Types are shown with two asterisks

The results above show clearly why noise and interruptions from others can be so costly. For example, the total sample averages18.4 interruptions/day due to noise, and other people dropping in, and it takes them an average of 3.9 minutes to return to concentrated focus. That means there is, on average, **almost 72 minutes per day** when they are unable to perform their work, and may also feel stressed about it (as the open-ended comments showed).

While people may not be fully accurate about the actual numbers of disruptions or the time it takes them to recover, this is still an important set of information. Perceptions may sometimes be more powerful than reality, in terms of affecting job satisfaction or performance. However, these results are also fairly typical of the Weidemann/BOSTI Associates' findings in other work environments, particularly those where the majority of people are in open workspaces.

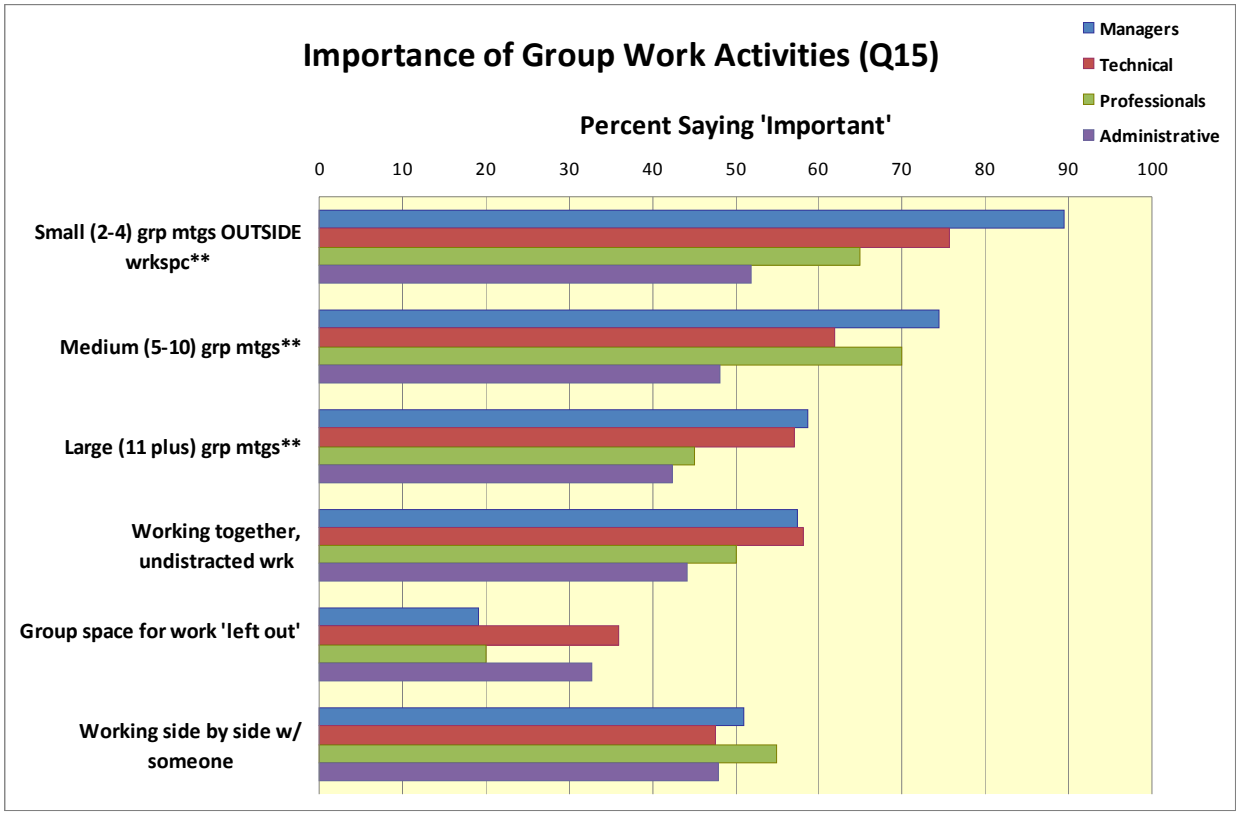
The next set of results shows evaluations of the work environment in terms of meetings and interactions. Again, the importance of the activity will be shown, followed by their evaluation of the degree of support that the office environment provides for that activity.

Evaluating the Environment for Meetings and Interactions

Group Work Activities (Q15)

The next two figures show the importance and office environment support for work activities that have to do with meeting or interacting with others. Again, the comparisons among the four major Job Types (Managers, Technical, Professional, and Administrative) are shown.

Figure 7. Importance of various group work activities (Q15)



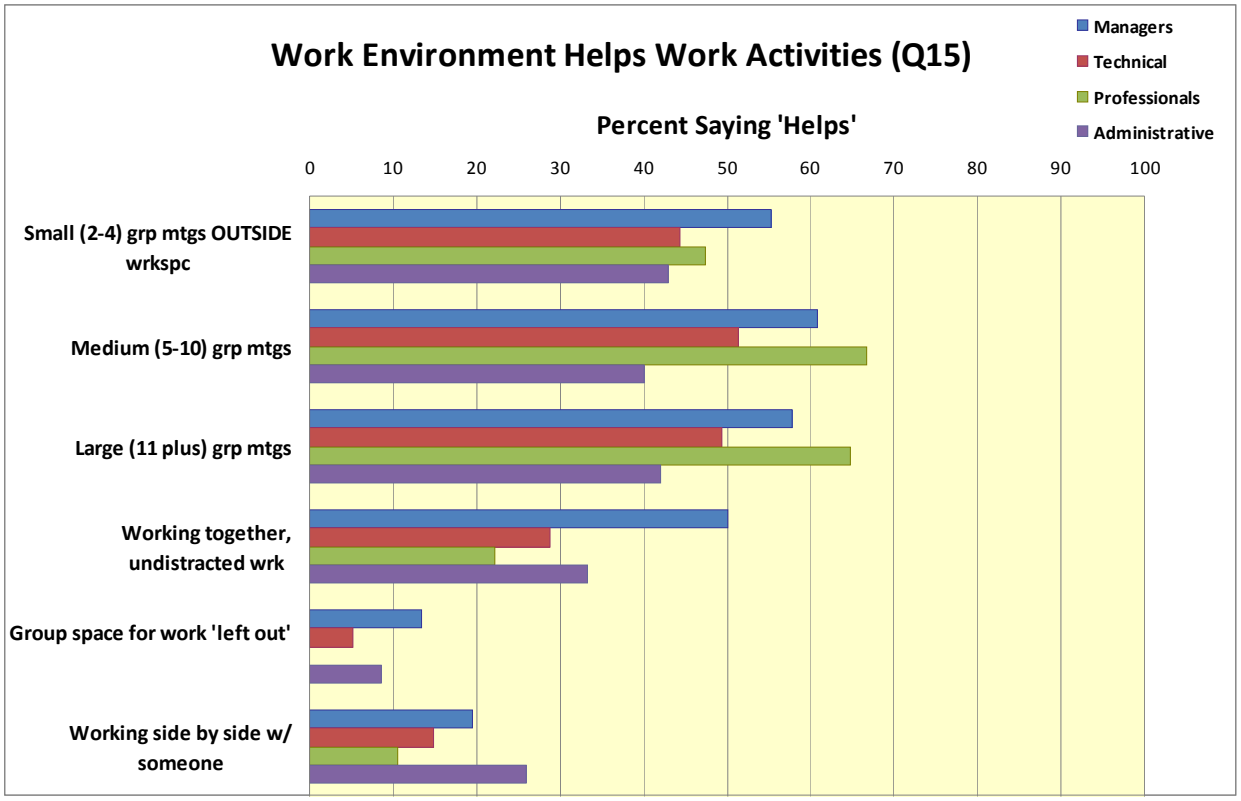
**Items with statistically significant differences among the Job Types are shown with two asterisks

Typically, Managers have a greater need for meetings than other groups. However, most all of the groups have more than 50% saying that they are important. However, the level of importance for these group activities is somewhat lower than the individual work activities reported in question 12 in Figure 5, above.

Figure 8, below, shows the level of support provided for these activities. In this figure, it is clear that most respondents feel there generally is stronger office environment support for group activities than they did for the Q12 individual work activities, shown earlier in Figure 6. Also, there were no statistically significant differences among the Job Types in terms of

support for group work activities (in Figure 8, below), even though some of the differences appear to be large.
Note, for example, that about 50% of the people felt that it was important to be able to work side by side with someone (Figure 7 above), fewer than 25% felt that this activity was well supported. Again, this is very likely due to the majority of people being in cubicles. (The open-ended responses did also reveal that a number of people in cubicles were hesitant to use their speakerphones or to do other things that might disturb their cubicle-mates.)

Figure 8. How well does the work environment help work activities? (Q15)



**Activities with statistically significant differences among the Job Types are shown with two asterisks; no significant differences among the groups were found for these items.

The above figures and tables have referenced noise and distractions that can be problems for doing one's work. One of those potential sources of distraction is examined next.

Speakerphone Use

Following the section in the survey dealing with group interactions (Question 15) there were several questions asking about speakerphone use. This issue has been important in previous work because it can be an important contributor to noise and distractions for people (discussed above). Table 18 below shows these results. (Note: One item, Q16a, asked how many times a week they used their speakerphone. Because of a typographical mistake, the response shown was 'times/month'. Thus those results are not reported.)

It is clear that the managers (at least 56% of them) are the only ones who use it as much as they want to. Also, more than half of the managers are in offices as opposed to cubicles. In

contrast, the majority of people in the other three groups reported they 'had one, but didn't use it'. Open ended responses to that item indicated that the overwhelming reasons for that were the problem of noise that could distract others, as well as the lack of privacy for themselves. These people are primarily located in cubicles.

The following table presents results for speakerphone use.

Table 18. How much do you use your speakerphone? (Q16b)

		BOSTI Job Type Categories				
		Managers	**Technical**	**Professionals**	**Administrative**	Total
Less than I'd like to	Count	1	4	0	0	5
	% by Job Type	2.1%	5.3%	.0%	.0%	2.5%
As much as I want to	Count	27	5	4	4	40
	% by Job Type	**56.3%**	6.6%	20.0%	7.4%	20.2%
More than I want to	Count	6	8	1	1	16
	% by Job Type	12.5%	10.5%	5.0%	1.9%	8.1%
Have one, but don't use it	Count	12	45	12	33	102
	% by Job Type	25.0%	**59.2%**	**60.0%**	**61.1%**	51.5%
Don't have one	Count	2	14	3	16	35
	% by Job Type	4.2%	18.4%	15.0%	29.6%	17.7%
Total	Count	48	76	20	54	198
% by Job Type		100.0%	100.0%	100.0%	100.0%	100.0%

Other forms of interactions

Question 17 in the employee survey asked about a number of different types of formal and informal interactions. Those results appear Figure 9, below, which shows the percent of respondents, in each Job Type, who said that they 'agreed' with the statements.

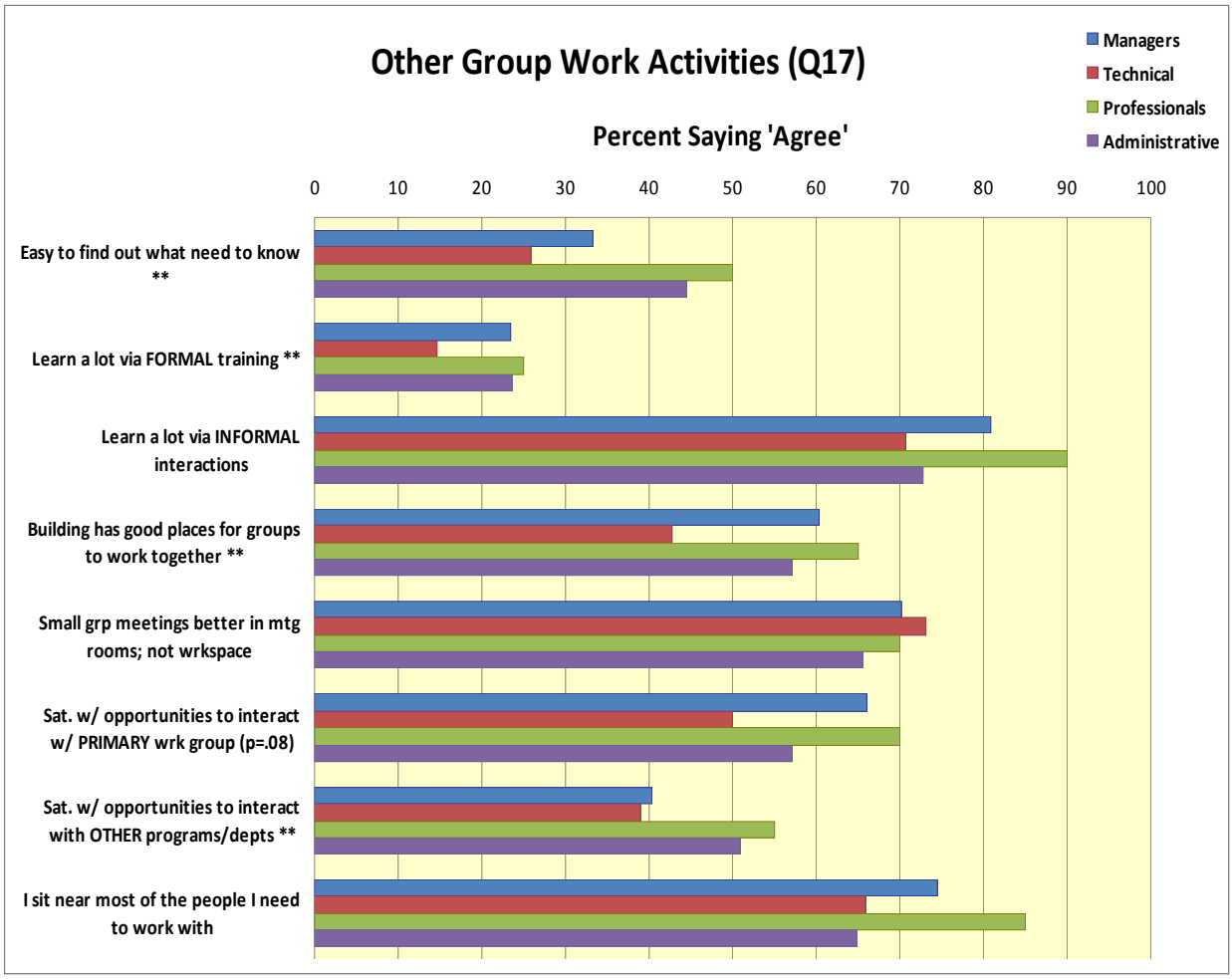
Where there were significant differences among the Job Type groups, the items are marked with a double asterisk. There is one item for which the level of statistical significance only approached the generally acceptable level of .05 or smaller. It is noted with a p value of .08.

An examination Figure 9 shows that the Professionals were generally the most positive group, in terms of their evaluations. The Technical personnel were generally the least positive. This might have to do with the nature of the work they need to do, and the fact that

many of the Technical people are in 'middle' cubicles (53%, the most of any Job Type, are in the middle, in contrast to only 25% of Professionals being in middle cubicles)

One of the findings that is in strong agreement with all previous research done by Sue Weidemann & BOSTI Associates is that concerning the value of informal learning versus formal training. Feeling that they learned a lot through informal interactions was held by over 70% of all the respondents. In contrast, less than 25% felt they learned a lot via formal training. And the Technical people (Engineers/Scientists/Specialists/ Technical Support) felt it was less effective than the other three groups. This finding shows the importance of a work environment that supports informal interactions. And the Lewis & Clark building, with its interior and exterior public spaces (for food/interaction, etc.) should support that.

Figure 9. Evaluations of other group work activities (Q17)



**Items with statistically significant differences among the Job Types are shown with two asterisks

Note: A common myth about learning through informal interaction is that it occurs best in open office plans (cubes). The research done by Sue Weidemann and BOSTI Associates has previously shown that not to be true. This will be examined in the Section 4 of the report (Office & Cubicle Comparisons). We have generally found that being in the 'open' decreases certain types of communication (perhaps for lack of privacy, as well as for fear of disturbing others).

While most of the prior results dealt with the work environment more generally, the following material describes various types of information about the respondents' own workspaces.

Your Workspace

There were a number of questions asking very specific information about the number and types of equipment that individuals had in their workspace (Q23), as well as about the access to natural daylight and views (Q22). There was little variation in these responses, and they were primarily related to whether or not the respondent was in an office or cube. They are not reported here. However, Q21 asked about the amount of 'paper stuff' they had stored in their workspace. That is reported below. Although it looks as if there are differences among the different Job Types, they are not statistically significant. However, fitting the same amount of material in different workspace sizes will affect perceptions about the problems of space and storage in the workspace.

Table 19. Number of feet of all paper stuff now in your workspace (Q21a)

Job Types	Respondents	Ave. # Feet
Managers	47	**15.8**
Technical	81	**16.1**
Professionals	20	**12.5**
Administrative	55	**12.0**
Total	203	**14.6**

The next section focuses in more detail on evaluating various other types of workspace features.

Evaluating Your Workspace

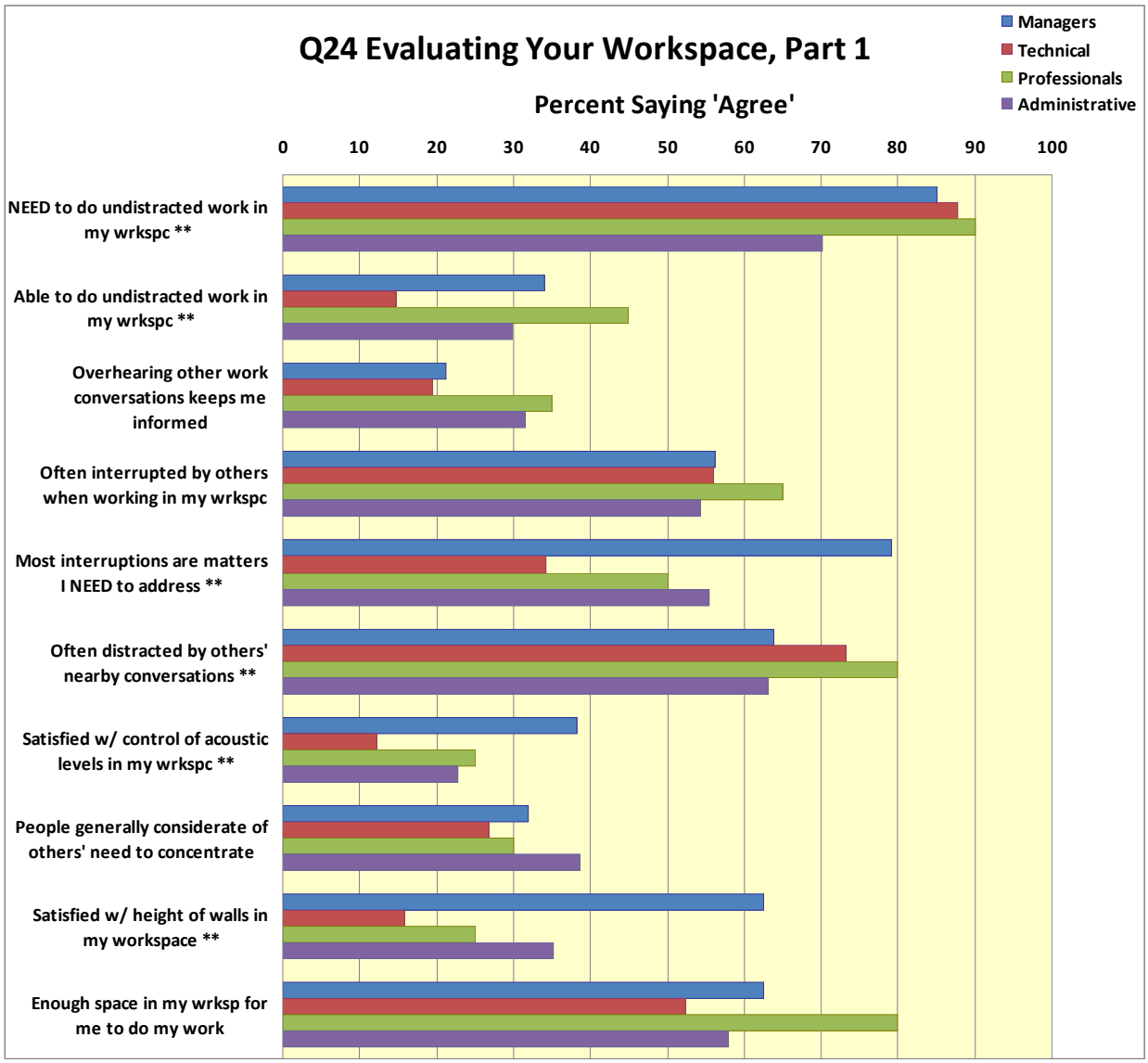
Question 24 asked employees to provide information about many aspects of their workspace, as well as about their experiences in that workspace. Because there are too many questions to fit into one graph, or one page, the items for this survey question have been put into 3 separate figures. See the following Figures 10, 11, and 12 for the Job Type Comparisons for these items.

Distractions, Interruptions, Acoustics, Workspace Features

Figure 10 shows that many issues had significantly different responses among the Job Types. Part of the reason for this has to do with the differences among the Job Types in terms of the most frequently done work activities discussed very early in this section of results. And part of it has to do with the type of workspace they are in (cubicle vs. office).

Again, the issue of needing to do undistracted work in their workspace and actually being able to do it appears. Being often distracted by others' nearby conversations happens for over 60% of all employees. However, Managers, more than any others, realize that most interruptions are about matters they need to address.

Figure 10. Evaluating your workspace (Q24, Part 1)



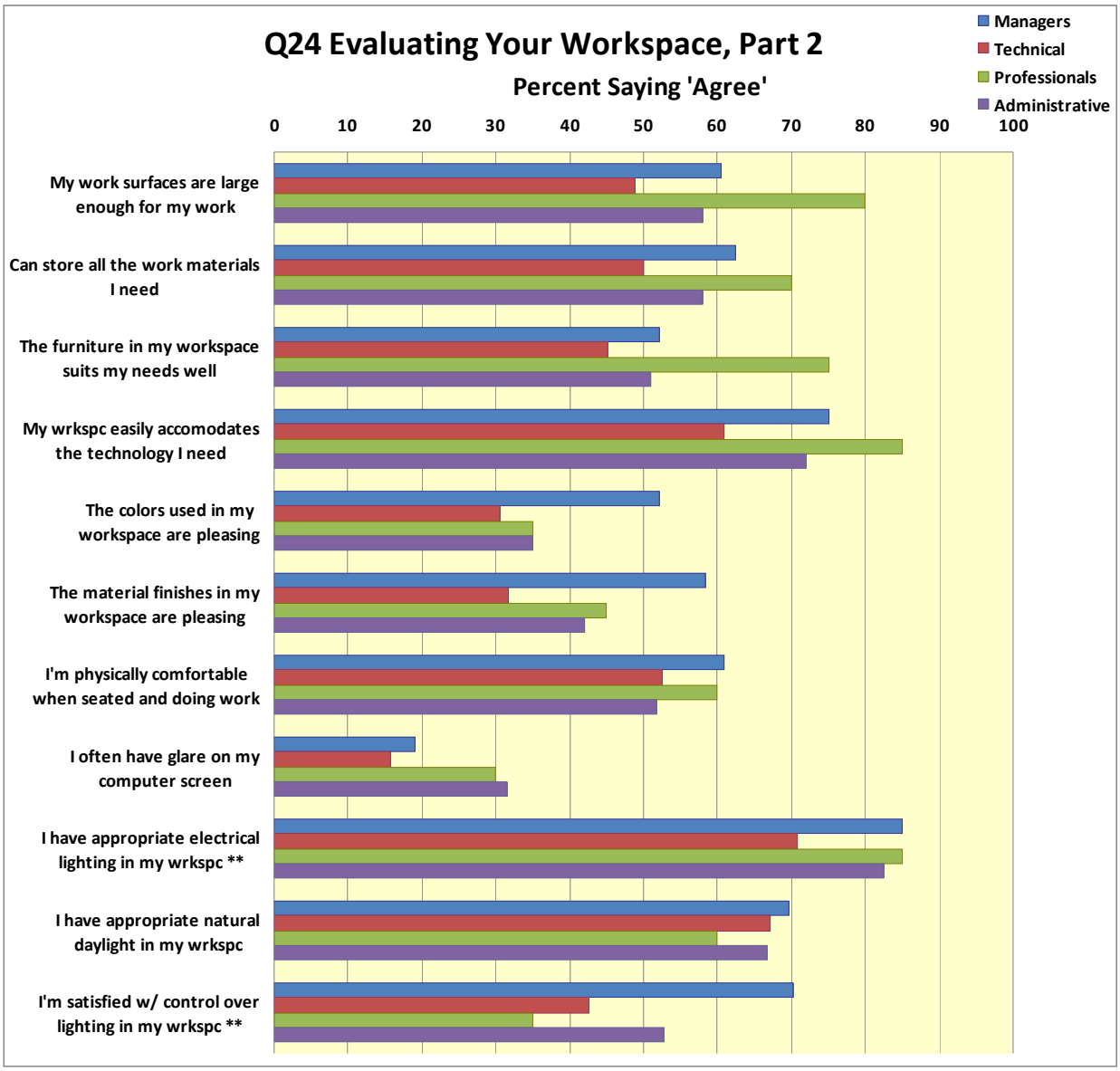
**Items with statistically significant differences among the Job Types are shown with two asterisks

Additionally, Figure 10 illustrates that there were low levels of agreement about satisfaction with their control over acoustic levels, the usefulness of overhearing others' conversations, and feeling that people were generally considerate of others' need to concentrate. This is all part of the more general issue of distractions and interruptions, which in turn, affect the employees' ability to concentrate.

Storage, Workspace Features, Comfort, and Lighting

The second set of items in Q24 is shown below, in Figure 11. Lighting issues were the only ones in which there were statistically significant differences among the Job Types.

Figure 11. Evaluating your workspace (Q24, Part 2)



**Items with statistically significant differences among the Job Types are shown with two asterisks

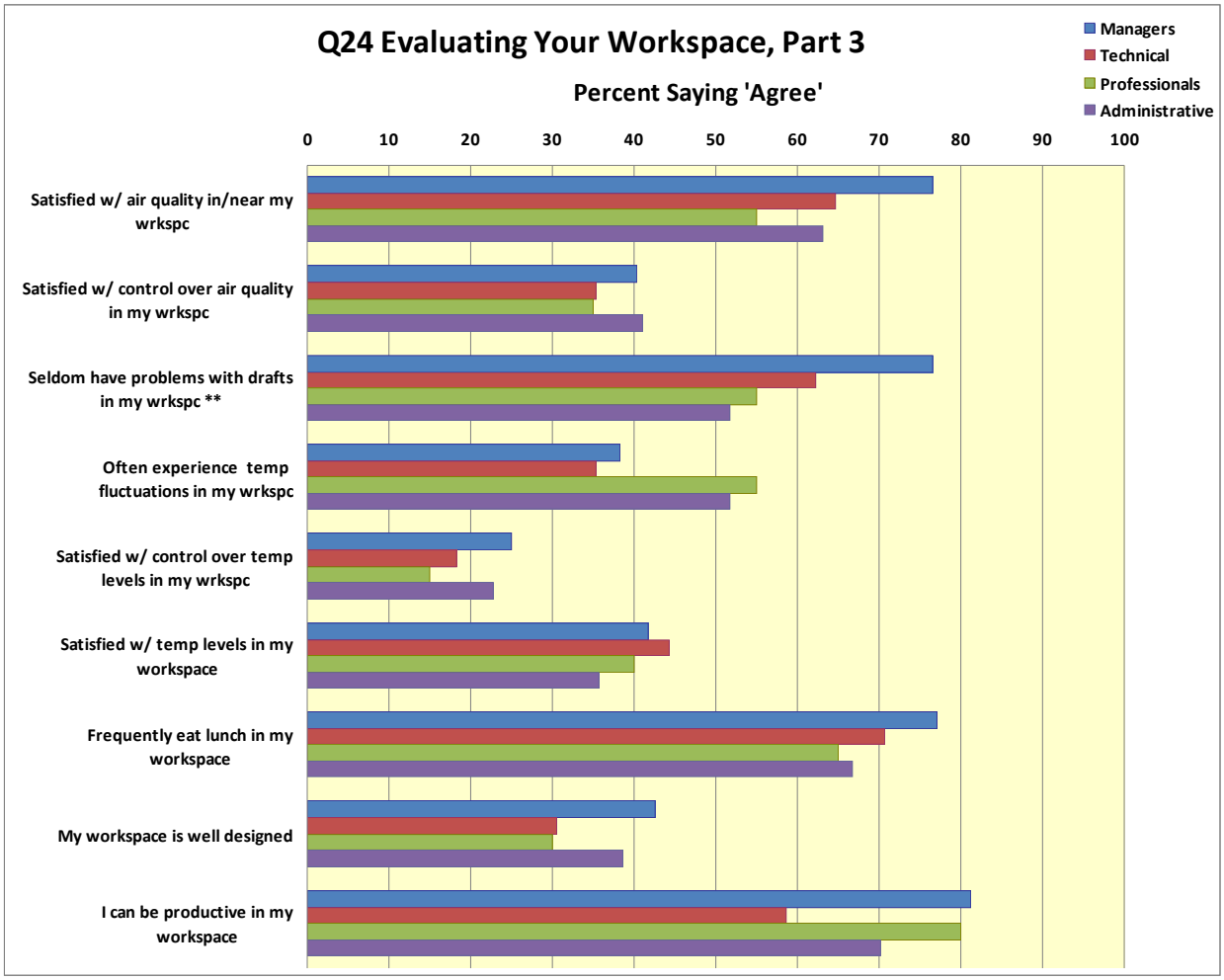
There did seem to be a general trend where the Technical personnel were less positive. It should be noted that over 50% of the Engineers and Specialist/Scientists, within that group, were in the 'middle' cubicles (see Table 9). Generally, however, most of these workspace characteristics were evaluated positively by over 50% of the employees.

Air Quality, Drafts, Temperature

Figure 12, below (part 3 of Q24) provides further information about how the employees responded to their workspace. They were most positive about the air quality and the absence of drafts in their workspaces. However, they were least satisfied with the degree of control over the temperature levels in their workspaces, although they were relatively satisfied with the actual temperature levels.

And, in spite of lack of high levels of satisfaction with some workspace features, most felt they could be productive in their workspace.

Figure 12. Evaluating Your Workspace (Q24, Part 3)



**Items with statistically significant differences among the Job Types are shown with two asterisks

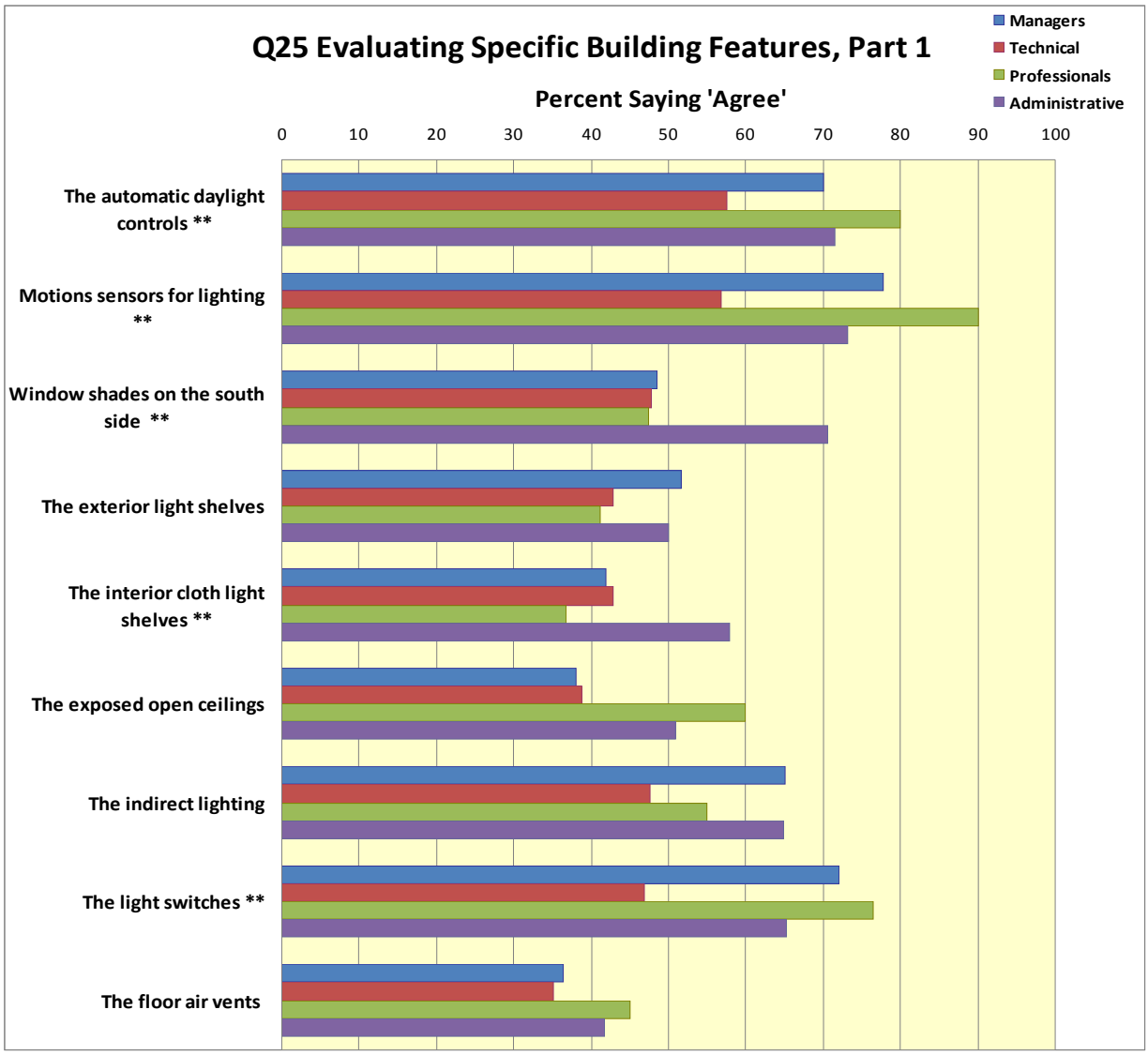
Section 4, dealing with comparisons between responses of those in offices versus those in cubicles, will provide further insight to some of the differing perceptions of the four general Job Types. However, the next part of this report will continue with a comparison of the Job Types, in terms of how they evaluate other aspects of the Lewis & Clark Building.

Evaluating Specific Building Features

Lighting, Ventilations, Ceilings

The above figures dealt specifically with the employees' workspaces; however, Q25 asked them to evaluate specific building features. The results to these questions are shown in Figures 13 and 14 below. While there were high response rates (very little missing data) for these items, people did have to opportunity to respond 'not applicable'. The item with the lowest number of people responding was 'waterless urinals', with only 118 answering (due primarily to the breakdown of male vs. female respondents).

Figure 13. Evaluating specific building features (Q25, Part 1)



**Items with statistically significant differences among the Job Types are shown with two asterisks

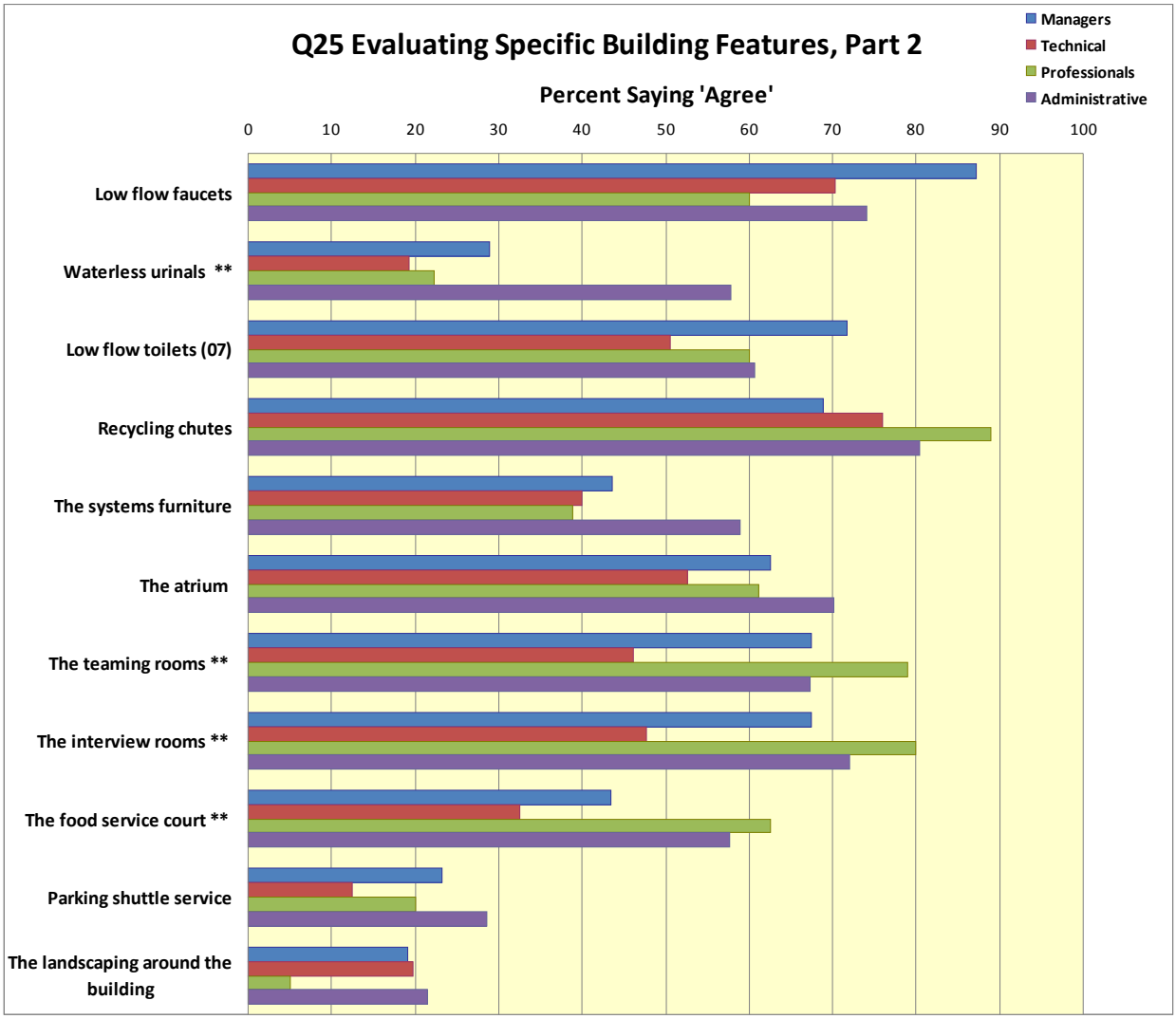
There were significant differences among the Job Type groups for 9 of the 20 items. Also 50% or more of employees were positive about 10 of the 20 items. Most of the significant differences among Job Types, in Figure 13 above, are for issues dealing with lighting.

Water, Recycling, Building Spaces, Shuttle Bus, and Landscaping

Figure 14 below shows that the lowest approval levels were for the parking shuttle service, and for the landscaping around the building. And, for other than Administrative employees (of which 87% are women), the waterless urinals were also not positively evaluated (less than 30% positive). The reason for this negative evaluation, clearly shown by open-ended responses in other parts of the survey, primarily had to do with the odor associated with them.

Again, there is a tendency for the Technical people (Engineers/Specialists/Scientists/Tech Support) to be somewhat less positive than other Job Types for many of these questions, which may be due to the fact that more than half of the Specialists/Scientists and Engineers are located in the middle cubicles. That location may be problematic for them, in terms of the work they need to do.

Figure 14. Evaluating specific building features (Q25, Part 2)



**Items with statistically significant differences among the Job Types are shown with two asterisks

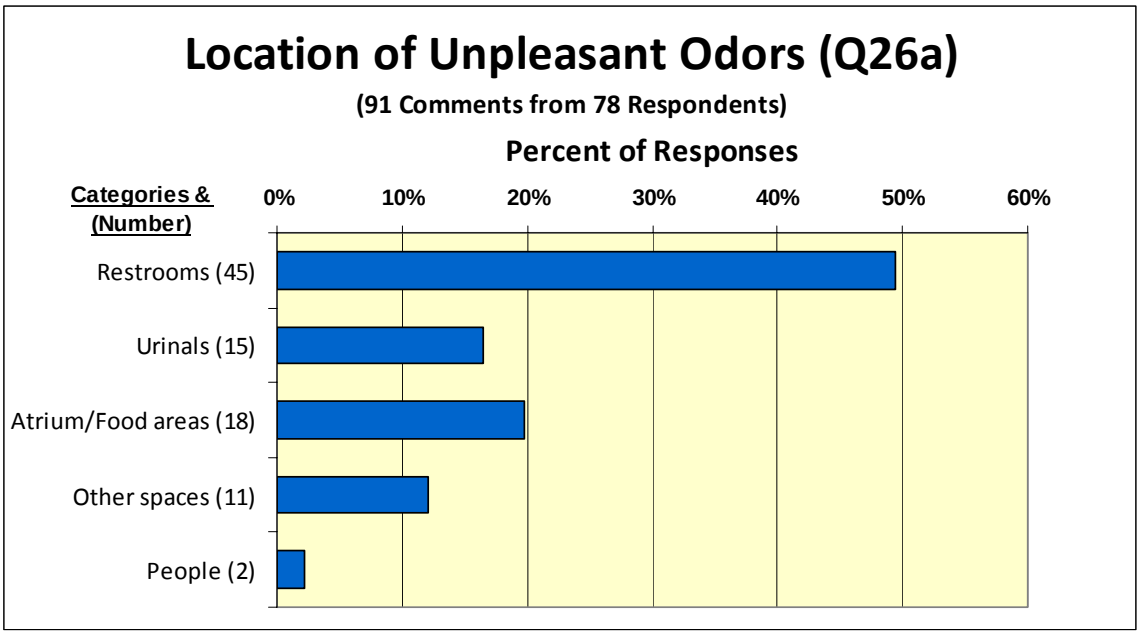
It is important to note that many of the sustainable building features evaluated in this question (Q25, Figures 13 and 14) received positive evaluations by more that 50% from all four Job Types. These include the automatic daylight controls, motion sensors for lighting, the low flow faucets and toilets, and the recycling chutes. The atrium was also positively evaluated.

Evaluating the Work Environment, In General

Windows, Water-saving, Shared Spaces, Odors

Question 26 asked about additional building features. It is important to point out that there are five negatively worded items in this section, so low percents of agreement on these items are a positive evaluation of that issue. One of those, 'there are unpleasant odors in some locations', relates primarily to the negative evaluation of the waterless urinals in the previous chart. In this question, people were asked to say where the odors were located. Those responses are summarized below in Figure 15 (all verbatim responses are in Appendix A). One of the predominant categories had to do with the urinals. There were other comments that reported odors from the food preparation/atrium area as being unpleasant also.

Figure 15. Location of unpleasant odors (Q26a)



Seventy eight respondents provided a total of 91 responses to this location question.

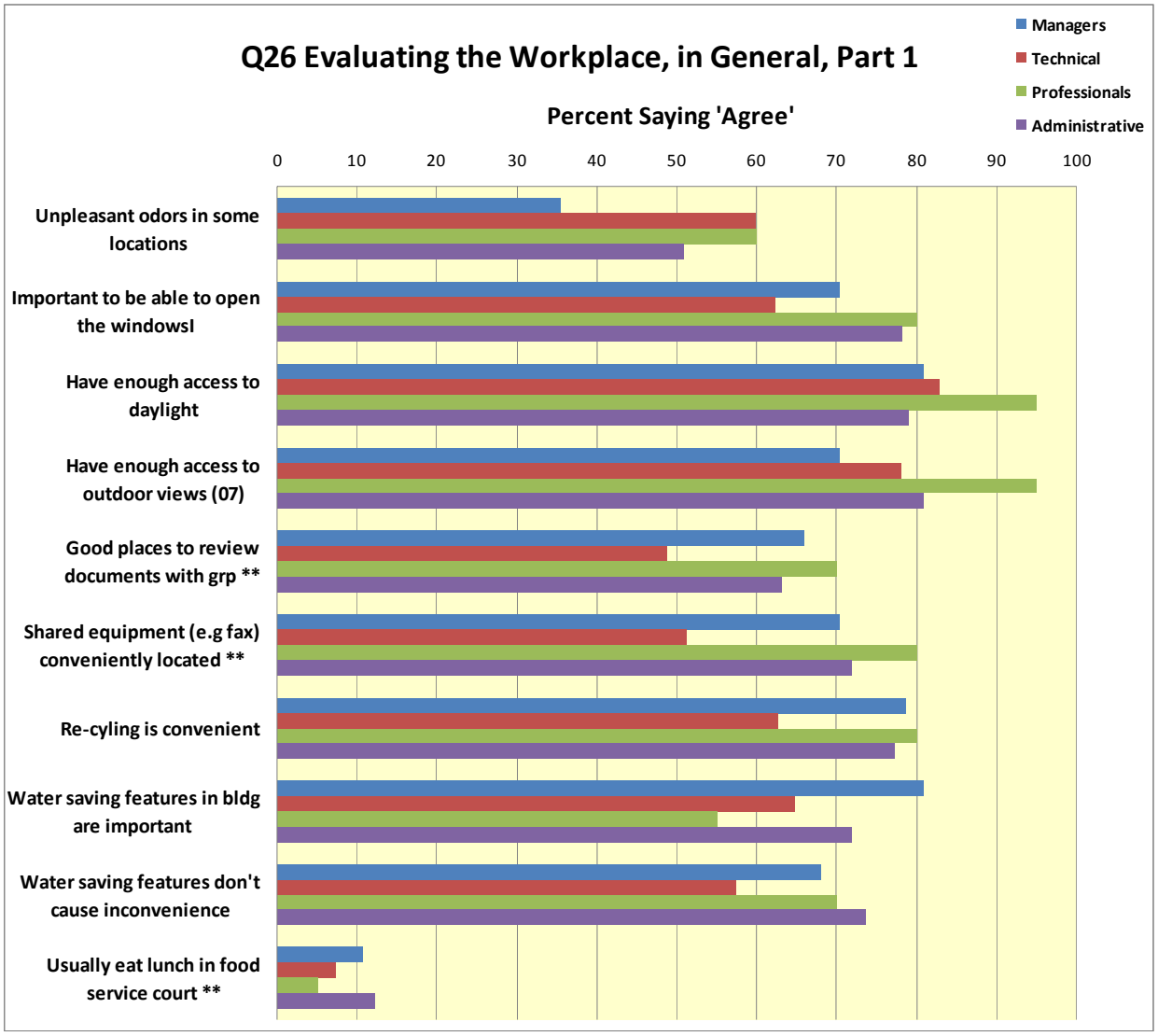
Figure 16, below, provides information about the evaluations for the rest of the items. The most positive evaluations by all four Job Types had to do with agreement about the importance of being able to open the windows, with the amount of access to daylight, and the views to the outdoors. These building features were very well appreciated.

Also, the other sustainable features of re-cycling, and the importance and convenience of the water saving features were also positively evaluated (generally 60 to 80% agreement).

The item with the lowest level of agreement was 'I usually eat lunch in the food service court', with around 10% of the people so responding.

There were significant differences among the Job Types for three of the items shown in Figure 16. Two of these had to do with very specific activities: reviewing large documents and finding shared equipment (e.g., fax machines) to be conveniently located. In both case, the Technical people were least positive (many of them are in middle cubicles); Professional staff were most positive. The third item (usually eating lunch in the service court) had the lowest agreement by the Professional people and the highest by Administrative personnel. However, very few of any of the Job Types actually did this.

Figure 16. Evaluating the workspace, in general (Q26, Part 1)



**Items with statistically significant differences among the Job Types are shown with two asterisks

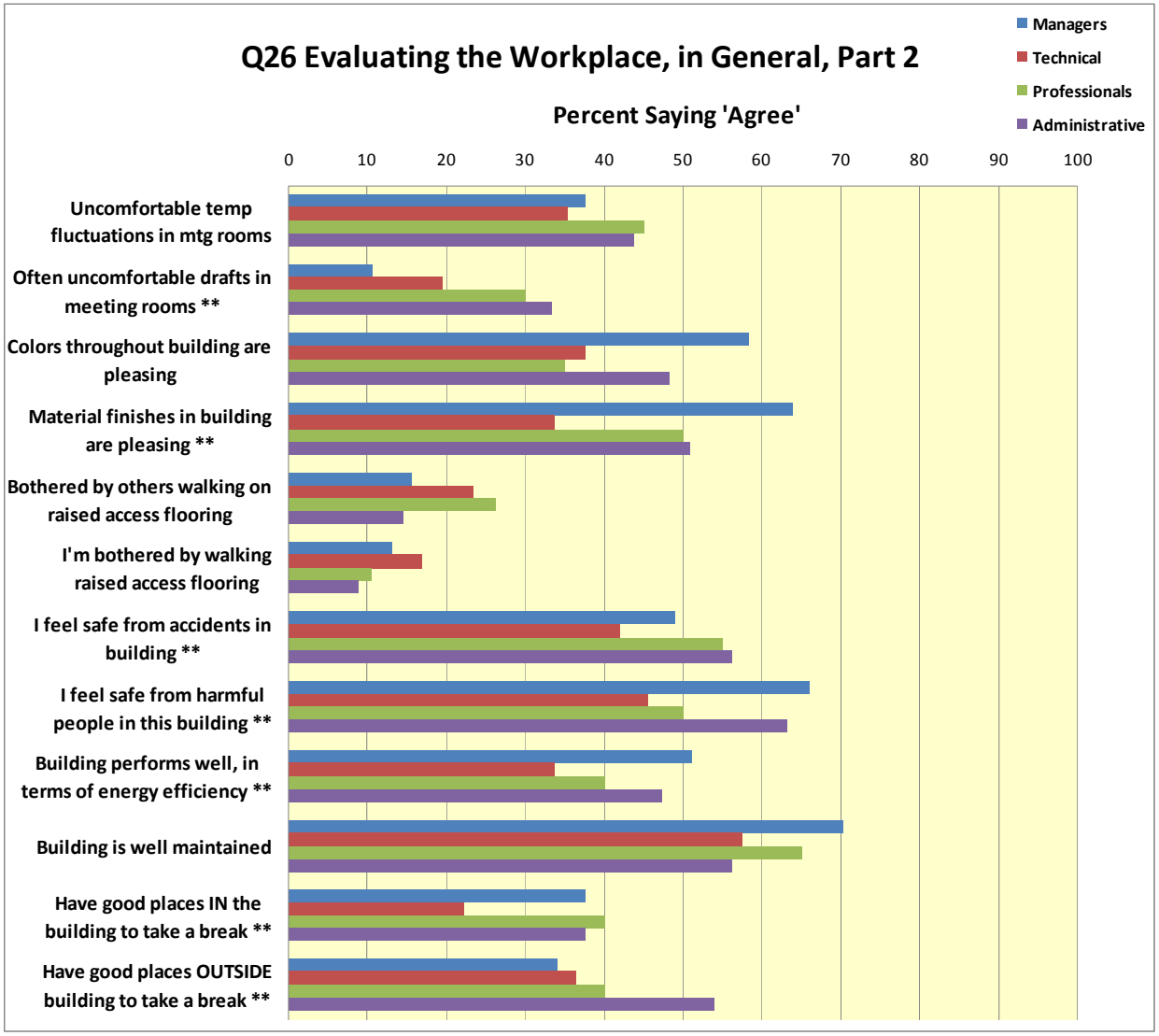
Air Quality, Colors and Materials, Flooring, Safety, Maintenance, and Break Areas

As seen in Figure 17, below, there was a somewhat less positive (although still generally in the 40 to 60% range) evaluation of the colors and material finishes throughout the building.

The degree of agreement to the two questions about walking on the raised access flooring indicated that it was not a problem. Also, there was relatively little agreement with the two items about uncomfortable temperature fluctuations and drafts in meeting rooms (meaning that it was not a problem for the respondents).

Interestingly, about 45 to 65% (depending upon the Job Type) reported that they felt safe from accidents, or from harmful people, in the building. There was no information from other parts of the survey to indicate reasons for this.

Figure 17. Evaluating the workplace, in general (Q26, Part 2)



**Items with statistically significant differences among the Job Types are shown with two asterisks

And finally, in terms of having good places to take a break, people felt slightly more positive about outside locations than inside locations. (Note: The full information about open-ended responses about break areas can be seen in Appendix A. The most frequently reported outside location is taking a walk, away from the building, along the streets or to the park (32%). The back patio area and benches was the second-most frequented location, receiving almost 20%. The loading dock area was third, mentioned in almost 15% of the comments. (However, some people feel that it has been 'taken over' by smokers, and report that they no longer use that area.)

Evaluating the Lewis & Clark Building & Site, In General

The items shown in Figure 18 (Question 27), on the following page, asked for evaluations of building and site features. In addition it asked about values regarding sustainability and interpretation.

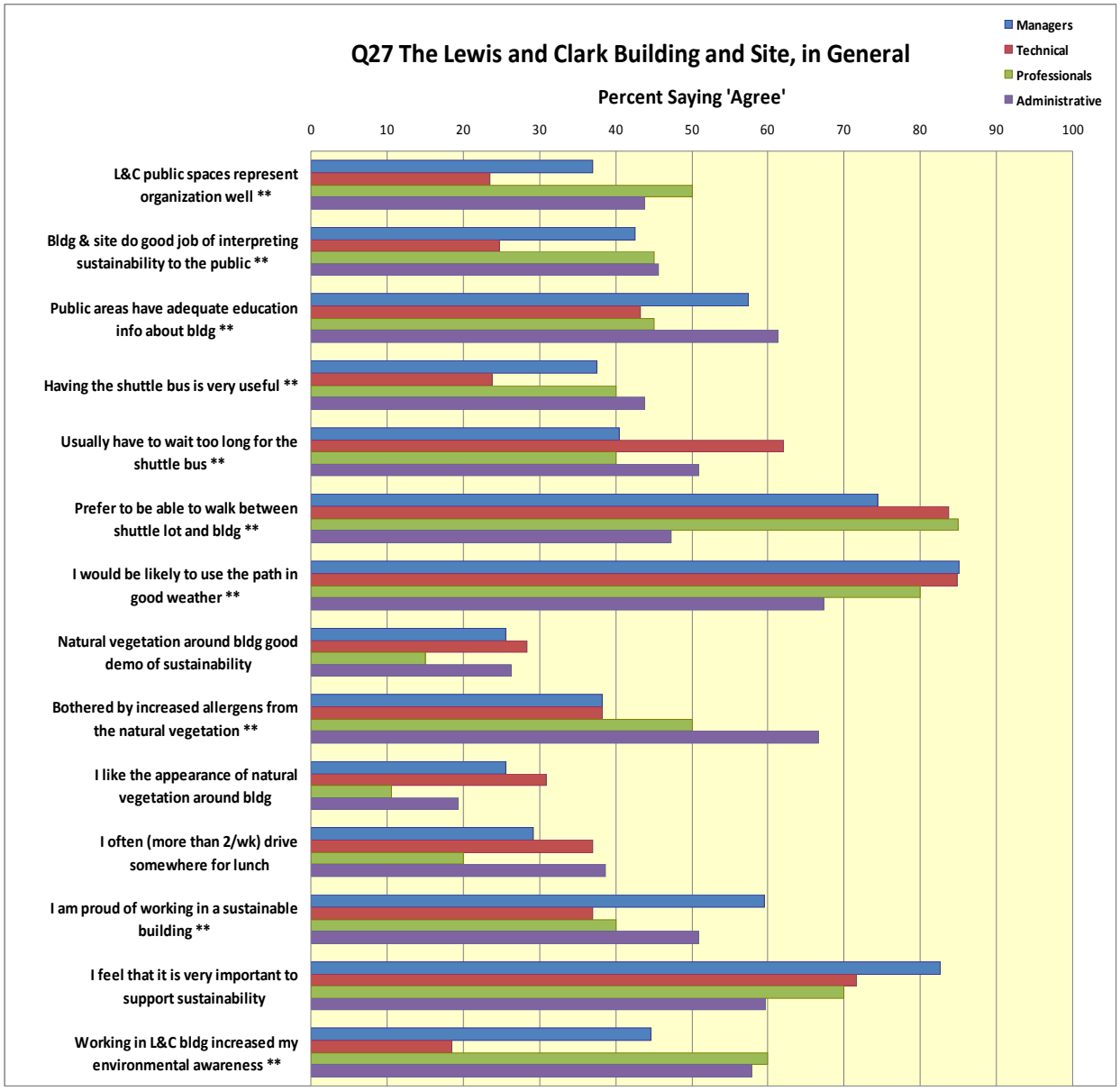
There are four general issues being represented in Figure 18. One addresses the individual's values and awareness of **sustainability and energy conservation** (the last 3 items). A second, and related one, has to do with perceptions that the building and site do a good job of relaying **information to the public** (the first three items). The third issue is more specific, and has to do with the **natural vegetation** around the building. The fourth is the most specific, and refers to the **shuttle bus** and getting from the remote lot to the building.

In terms of the first (individual's values and awareness of sustainability) there is strong agreement (average of 70% for the four Job Types) that it is important to support sustainability. There is less agreement about their pride in working in a sustainable building (the Managers are most in agreement at 60%, with the Technical people being least in agreement), and a bit less agreement that working in the L&C building has increased their awareness (ranging from about 18% to 60%). The reasons for this are unclear from the survey data. (There were statistically significant differences among the Job Types for these questions.)

All of the first three items (having to do with the adequacy of the pubic areas in representing the organization, or providing educational interpretation) have significantly different responses by the Job Type groups. In each case, the Technical people (Engineers/Specialist/Scientist/Tech Support) are least positive.

There is a relatively negative perception about the natural vegetation around the building. Less than 30% feel it is a good demonstration of sustainability. From 38% to 68% of the Job Types report that they are bothered by allergens from the vegetation, and only about 10% to 32% like the appearance of the vegetation. The responses to the interpretation/education issue discussed above, and these responses, might suggest that there needs to be more signage or educational material concerning the nature of the vegetation and its purposes located outside. It might also suggest that the vegetation could be managed differently.

Figure 18. Evaluating the Lewis & Clark building & site, in general (Q27)



**Items with statistically significant differences among the Job Types are shown with two asterisks

Finally, there is the shuttle bus/path issue. Less than 45% of the people feel that the bus is useful; and 40 to around 63% feel they have to wait too long for it. There is a strong preference for being able to walk between the shuttle lot and the building (47 to 85%), and strong agreement that they would like to be able to have a path in good weather (about 67 to 85%). The open-ended responses that addressed this issue talked mostly about the value of walking as good exercise, the apparent discrepancy between running a bus all day and conservation/sustainability, and the unpleasantness of waiting for a bus.

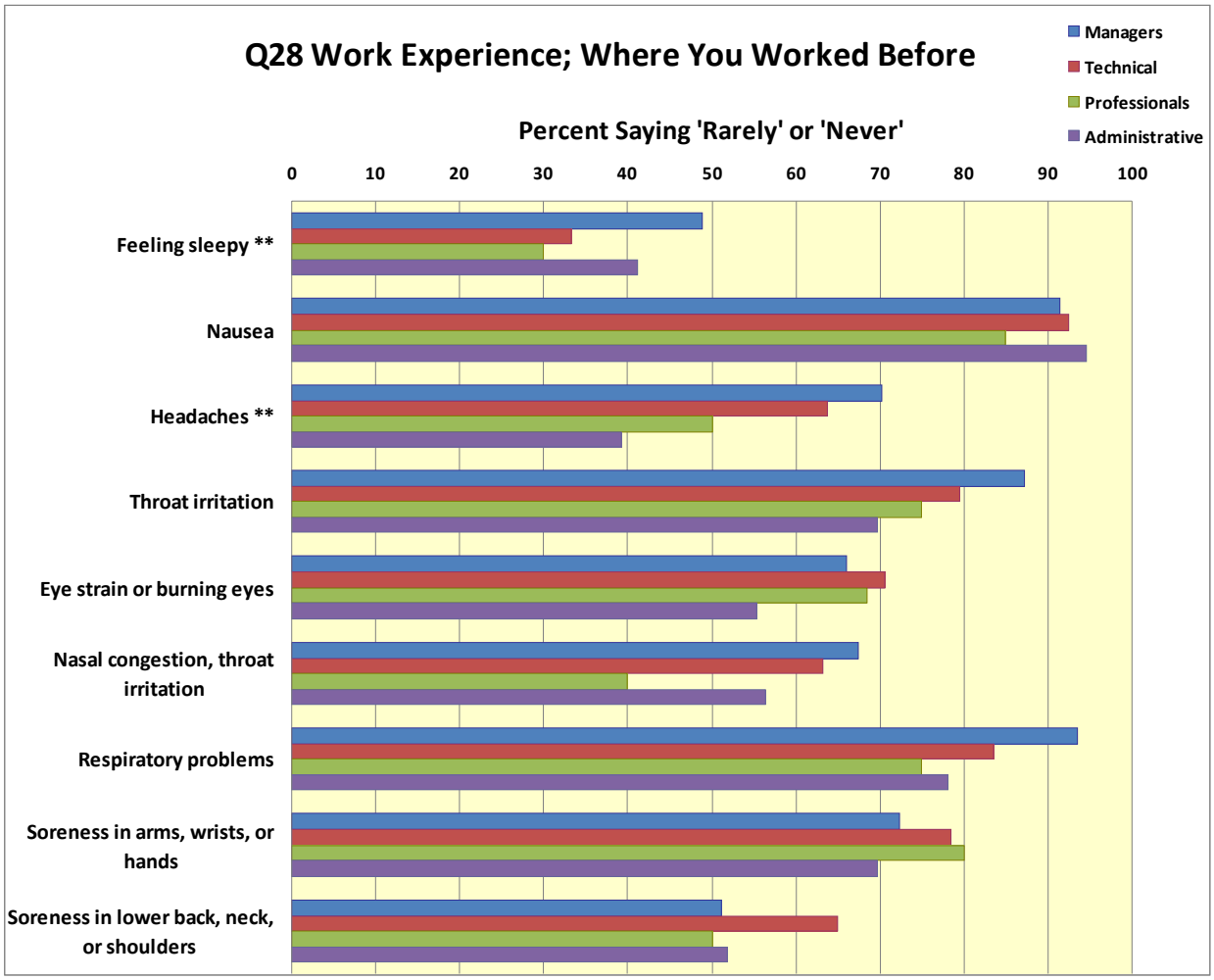
Work Experiences (Previous Work Location & in Lewis & Clark Building)

Question 28 of the employee survey contained two sets of identical work experiences, and employees were asked to indicate how often they experienced each…in the office where they worked before moving into the Lewis & Clark building, and in the Lewis & Clark building, itself. Each set had nine items that referred to physical/health symptoms. A positive response to these would be 'Rarely' or 'Never' experiencing them. The remaining four items had to do with more general levels of comfort or satisfaction. A positive response for these items would be 'Always' or 'Often' experiencing them.

The following four figures (Figures 19, 20, 21 and 22) will show separate graphs for the symptoms (for the previous location and the Lewis & Clark building) and then will show the satisfaction items, for both the previous office and for Lewis & Clark.

In Figures 19 and 20, the higher percentages indicate the lowest rates of experience with each of the health symptoms.

Figure 19. Physical symptoms: Previous work location (Q28)

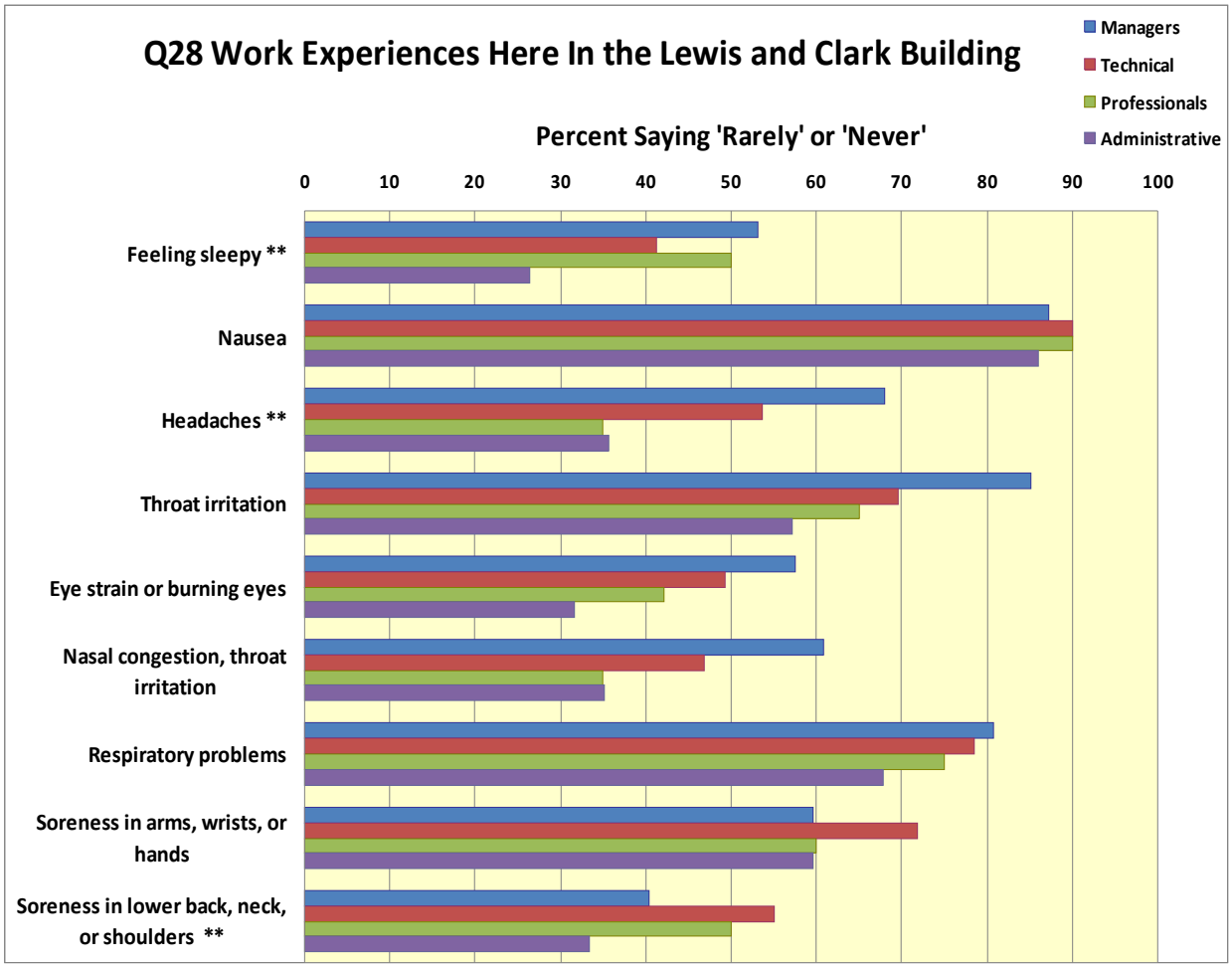


**Items with statistically significant differences among the Job Types are shown with two asterisks

Figure 19 shows that relatively few people reported problems with health symptoms, in their previous work location. The most frequent experience one was that of occasionally feeling sleepy; Managers reported the lowest levels (highest percent on the graph is lowest level of experience).

A visual comparison of Figures19, above, and Figure 20, below, suggests that there isn't much difference between the previous location and in the Lewis & Clark building, in terms of the levels of physical symptoms reported. However, statistical analyses indicated that there were significant differences for some Job Type groups for the 'before-now' comparison. Those differences are shown in Table 20 which follows Figure 20, below.

Figure 20: Physical symptoms: In the Lewis & Clark building (Q28)



**Items with statistically significant differences among the Job Types are shown with two asterisks

Table 20 shows where these differences occurred. If there was no difference in their response level between the previous location and Lewis & Clark, the table will show a '0'. Otherwise it will say if it was higher or lower in Lewis & Clark.

Table 20. Groups which had differences in symptoms: Prior office vs. Lewis & Clark office

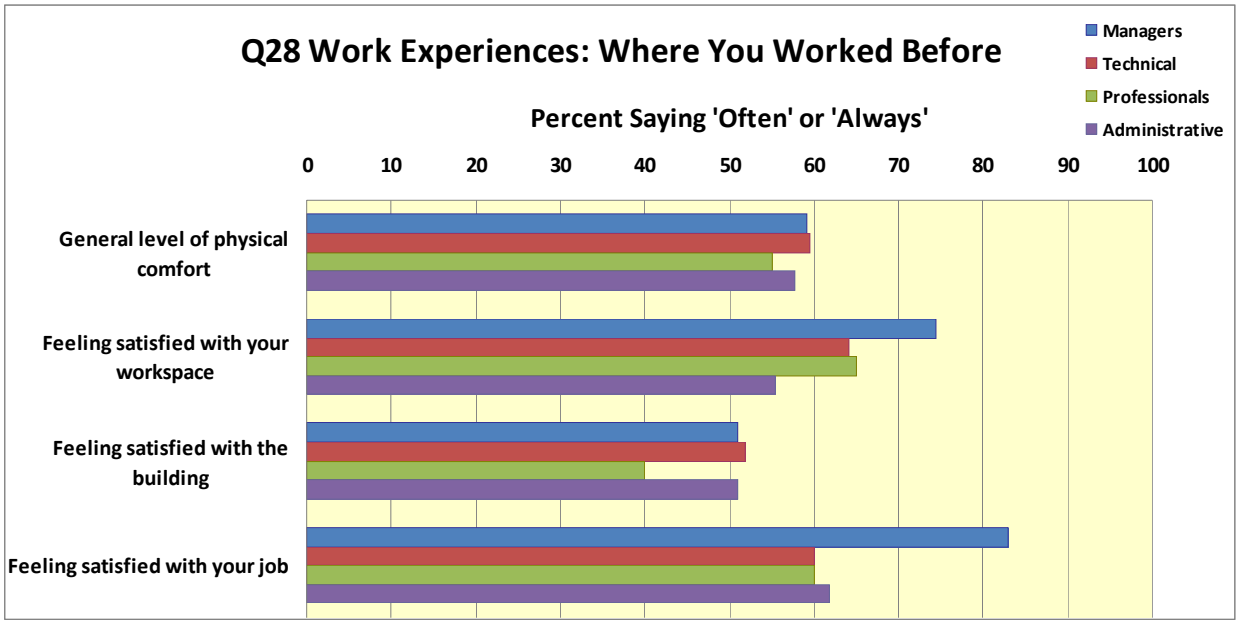
Key: (0= No difference)	Managers	Technical	Professionals	Administrative
Feeling sleepy	0	0	0	0
Nausea	0	0	0	0
Headaches	0	0	0	0
Throat irritation	0	0	0	0
Eye strain or burning eyes	0	Higher at L&C	0	Higher at L&C
Nasal congestion, throat irritation	0	Higher at L&C	0	Higher at L&C
Respiratory problems	0	0	0	0
Soreness in arms, wrists, or hands	Higher at L&C	0	0	Higher at L&C
Soreness in lower back, neck, or shoulders in your workspace	Higher at L&C	0	0	Higher at L&C

As a general finding, Professionals reported no differences in any symptoms in the comparison to their prior office and Lewis & Clark. However, the Administrative employees had the most, and they were all greater at Lewis & Clark. Both Managers and the Technical groups reported more problems at Lewis & Clark for only two symptoms.

Comfort and Satisfaction

The next two Figures (21 and 22) will show the comfort and satisfaction levels for the Job Types in the two locations.

Figure 21. Comfort & satisfaction levels: Previous work location (Q28)



**Items with statistically significant differences among the Job Types are shown with two asterisks

Again, a comparison between the two figures show patterns that look similar, but statistical comparisons showed that there were some 'prior office– Lewis & Clark' differences for some Job Types. See the following table for specifics.

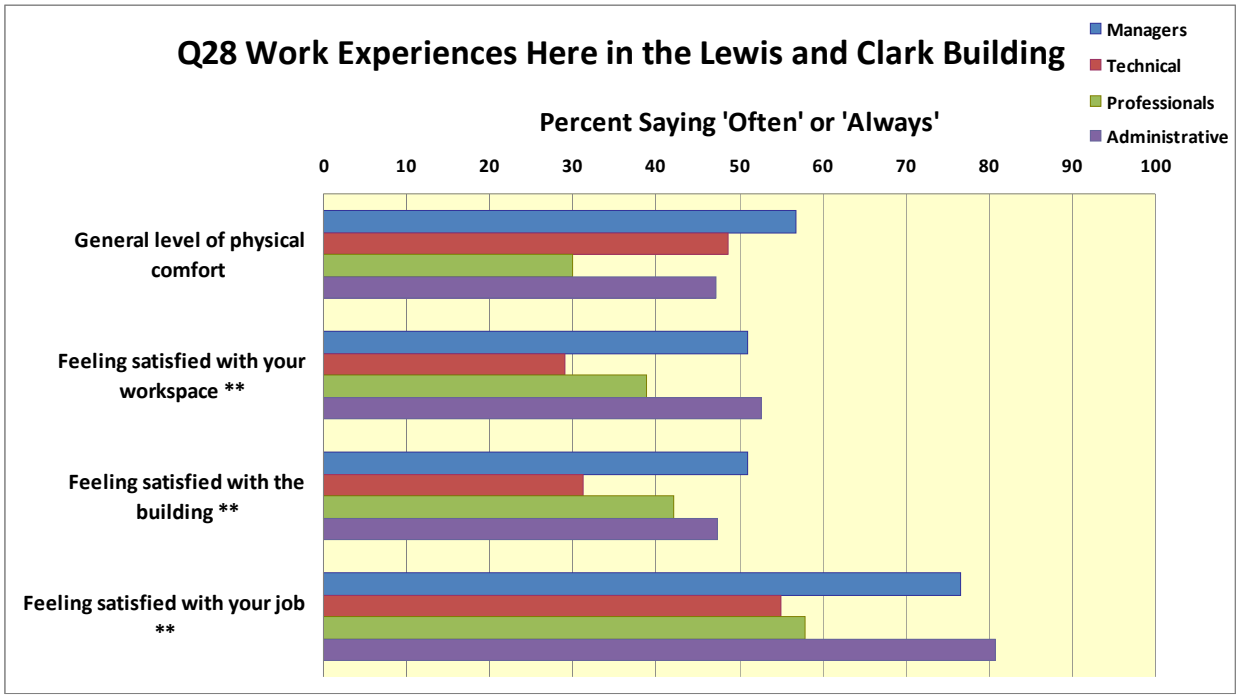
Table 21. Groups which had differences in experiences: Prior office vs. Lewis & Clark office

Key: (0= No difference)	Managers	Technical	Professionals	Administrative
General level of physical comfort	0	Less at L&C	0	0
Feeling satisfied with your workspace	Less at L&C	Less at L&C	0	0
Feeling satisfied with the building	0	Less at L&C	0	0
Feeling satisfied with your job	0	0	0	More at L&C

It is interesting to note that the Administrative group reported an increase in health symptoms at Lewis & Clark, but they reported higher job satisfaction at Lewis & Clark, in comparison to where they worked before.

See below, in Figure 22, for the responses to the specific items referring to the Lewis & Clark building.

Figure 22. Comfort & satisfaction levels: In the Lewis & Clark building (Q28)



**Items with statistically significant differences among the Job Types are shown with two asterisks

While these comparisons may be interesting themselves, there is an additional use for this type of information. Outcome variables, based on some of these responses, can be examined analytically, to see if there are any specific workplace features that are statistically related to current experiences in the Lewis & Clark Building. For example, are there any specific workspace conditions which are related to experiences of muscle soreness? These

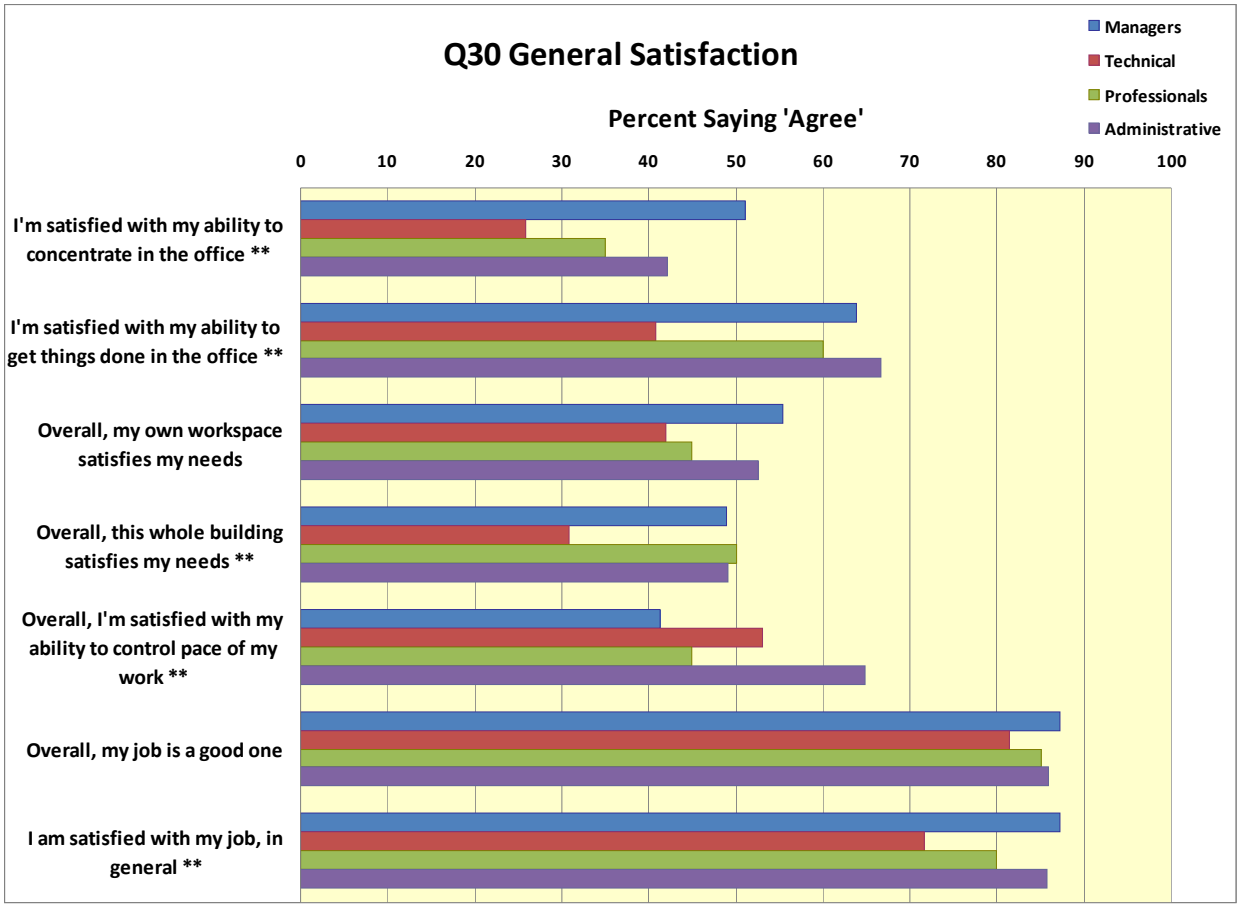
results will be presented later, in Section 5 (Impact of the Work Environment on Important Outcomes).

General Satisfaction

The last major set of items on the employee survey (calling for structured responses) asked for people to indicate their general levels of satisfaction with a number of issues (Q30). Figure 23, below, illustrates those results for the four Job Types.

It is clear that the highest levels of satisfaction, for all four Job Types, are with their job. The issues receiving the lowest levels of satisfaction are with their ability to concentrate on their work, with their workspace, and with the building, in terms of satisfying their needs. Note that managers (of whom most are in offices) are more satisfied with their ability to concentrate on their work than the other Job Types. Technical people are the least satisfied with their ability to concentrate and their ability to get things done in the office. (Many of them are in the 'middle' cubicles. Distractions come to them from both sides.)

Figure 23. Satisfaction with general issues (Q30)



**Items with statistically significant differences among the Job Types are shown with two asterisks

These satisfaction items also play an important role in the last major part of the report (Section 5, "The Impact of the Work Environment on Important Outcomes"). Job satisfaction, building satisfaction, and workspace satisfaction (as well as items asking respondents to evaluate their own level of performance) are used as 'outcomes' in the analysis, to determine which workplace features have the strongest impacts on them.

Additional Comments & Suggestions (Q31)

The last part of the survey provided employees with an opportunity to say, in their own words, what aspects of their workspace, the building, and areas outside the building worked well for them, and what aspects needed improvements. The verbatim responses for each of the questions are in Appendix A. Also there are figures that summarize the types (categories) of responses that were made, as well as the relative frequency with which they were made.

4. Office and Cubicle Comparisons

Extensive previous research (by Weidemann and BOSTI Associates, and others) has shown that people in private offices (with four walls and a door) typically experience the work environment differently from those in open workspaces (cubicles). And some of these experiences have been found to have a strong impact on job performance, satisfaction with the workplace, and job satisfaction. Fewer studies have examined job retention issues (e.g., respondents' intention to stay with the organization) or examined health related symptoms, although they too have been linked to job satisfaction and/or performance.

Thus one of the major comparative analyses for the Lewis & Clark employee survey was to compare responses to the work environment for people working in cubicles to people who worked in offices.

Table 22 below (also reported in the previous Section 3, on Job Types) shows how many people, of each Job Type, were in each type of workspace. Note that the offices were primarily occupied by managers.

Table 22. What is your workspace type? (Q19): For Lewis & Clark job types (Q2)

		Q19: Your workspace type				Total
Q2 Job Type		Private office (walls/ceiling)	Cubicle on aisle nearest window	Middle cubicle(s)	Cubicle closest to interior wall	
Acct/Audit/ Budget	Count	2	7	5	6	20
	%	10.0%	35.0%	25.0%	30.0%	100.0%
Admin/ Support	Count	1	18	10	5	34
	%	2.9%	52.9%	29.4%	14.7%	100.0%
Clerical	Count	0	10	6	3	19
	%	.0%	52.6%	31.6%	15.8%	100.0%
Engineers	Count	0	1	5	2	8
		.0%	12.5%	**62.5%**	25.0%	100.0%
Manager/ Supervisors	Count	30	6	5	6	47
	%	63.8%	12.8%	10.6%	12.8%	100.0%
Specialists/ Scientists	Count	2	13	34	16	65
	%	3.1%	20.0%	**52.3%**	24.6%	100.0%
Technical Support	Count	0	2	1	0	3
	%	.0%	66.7%	33.3%	.0%	100.0%
Total	Count	35	57	66	38	196

However, for this major analysis, the full sample of respondents was divided into those who had offices, and those who were in cubicles. See Table 23, below.

Table 23. Number of workspaces: Private offices and cubicles

Q19 Workspace is a cube or private office		Statistics		
		Frequency	Percent	Valid Percent
	Private Office	**36**	16.7	**17.1**
	Cubicle	**174**	80.6	**82.9**
	Total	210	97.2	100.0
Missing	Other	4	1.9	
	No answer	2	.9	
	Total	6	2.8	
Total		216	100.0	

General Organization

Within this section of the report, two analyses of the responses to the survey items will be presented. For each question on the survey, results will first be shown for the '**full sample'** (all the respondents in cubicles compared to all of those in offices, regardless of Job Type). Results will also be shown for cubicle vs. office comparisons, only for **Managers**. T-tests for independent samples were the statistical analyses used to make these comparisons.

The 'Managers only', comparison was done in order to control for the possible statistical confounding of having different Job Types in the 'full sample' of office and cubicle respondents. In general, the Manager results were found to be very similar for the full sample comparisons. However, selected results from those analyses will be shown below, in the relevant sections, to illustrate certain patterns of responses, as well as to show differences among the results..

Results in the figures (bar graphs) are presented in terms of the percentage of respondents who responded positively. For example, if a 5 point scale were used to evaluate satisfaction with an item, the two positive responses on the scale were summed together to provide the percent of people responding positively. Note: The percentages of those actively negative, and those who were neutral, are not shown; they would be the remaining percent of responses for each item. Other results will be shown in tables.

Number of Respondents

The total number of respondents in the 'full sample' could be as high as 216; nearly all items had over 200 valid responses. Only the one item in Question 25, asking people to evaluate the waterless urinals had much fewer. There were 118 responses to that item, of which nearly all were men. (Some women did respond, but most of them gave a 'neutral' response.) The number of respondents in the 'Manager only' sample was much smaller, with a maximum of 48 respondents.

First to be considered below are the Question 12 items dealing with workplace activities.

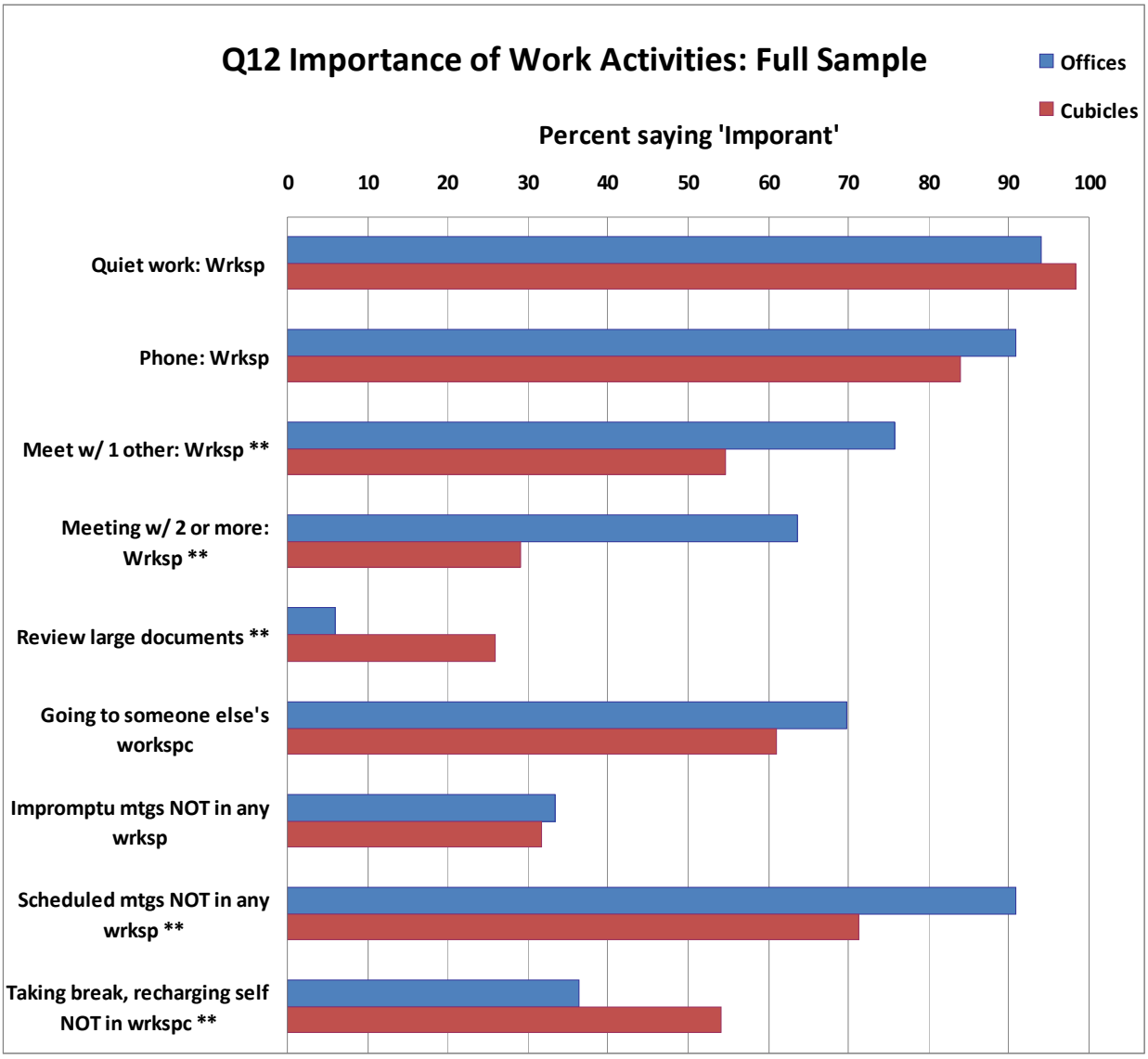
Activities in the Workplace

Importance of Work Activities

Question 12 examined the importance of various work activities and how well the work environment supported those activities.

Full sample:
Figure 24 below presents the results for the importance of various work activities for the full sample of respondents (offices vs. cubicles). As can be seen, there are **no** significant differences between cubicle and office respondents for the two most important work activities: the importance of doing quiet work, alone, in their workspace, and using their telephone in their workspace. More than 80+ percent feel that these are important activities.

Figure 24. Importance of work activities: Full sample (Q12)



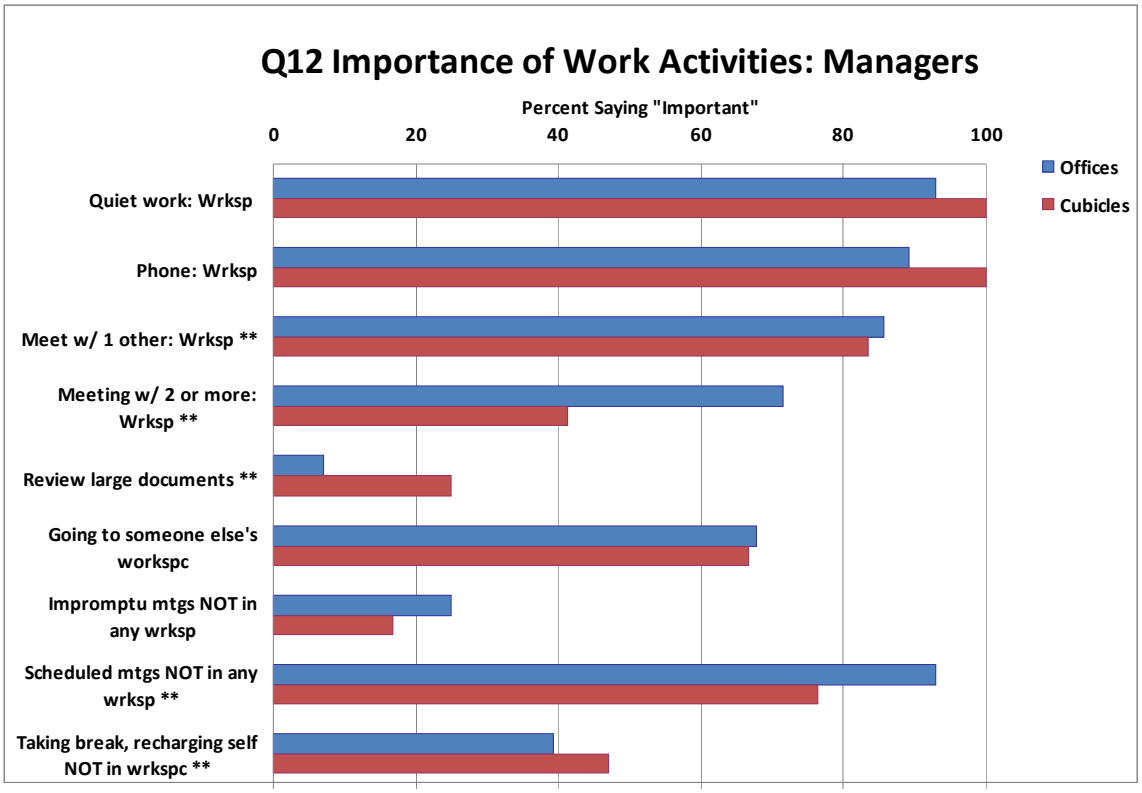
**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks.

Those in offices feel that meetings with others in their workspaces are more important than those in cubes. While it might be possible to attribute that to the fact that most office occupants are managers, and thus need to meet with others, that is not fully true. A specific comparison of managers in cubes and managers in offices showed the same finding. (See Appendix A for the Manager findings.) Thus one can conclude that cubicles are felt to support meetings less adequately with others, regardless of Job Type.

It is also interesting to note that those in cubicles feel that it is significantly more important to 'take a break/recharge themselves' not in their workspaces. That may be due to a number of possible reasons, e.g., not wanting to disturb others, not feeling comfortable with others observing them, not having adequate space to actually feel they can recharge, etc. However, in Appendix A, the responses of all employees to the question of 'Where do you take inside breaks?' show that taking breaks in their own workspace (or other's workspace) was the most common response (over 25% of the comments).

Managers only:
The results for the Manager sample (Figure 25) were basically identical to the full sample results shown in Figure 24 above, regarding the importance of work activities. All of the same significant differences were found.

Figure 25. Importance of work activities: Managers (Q12)



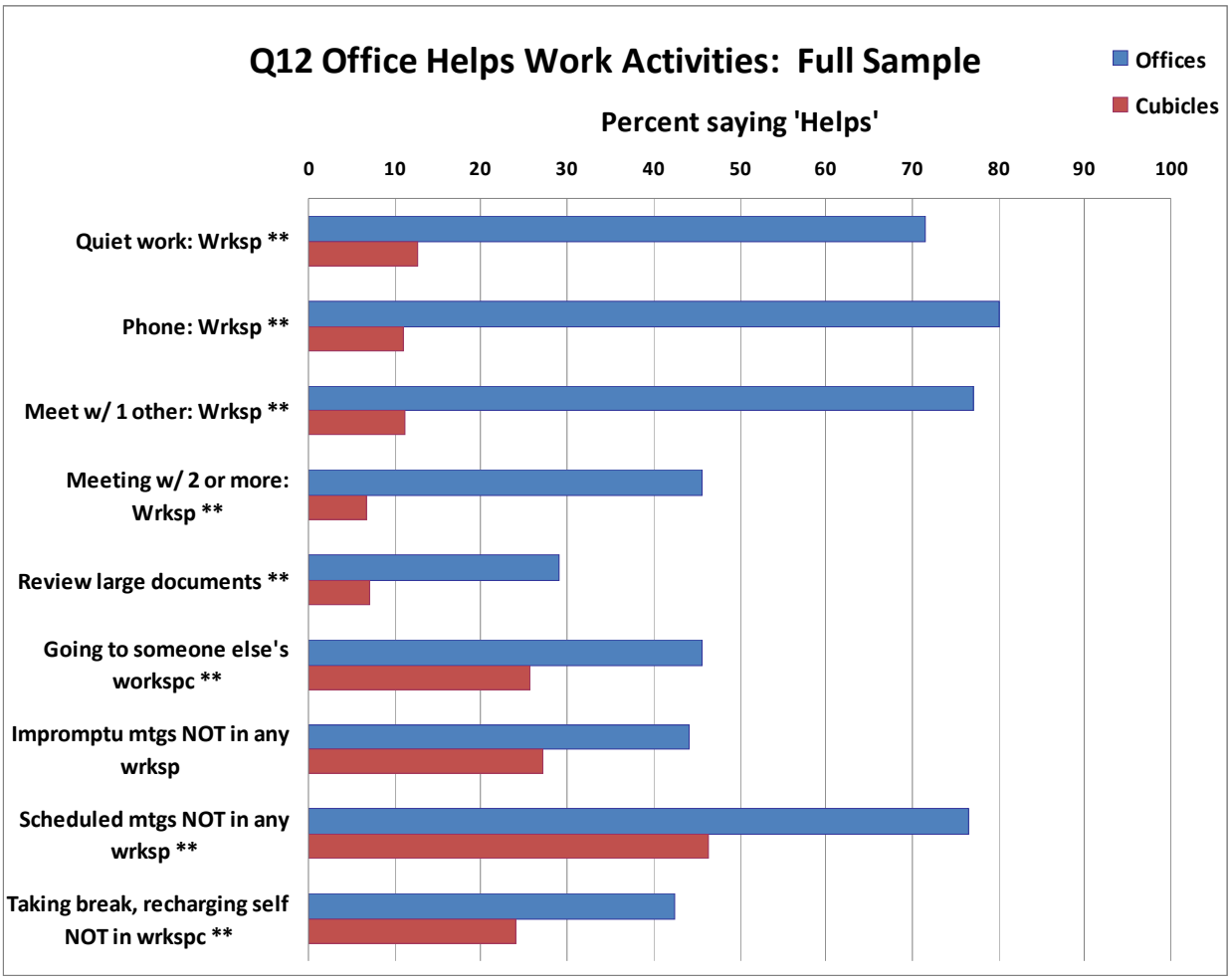
**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks.

Again, the most important activity, for those in private offices and in cubicles, was to be able to do quite focused work, and use the telephone, in their workspaces.

Support for Work Activities

Full sample:
Figure 26 shows an important comparison to the one above. It shows how well or poorly the office environment does in terms of supporting those work activities. Clearly, one should be concerned about how well the work environment supports the activities that occupants feel to be most important. Those are 'being able to do quite work, working alone in their workspace', and 'using the telephone in their workspace'. As can be seen below, there is a dramatic difference between those in offices vs. those in cubes, in that those in offices feel much better supported in 8 of the 9 work activities (no significant difference for 'having impromptu meetings not in any workspace'). And the difference is particularly strong for those work activities that both groups felt to be most important to do.

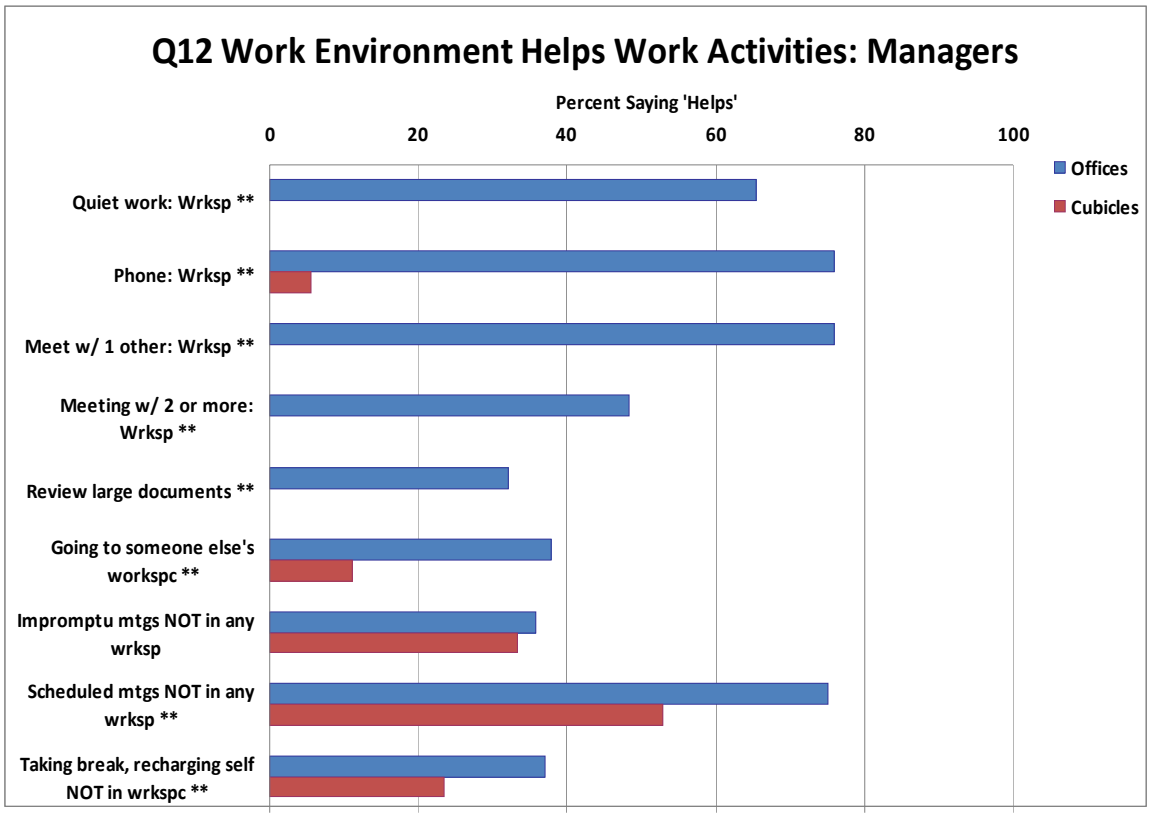
Figure 26. How much does the office environment help work activities? Full Sample (Q12)



**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks.

Managers only:
Again, when managers in offices were compared to managers in cubes, the same findings were obtained, but even more dramatically. See Figure 27 below.

Figure 26. How much does the office environment help work activities?: Managers only (Q12)



**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks.

Note that none of the managers in cubicles felt that their office environment supported some of the work activities, especially the most important work activity of doing quiet work in their workspace.

Concentration, Disruptions, and Recovery

Previous research has shown that people in cubicles are especially susceptible to both visual and sound disruptions. Questions 13 and 14 on the employee survey were directed to these issues. Their examination can certainly suggest some of the possible reasons that people in cubes felt that they did not have adequate work environment support for their work activities. (Additionally, written responses to the open-ended questions at the end of the survey further illustrate this. See Appendix A, regarding the comments about their workspaces.)

Full sample:
Table 24 below addresses disruptions, time lost to them, and time to recover from them. (Note: The numbers in the table are more conservative than the actual numbers reported; as

explained earlier, responses from those who gave extreme high numbers were recoded to the reasonable 'high' response, based on the distribution of responses.) The average times, where significant differences occurred, are shown in bold text.

Table 24. Noise, Interruptions, and Time to Recover: Full sample (Q13 & Q14)

	Workspace is a cube or private office	Respondents	Average Time
Q13aRc # Times/Day" Noise disruptions**	Private Office	34	**4.9**
	Cubicle	169	**11.5**
Q13bRc # Times/Day: People drop in my workspace *(no sig. diff.)*	Private Office	35	3.4
	Cubicle	167	3.9
Q13cRc # Times/Day: People drop in, talk to OTHERS**	Private Office	33	**2.5**
	Cubicle	167	**5.1**
Total # of Reported Interruptions/day (13a+b+cRc)**	Private Office	35	**10.6**
	Cubicle	171	**20.2**
Q14Rc Average minutes to return to pre-distraction concentration**	Private Office	35	**2.5**
	Cubicle	165	**4.3**
Average total minutes/day: Time Lost to Interruptions (recoded)**	Private Office	35	**25.4**
	Cubicle	163	**59.6**

**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks.

Table 24 above shows that there were statistically significant differences between those in offices and those in cubicles for every variable, except that for '# times/day that people drop into my workspaces'. In all cases, those in cubicles fared worse than those in offices. While these numbers are those reported by the employees, and may not be totally accurate, it is important to note that perceptions can be very powerful, in terms of their impact upon important business outcomes like job satisfaction, retention, and performance.

Even using the conservative numbers above, the finding that people in private offices lose less than half an hour a day to interruptions and distractions, in comparison to the almost an hour a day lost by those in cubes, shows the impact of workspace type.

Managers only:
The results for the sample of Managers only are just as strong. Table 26 below shows similar differences between those in cubicles and those in offices. There were significant differences between offices and cubicles for all items (shown in bold, below) except 'time/day people drop into my workspace'.

In fact, some of the differences were even greater. For example, people in the full sample who were in cubicles reported an average of 59.6 minutes per day of lost time; the Managers in cubicles reported 69.3 minutes per day lost. Managers in offices reported less than half as much time lost (27.7 minutes).

Note: The number of respondents (in Tables 24 and 25) in the 'office' category differs between the 'full' sample and the 'Manager' sample because there are some non-managers who have private offices, in the 'full' sample. The average times, where significant differences occurred, are shown in bold text.

Table 25. Noise, interruptions, and time to recover: Managers (Q13 & Q14)

	Q19 Workspace is a cube or private office	Respondents	Average Time
Q13aRc Times/Day: Noise disruptions**	Private Office	28	**5.6**
	Cubicle	17	**13.2**
Q13bRc Times/Day: People drop in my workspace (no sig. diff)	Private Office	29	3.3
	Cubicle	16	4.8
Q13cRc Times/Day: People drop in, talk to OTHERS**	Private Office	27	**2.4**
	Cubicle	16	**4.8**
Total # of Reported Interruptions (13a+b+cRc)**	Private Office	29	**11.0**
	Cubicle	17	**22.3**
Q14Rc Average minutes to return to pre-distraction concentration**	Private Office	29	**2.6**
	Cubicle	17	**5.3**
Time Lost to Interruptions (recoded)**	Private Office	29	**27.7**
	Cubicle	16	**69.3**

**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks

These results are not dissimilar from other BOSTI Associates' research. As an example, results from another project (a large organization partnering with the government) indicated that those in workspaces with panels (versions of cubes), in comparison to employees with full walls and a door, said that they had more noise disruptions/day (average of 15.3) than those in offices (average of 7.3). They also had more people 'dropping in' (mean=7.9 vs. 5.2). Finally, they had an average of 23.5 distractions per day vs. the average of 12.7 per day for those in offices.

As will be seen in later results, the impact of being in a cube vs. an office can be important in other ways.

Evaluating The Environment For Meetings And Interactions

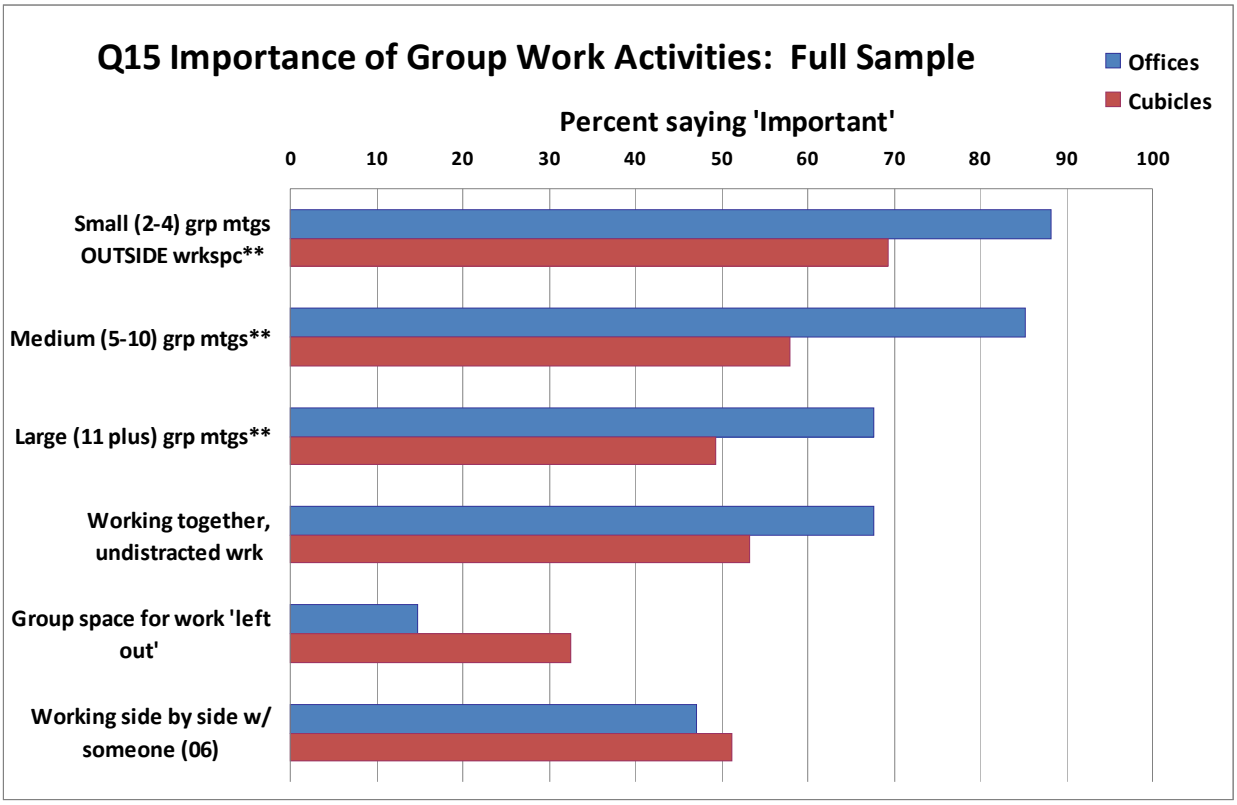
Importance of Group Work Activities

This next section will present results for Question 15 of the survey, which dealt with various types of meetings and interactions. The following 2 figures show the importance of various group activities first, for the full sample, and then, second, for only the Managers. How much the office environment helps or hinders those activities will follow those results.

Full sample:
Small group meetings, of 2 to 4 people, outside the workspace are seen as the most important group work activity overall, for people in offices and cubicles

In the following results, there are significant differences between the levels of importance between those in offices and cubes for all three group meeting sizes. Those in offices feel that these meetings are more important than those in cubicles. However, this finding is primarily due to the fact that it is mostly managers in the offices, and managers spend more time in meetings.

Figure 28. Importance of group work activities: Full sample (Q15)

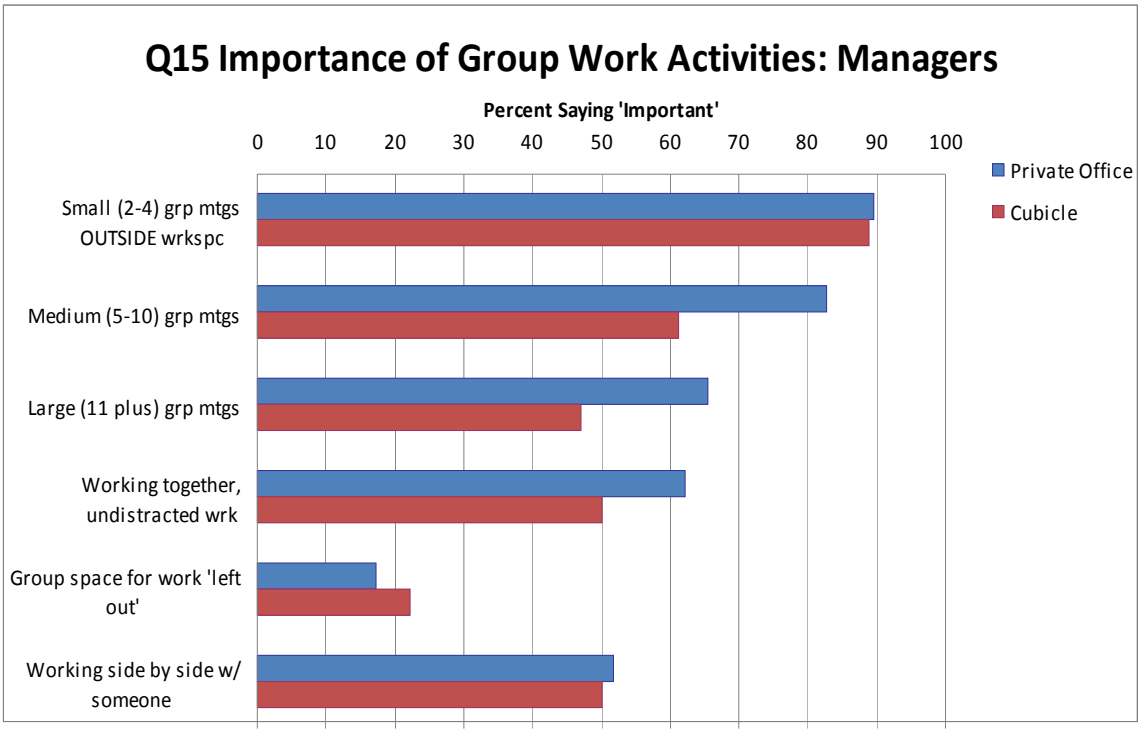


**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks

The least important issue was for having 'group space for work to be left out' in.

Managers only:
In the results for the office vs. cube comparisons, for 'Managers only', there were no significant differences between managers in offices or cubes for any of the Question 15 Group Work items. As with the full sample responses, Figure 29 (below) shows that the most important activities were 'small group meetings outside the workspace' with almost 90% of all managers agreeing it was important. The least important group work issue was having 'group space, for work left out', with an average of only 20% of the managers saying it was important.

Figure 29. Importance of group work activities: Managers (Q15)



There were no statistically significant differences between respondents in Offices versus Cubicles.

Support for Group Work Activities

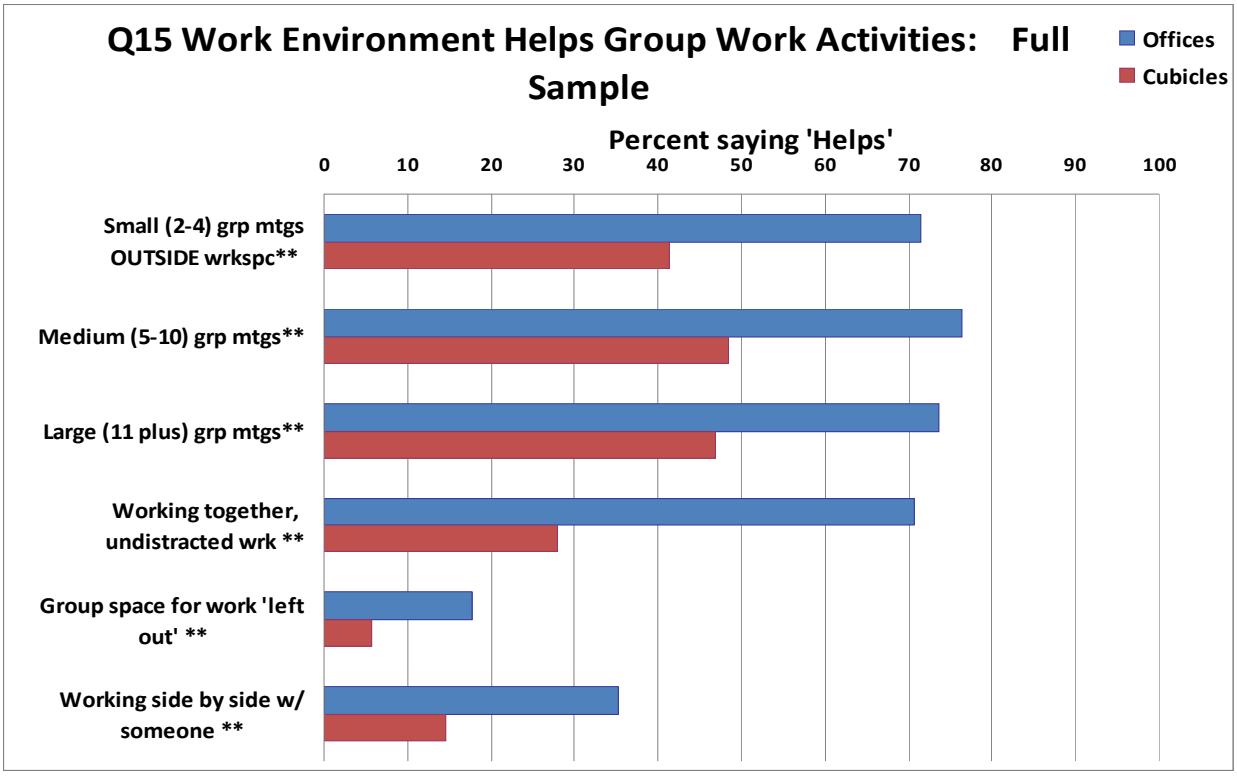
However, once again, there are major differences between respondents in offices vs. cubicles for the Question 15 items which report how well or poorly the office environment supports those activities.

Full sample:
Figure 30 below shows that for all group work activities considered in this question, the people in cubicles reported significantly less support for the activities.

Note that over 70% of those in offices felt well supported for the four most important work activities: having small, medium, and large group meetings, and for 'working together, doing undistracted work'. Not surprisingly, fewer than 50% of those in cubicles felt support for these work activities.

For the most important activity of having 'scheduled small group meeting of 2-4 people outside your workspace', less than 45% of those in cubicles felt supported; whereas more than 70% in offices felt supported. It is not clear why this would be so, from survey results, since these meetings are supposedly outside the workspace. One question to ask is whether or not people in cubicles have equal access to these meeting spaces. The survey cannot determine that aspect.

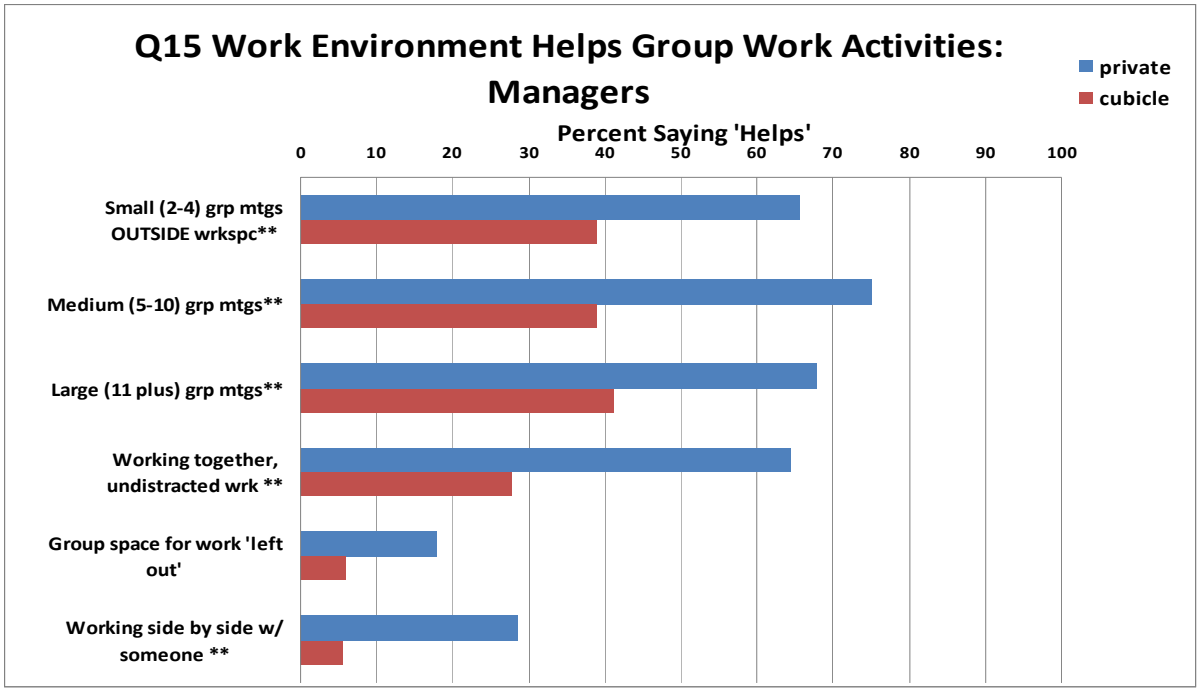
Figure 30. Work environment support for group work activities: Full sample (Q15)



**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks.

Managers only:
In the 'Manager only' analysis (Figure 31, below), the same pattern of results as seen for the full sample also exists. However, the managers in cubicles are even less happy than those shown above, in cubicles, with the three types of group meetings. Only one item, 'large group meetings' reaches a 40% approval rating; all other items are below that.

Figure 31. Work environment support for group work activities: Managers (Q15)



**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks

It is clear that enclosed offices are seen as providing much better support for employees' work activities.

Speakerphone Use (Q16)

This question was asked because previous research has shown that speakerphone use in a cubicle can be a significant source of noise/distraction to others who work nearby. One part of the question asked how many times per week, on average, people were on a speakerphone in their workspace. Unfortunately, the answers for this were not analyzed, due to the presence of a typographical error in the survey question (part of the question referred to times/week, while the response line referenced times/month.

Full sample:
However, another item did ask about how much they wanted to use a speakerphone, and, 'why' they felt that way. The table below reports the differences for those in offices and cubicles. As would be expected, many of those in offices (86%) used them as much as they wanted to. In sharp contrast, those in cubicles (almost 61%) reported that they 'had one, but didn't use it'. See Table 26 on the following page.

Table 26. Speakerphone use: Office vs. cubicle respondents: Full sample (Q16b)

			Q19 Workspace is a cube or private office		Total
			Private Office	Cubicle	
Q16b I use my speakerphone:	Less than I'd like to	Count	0	5	5
		%	.0%	3.0%	2.5%
	As much as I want to	Count	31	7	38
		%	**86.1%**	4.2%	18.8%
	More than I want to	Count	1	17	18
		%	2.8%	10.2%	8.9%
	Have one, but don't use it	Count	3	101	104
		%	8.3%	**60.8%**	51.5%
	Don't have one	Count	1	36	37
		%	2.8%	21.7%	18.3%
Total		Count	36	166	202
		%	100.0%	100.0%	100.0%

The responses to the open-ended question of 'Why' made it clear that the two most predominant reasons for people in cubes not using a speakerphone were that they worried about disturbing others, and they were concerned about the privacy of the call.

Managers only**:**
As can be seen in Table 27, below, 90% of the managers in an office used a speakerphone as much as they wanted to. In contrast, none of the managers in the cubicles reported they used a speakerphone as much as they wanted to; 55.6% reported they had a speakerphone, but did not use it. Those who answered the question of 'why', responded that they did not want to disturb others, or that there was no privacy in the cubicles.

Table 27. Speakerphone use: Office vs. cubicle respondents: Managers (Q16b)

			Q19 Workspace is a cube or private office		Total
			Private Office	Cubicle	
Q16b I use my speakerphone:	Less than I'd like to	Respondents	0	1	1
		%	.0%	5.6%	2.1%
	As much as I want to	Respondents	27	0	27
		%	**90.0%**	.0%	56.3%
	More than I want to	Respondents	1	5	6
		%	3.3%	27.8%	12.5%
	Have one, but don't use it	Respondents	2	10	12
		%	6.7%	**55.6%**	25.0%
	Don't have one	Respondents	0	2	2
		%	.0%	11.1%	4.2%
Total		Respondents	30	18	48
			100.0%	100.0%	100.0%

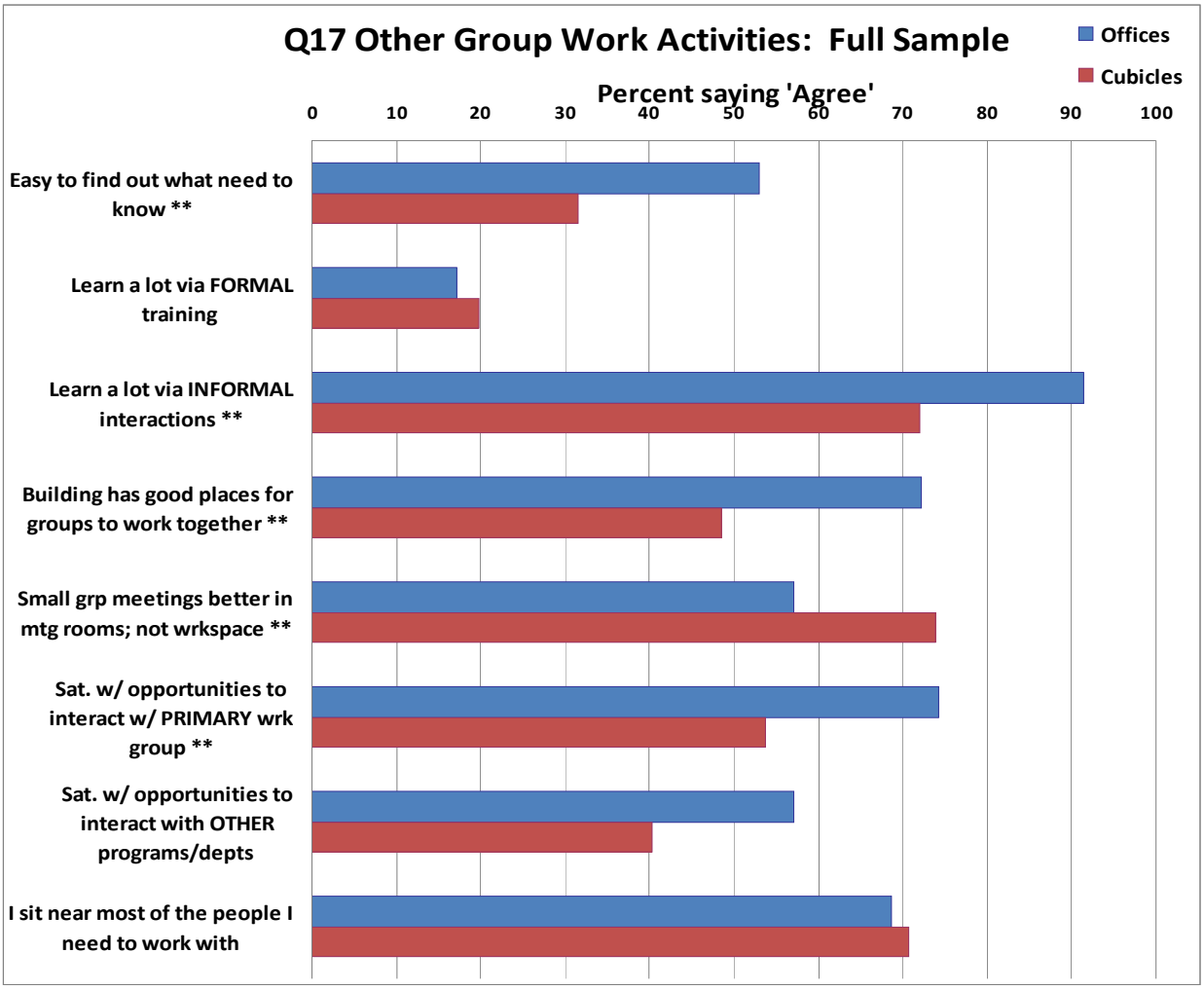
If an employee's work does not require, or is not facilitated by speakerphone use, then it wouldn't matter if they were in a cubicle or in a private office. However, if is does, then it is quite clear that being located in a cubicle hinders that activity.

Other Group Work Activities (Q17)

This set of findings is of interest because **support for impromptu interactions** (both in one's workspace and elsewhere) has been found to be the second most important general workplace quality that effects performance and satisfaction (Brill, Weidemann, & BOSTI Associates, 2001). And, contrary to popular beliefs that cubicles provide the most support for learning and interactions, the findings for Lewis & Clark employees are in agreement with the findings from the Weidemann & BOSTI Associates' previous research; see below.

Full sample:
See Figure 32 below, for the results of the office-cubicle comparison for the full sample.

Figure 32. Other group work activities: Full sample (Q17)



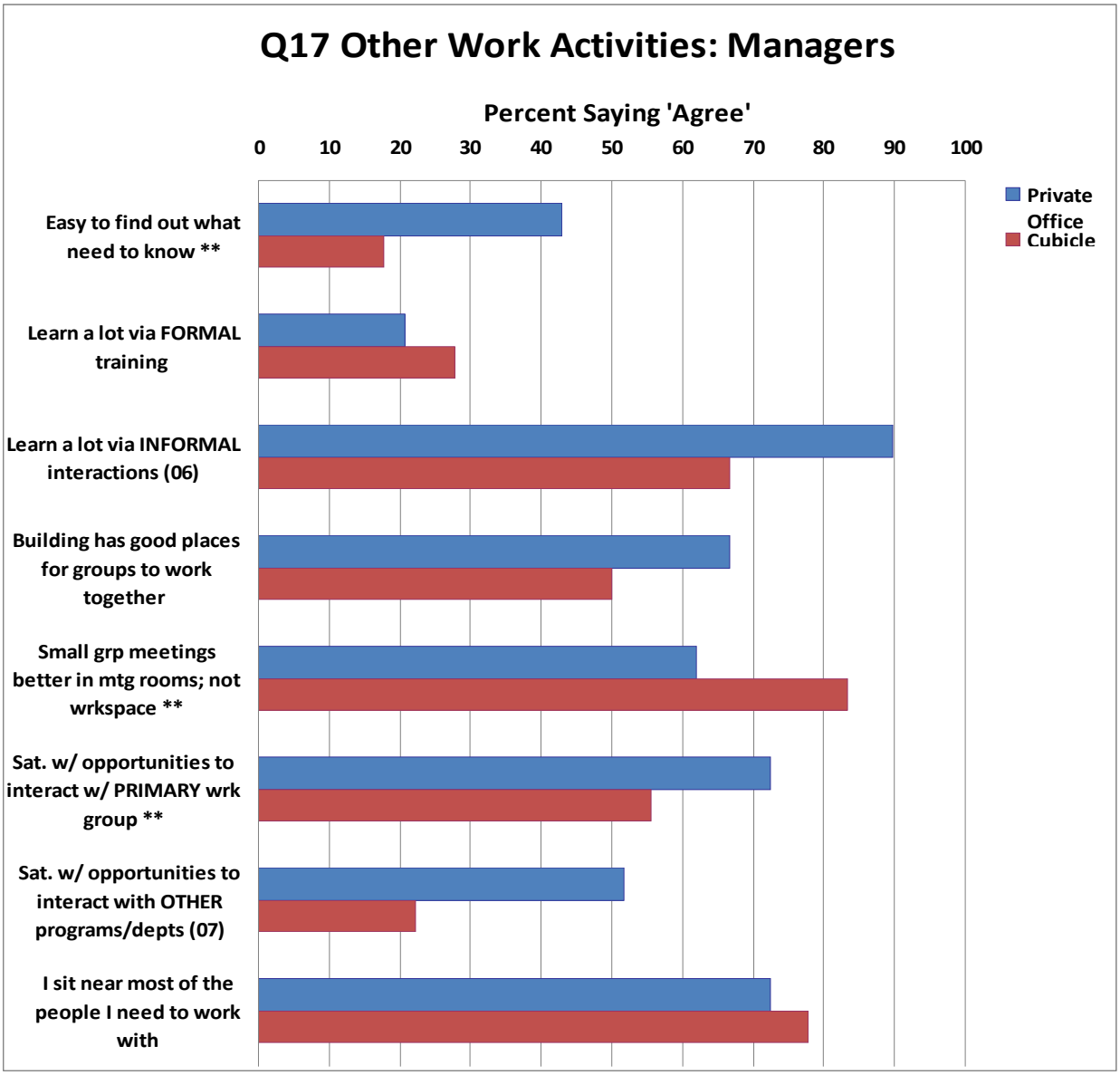
**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks

People in cubicles report less agreement than those in offices that it is 'easy to find out what they need to know'; less agreement that they 'learn a lot through informal interaction', and less 'satisfaction with opportunities to interact with those in their primary work group'.

Not surprisingly, cubicle occupants feel more strongly than office occupants that small group meetings are better in meeting rooms, than in their workspace. But they feel less positive (less than 50%) that there are good places for groups to work together in comparison to people in offices (more than 70% positive).

Managers only:
Figure 33 shows how the Manager sample responded to these items. There responses followed an identical pattern to that shown in Figure 32 above, for the full sample.

Figure 33. Other group work activities: Managers (Q17)



**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks

Amount of Paper 'Stuff' in Your Workspace (Q21)

Full sample:
The following table shows the average number of feet that a stack of all the paper material (books, notebooks, manuals, reports, loose paper, paper in piles and boxes, etc.) in their workspaces.

Table 28. Number of feet of all paper stuff now in workspace: Full sample (Q21a)

Q19 Workspace is a cube or private office	**Average # of feet**	**Respondents**
Private Office	**13.8**	35
Cubicle	**15.0**	171
Total	14.8	206

There is no significant difference between these two groups. Overall, people report that they have an average of 14.8 feet of paper material in their workspace.

However it is useful to also look at the average amount of paper material by Job Type and Workspace Type. (Although sample sizes for some of the office-cube groups are too small for analysis, the descriptive information is still useful. Tables 29 provides that information for the full sample.

Table 29. Number of feet of all paper stuff now in workspace by Job Type: Full sample

Q2 Lewis & Clark Job Types	Q19 Workspace is a cube or private office	**Average # of feet**	**Respondents**
Acct/Audit/Budget	Private Office	**8.5**	Fewer than 5
	Cubicle	**13.0**	18
	Total	12.6	20
Admin/Support	Private Office	**6.0**	Fewer than 5
	Cubicle	**15.3**	32
	Total	15.0	33
Clerical (none in offices)	Cubicle	**7.9**	20
	Total	7.9	20
Engineers (none in offices)	Cubicle	**15.2**	10
	Total	15.2	10
Manager/Supervisor	Private Office	**15.0**	29
	Cubicle	**17.0**	18
	Total	15.8	47
Specialists/Scientists	Private Office	**10.0**	Fewer than 5
	Cubicle	**17.2**	62
	Total	16.9	64
Technical Support (none in offices)	Cubicle	**11.0**	5
	Total	11.0	5
Total	Private Office	14.1	34
	Cubicle	14.9	165
	Total	**14.8**	199

Specialists and Scientists, Mangers and Supervisors, and Engineers all report more than 15 linear feet of paper, although many of these people are in cubicles.

Managers only:
Table 30, in comparison to Table 29, shows that managers tend to have more paper in their workspace than the full sample respondents. However, even though there appears to be a difference between the average number of feet of paper material for managers in private offices (15 feet) versus those in cubicles (17 feet), it is not a statistically significant difference.

Table 30. Number of feet of all paper stuff now in workspace: Managers (Q21a)

19 Workspace is a cube or private office	**Average # of feet**	**Respondents**
Private Office	**15.0**	29
Cubicle	**17.0**	18
Total	15.8	47

Even though they have roughly the same amount of paper material, storage is more of a problem for those in cubicles. As will be seen in Figure 35, in the following pages, there was a significant difference between managers in offices and those in cubicles in terms of how they responded to 'there is enough storage space in my workspace for me to do my work' (Q24). Of those in offices, 70% were in agreement with this statement. But only about 50% of managers in cubicles agreed.

Evaluating Your Workspace

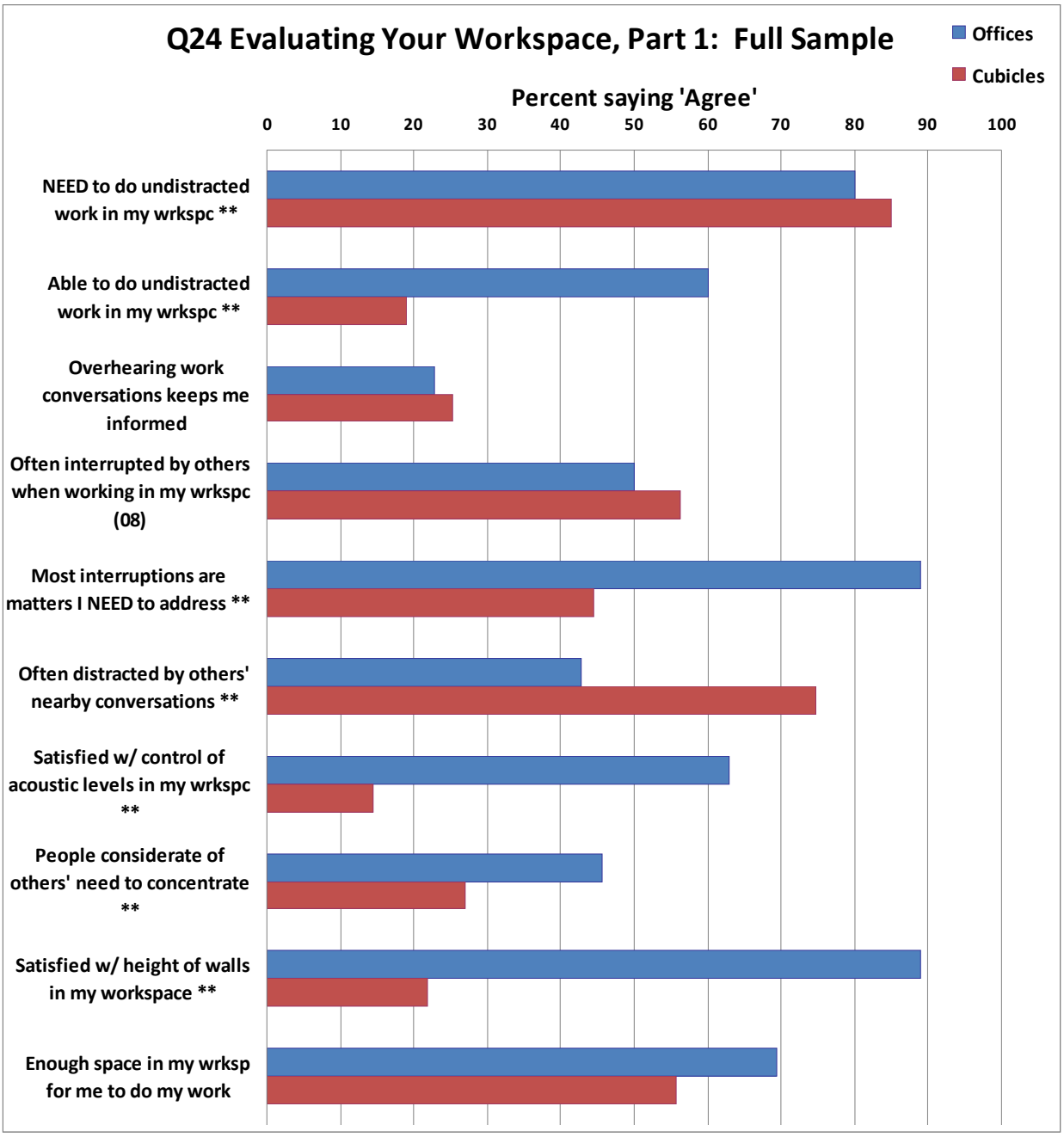
Question 24 of the survey contained a number of questions specifically focused on an evaluation of the employee's workspace. Results are shown in the following figures. Because there were so many items in this section, they are presented in three parts, with the full sample, and the Managers only, within each part.

Part 1: Distractions, Interruptions, Acoustics, Workspace Features

Full sample: Again, in agreement with results from Q12, dealing with the importance of doing quiet work alone in their workspace, over 80% of the respondents say they need to do undistracted work in their workspace. (See figure 34 below.) In fact, those in cubicles report this need to be significantly greater than those in offices. Yet when asked if they are able to do undistracted work, there is much less agreement, as well as a significant difference between those in cubes (less than 20%) and those in offices (60%).

Additional items further explain what the problems are: Those in cubes are significantly more often distracted by nearby conversations (75% vs. 43%), less satisfied with their control over acoustic levels (14% vs. 63%), and much less satisfied with the height of the walls in their workspaces (22% vs. 89%). They were also less positive about people being considerate of others' need to concentrate (27% vs. 46%).

Figure 34. Evaluating your workspace, Part 1: Full sample (Q24)



**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks

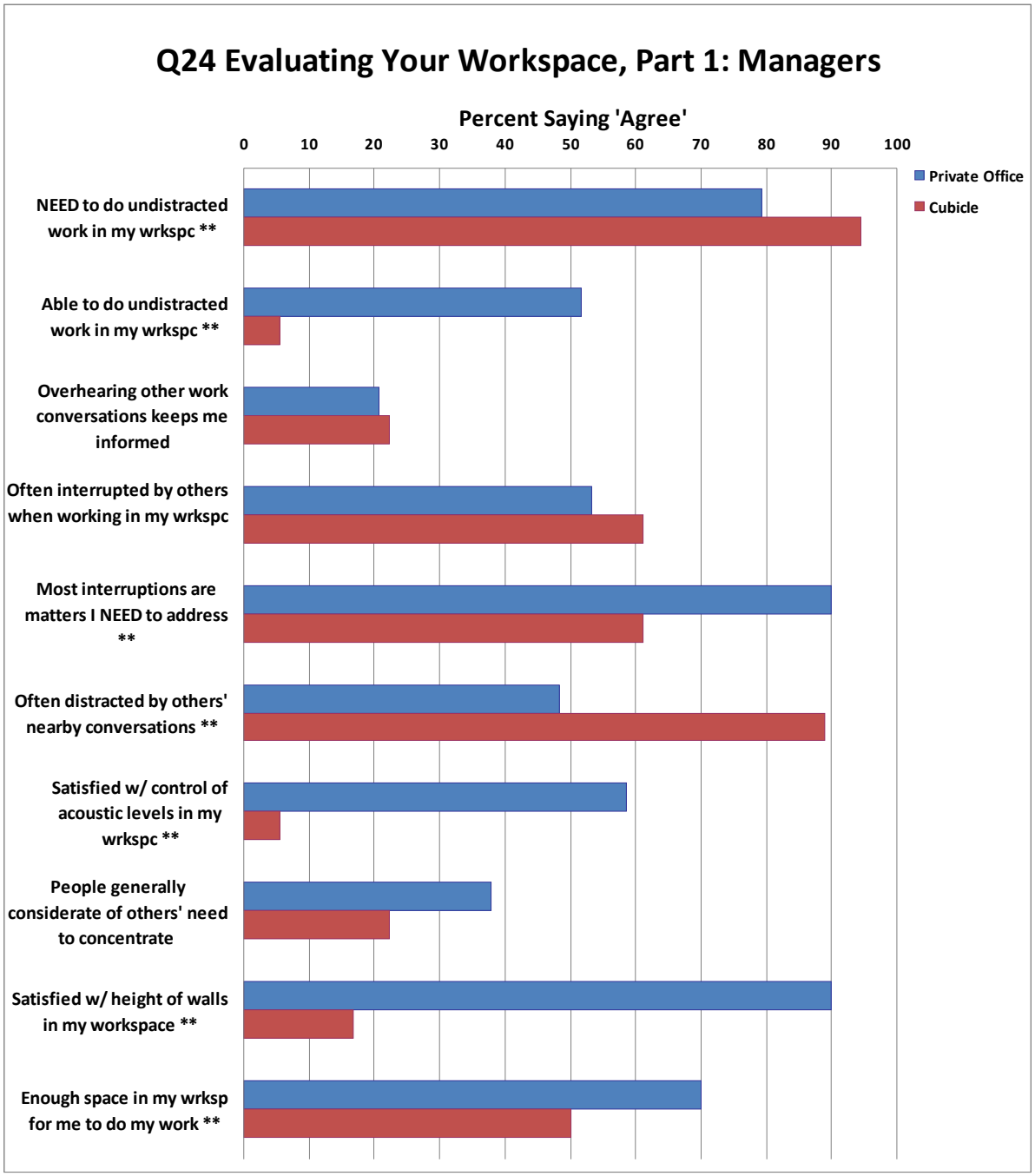
A final note about another issue… that of how people learn. Only about 24% of the respondents felt that they were kept informed by overhearing work conversations; there were no significant differences between those in cubes or offices.

Managers only: Figure 35 shows the responses of only the managers, in cubes or offices. The pattern of responses was very similar to that for the full sample, in Figure 34.

While there was no significant difference in the full sample in terms of 'being able to do undistracted work', there was a clear, and significant difference for the managers only. Only

about 6% of the managers in cubes reported being able to do undistracted work. This was in strong contrast to over 50% of managers in offices, in agreement.

Figure 35. Evaluating your workspace, Part 1: Managers (Q24)



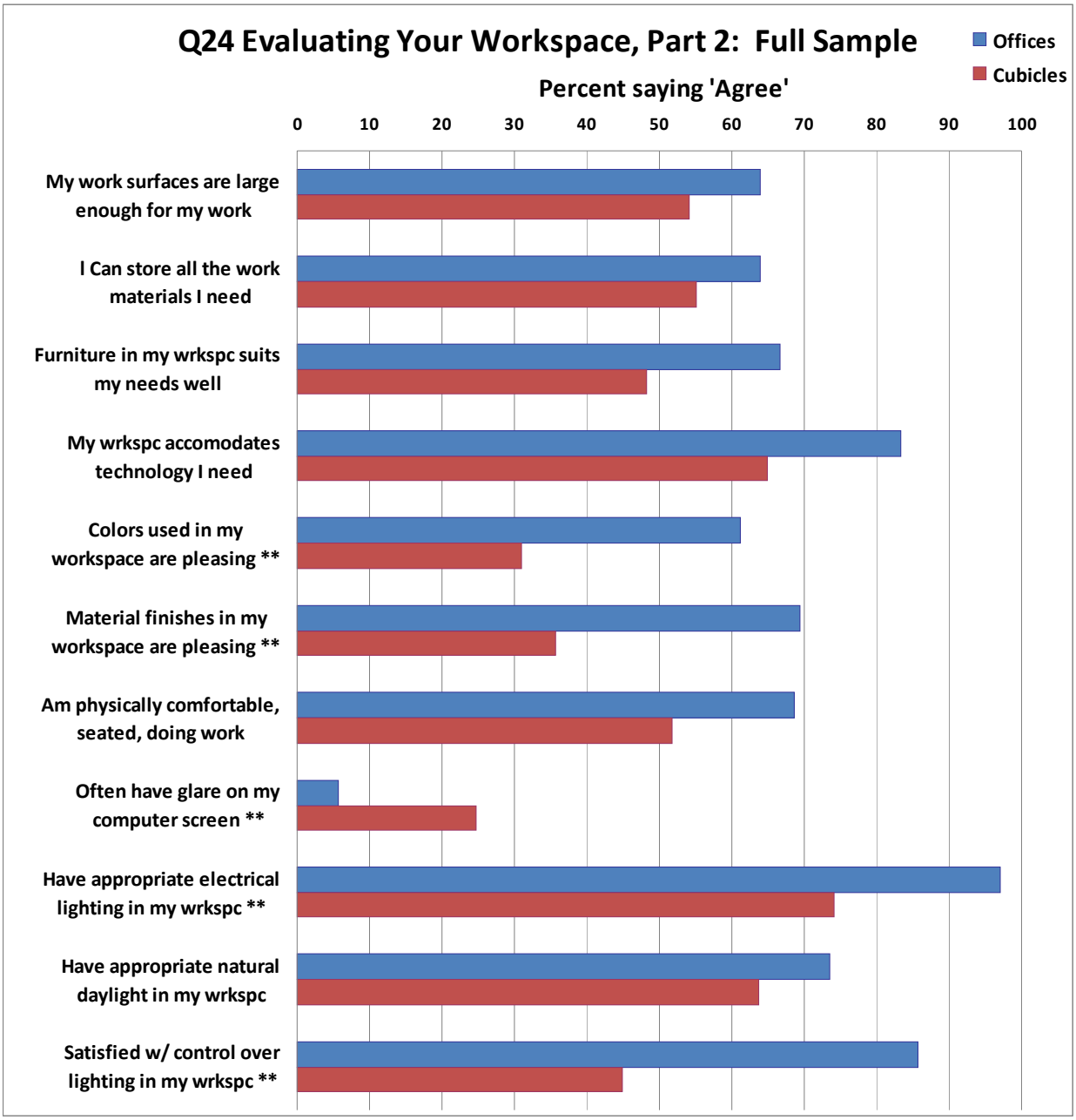
**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks

Part 2: Storage, Workspace Features, Comfort, and Lighting

The items in Part 2 of this question, shown below (Figures 36 and 37), mostly had to do with the evaluation of physical aspects of their workspace. Again there were a number of significant differences in how people in cubes responded, in comparison to people in offices.

Full sample: Over 60% of those in offices were positive about all these features. That was less so for those in cubes, in some cases. They were significantly less positive about colors and material finishes in their workspace.

Figure 36. Evaluating your workspace, Part 2: Full sample (Q24)

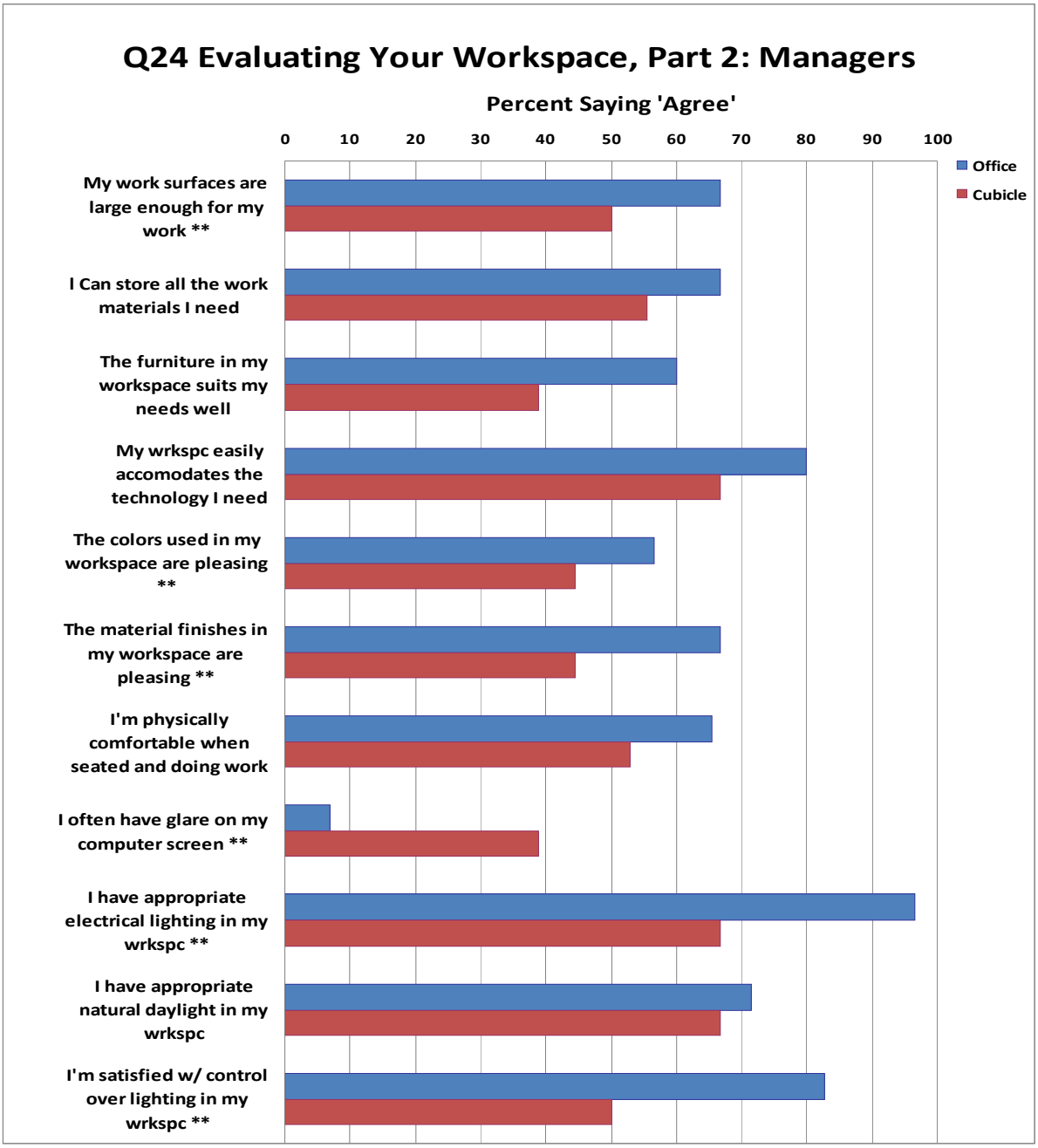


**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks.

Lighting issues showed some differences between those In cubes vs. those in offices. For example, while all were positive about having appropriate electrical lighting (74% for cubes, 97% for offices), there was still a statistically significant difference between these groups. Over 60% of all respondents felt that they had appropriate natural daylight in their workspace (no significant difference between the groups). However, people in cubicles were significantly less satisfied with the degree of control they had over the lighting in their workspace (45% vs. 86%).

Managers only: See Figure 37, below.

Figure 37. Evaluating your workspace, Part 2: Managers (Q24)



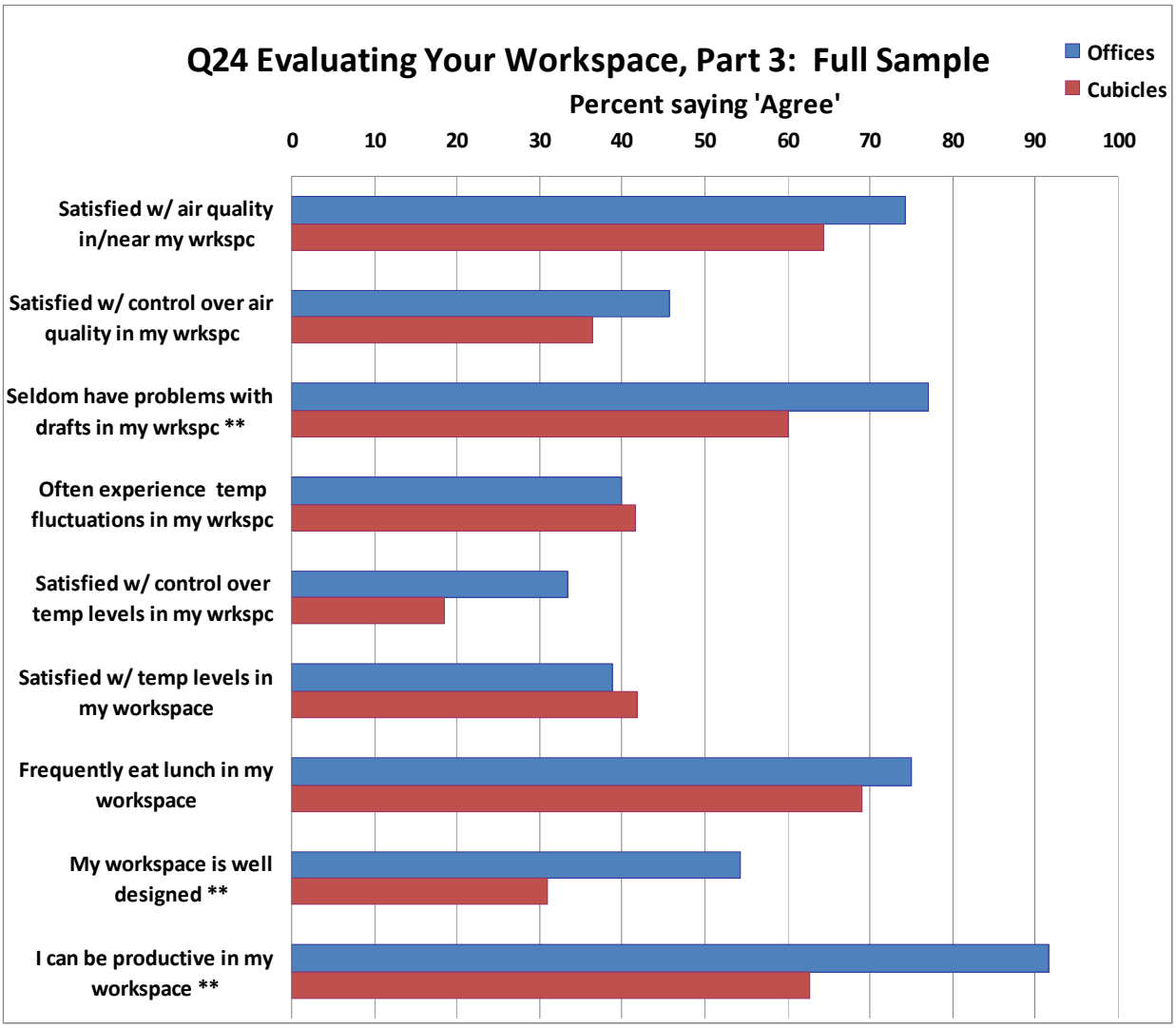
**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks.

The 'Manager only' analysis was similar to that of the analysis for the full sample (reported in Figure 36, above. However, for this comparison, the managers in cubicles were also significantly less satisfied about their work surfaces being large enough for their work (50% vs. 67%). (Table 30, already discussed above, indicated that cubicle managers had 17 linear feet of 'paper stuff' in their workspace, in comparison to the 15 feet reported by managers in offices.)

Part 3: Air Quality, Drafts, Temperature

Full sample: Figure 38 shows that only one of these HVAC items, 'seldom have problems with drafts in my workspace', showed a significant difference. Those in cubicles reported less agreement with this statement (60% agreed vs. almost 80% of those in workspaces). Over the whole sample, air quality received the most positive evaluations (over 60% positive), and only about 40% reporting the experience of temperature fluctuations. Yet less than 50% were happy with the control of their air quality.

Figure 38. Evaluating your workspace, Part 3: Full sample (Q24)



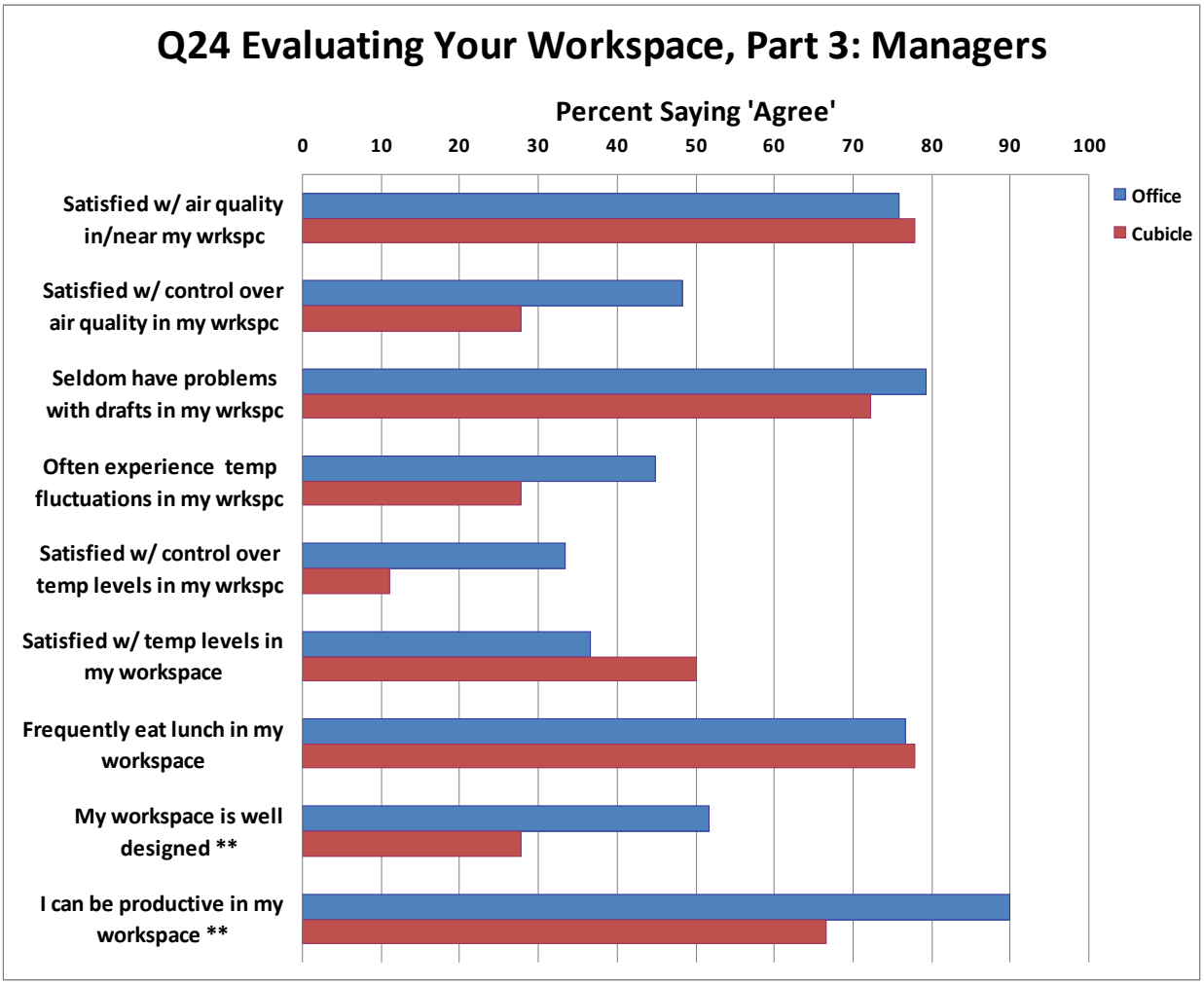
**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks

Most people (over 70%) reported that they frequently ate lunch in their workspace.

Finally, there were significant differences between those in cubes and those in offices for feeling that their 'workspace was well designed' (31% vs. 54%), and feeling that they 'could be productive in their workspace' (63% of those in cubes vs. 92% of those in offices).

Managers only: As can be seen in Figure 39 below, these same findings about workspace design and being able to be productive in their workspace were also true for the 'Manager only' comparison, with managers in offices reporting 52% agreement about their workspace being well designed, and 90% reporting that they could be productive. Those managers in cubes reported 28% positive about their workspace design, and 67% saying they could be productive.

Figure 39. Evaluating your workspace, Part 3: Managers (Q24)



**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks

The last two items were the only ones where significant differences between those in offices and those in cubicles were found. Managers in general were quite positive about air quality and draft issues in or near their workspace (over 70% positive). Note also that over 75% of the managers report that they frequently eat lunch in their workspace.

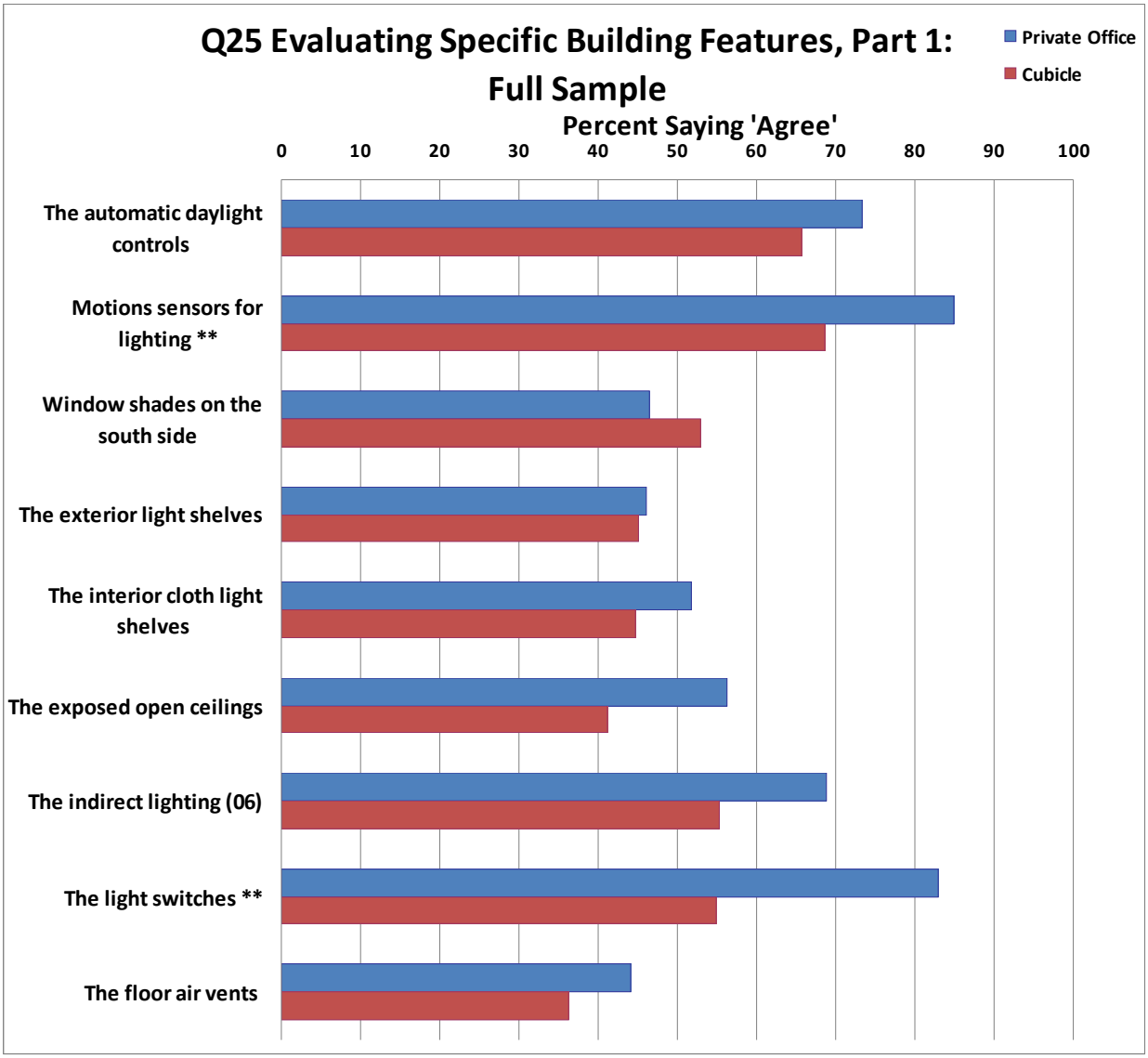
Evaluating Specific Building Features

Items in question 25 addressed many of the same types of issues as those considered in workspaces, e.g., lighting, building décor, other shared spaces, as well as some sustainable issues. However, they addressed these issues at the building level, rather than at the workspace level.

Part 1: Lighting, Ventilation, Ceilings

Full sample: Figure 40 below represents the percentage of positive responses to the first group of items. It shows that there were few significant differences in responses by those in offices vs. those in cubicles.

Figure 40. Evaluating specific building features, Part 1: Full sample (Q25)



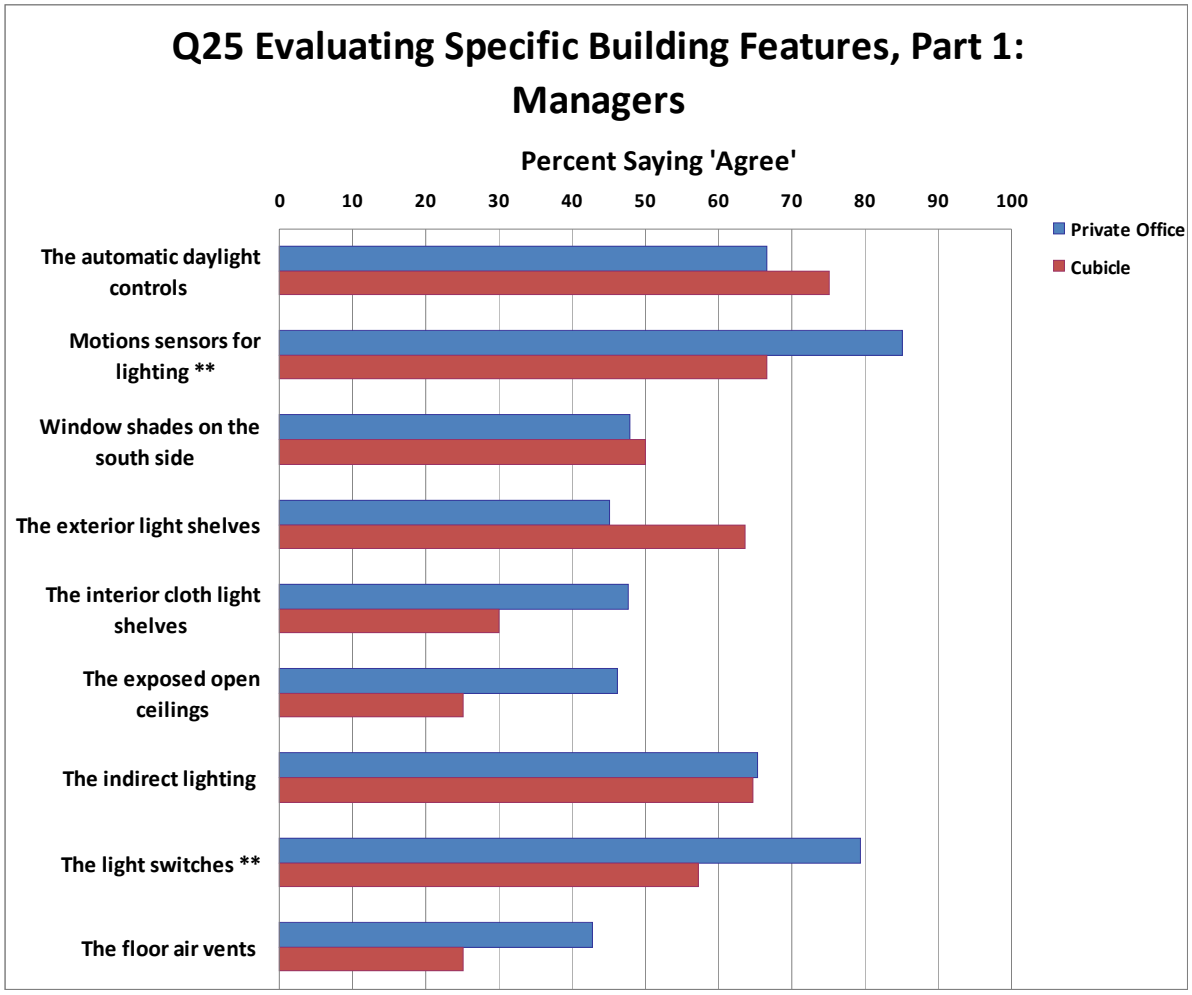
**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks

Only the evaluation of 'motion sensors for lighting' and the 'light switches' were more positive for those in offices than for those in cubicles.

In general, people were quite positive (over 60%) about the automatic daylight controls, the motion sensors for lighting, the indirect lighting, and the light switches (but 55% for those in cubicles).

Managers only:
Figure 41 shows that equivalent findings were obtained for the 'Manager only' comparisons.

Figure 41. Evaluating specific building features, Part 1: Managers (Q25)

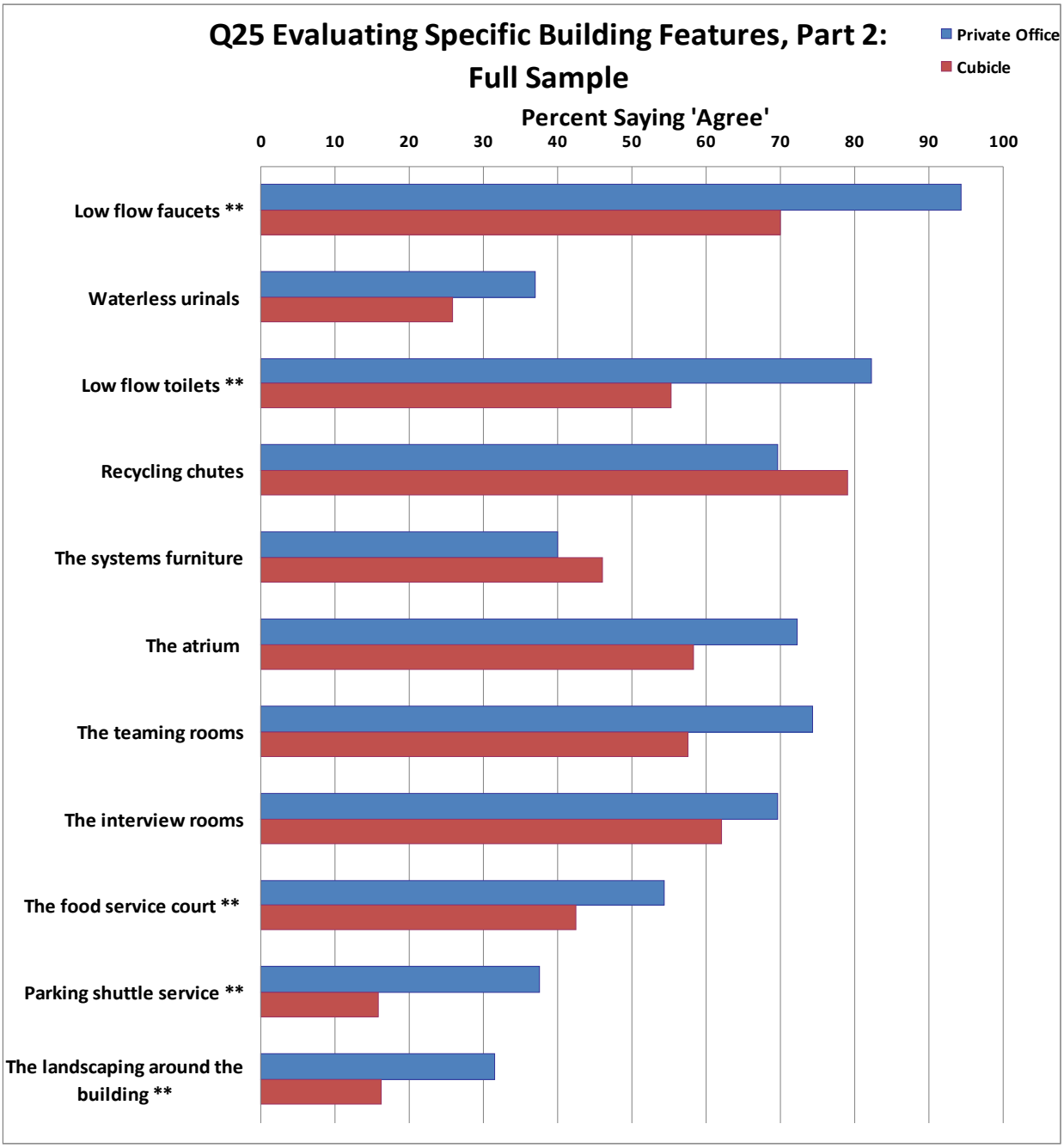


**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks

Part 2: Water, Recycling, Building Spaces, Shuttle Bus, and Landscaping

Full sample:
Figure 42 shows that over 50% of all respondents were positive about the low flow faucets, the low flow toilets, the recycling chutes, the atrium, the teaming rooms, and the interview rooms. However, the waterless urinals received little approval (less than 37%); responses to the open ended questions in Question 31 further explain the reasons for that. Odor was the primary problem.

Figure 42. Evaluating specific building features, Part 2: Full sample (Q25)



**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks

For the full sample (Figure 42, above), there were significant differences for five items; in all cases those in offices were more positive. The food service court received 42% approval by those in cubes and 54% approval by those in offices. Again, responses to the open ended questions at the end of the survey (and shown in Appendix A) indicated that one of the possible reasons for that was that people in cubes would be more likely to experience problems with odors from the food court/atrium area (which was a problem to some).

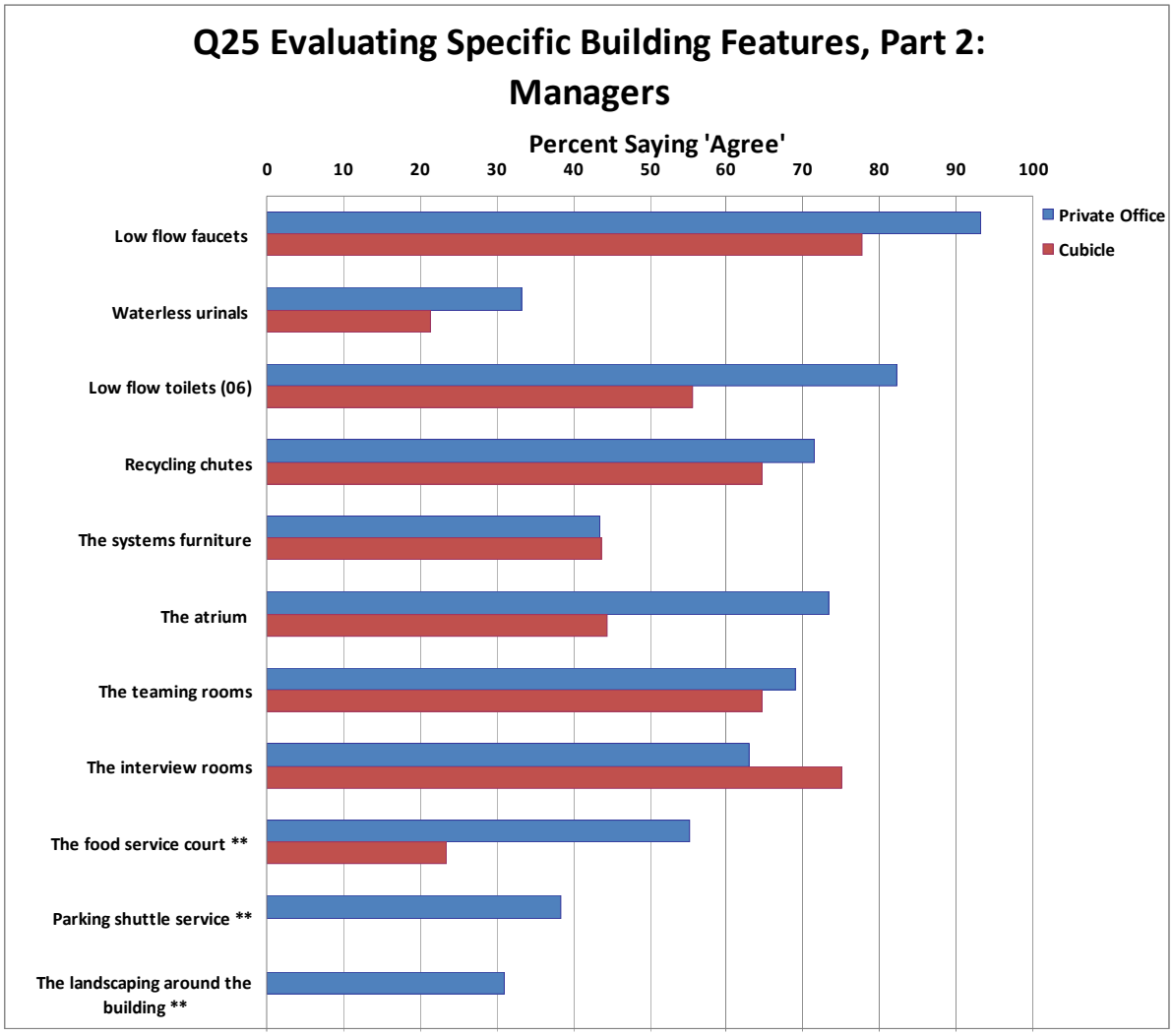
Although responses to the low flow faucets and low flow toilets were generally positive (over 50%), there were significant differences in responses by those in offices and those in cubicles, where those in offices were more positive.

Finally, two exterior features (the parking shuttle and the landscaping around the building) showed significant differences between the groups, where those in offices were again more positive. However, the important aspect about these features was that these were not well perceived. Fewer than 20% of those in cubicles were positive and fewer than 40% of those in offices were positive. While many reasons for the low levels of approval can be seen in the responses to open ended comments, shown in Appendix A, it is not clear why there should be a significant difference between those in offices or cubicles.

One possible reason that could be suggested for these differences, for the full sample, is that most in offices are managers; perhaps managers are more invested in some of the building features than those in cubes. Figure 43, below, shows the results for the Managers only sample.

<u>Managers only:</u>
However, when the 'Manager only' comparison was examined (below, in Figure 43), there is the same significant difference between those in offices and cubicles, but it is even <u>more</u> pronounced and negative for those managers in cubicles. Basically none of these respondents were positive about the parking shuttle or the landscaping. All were neutral or negative in their evaluations. (See Appendix A for specific comments made by respondents about these issues.)

Figure 43. Evaluating specific building features, Part 2: Managers (Q25)



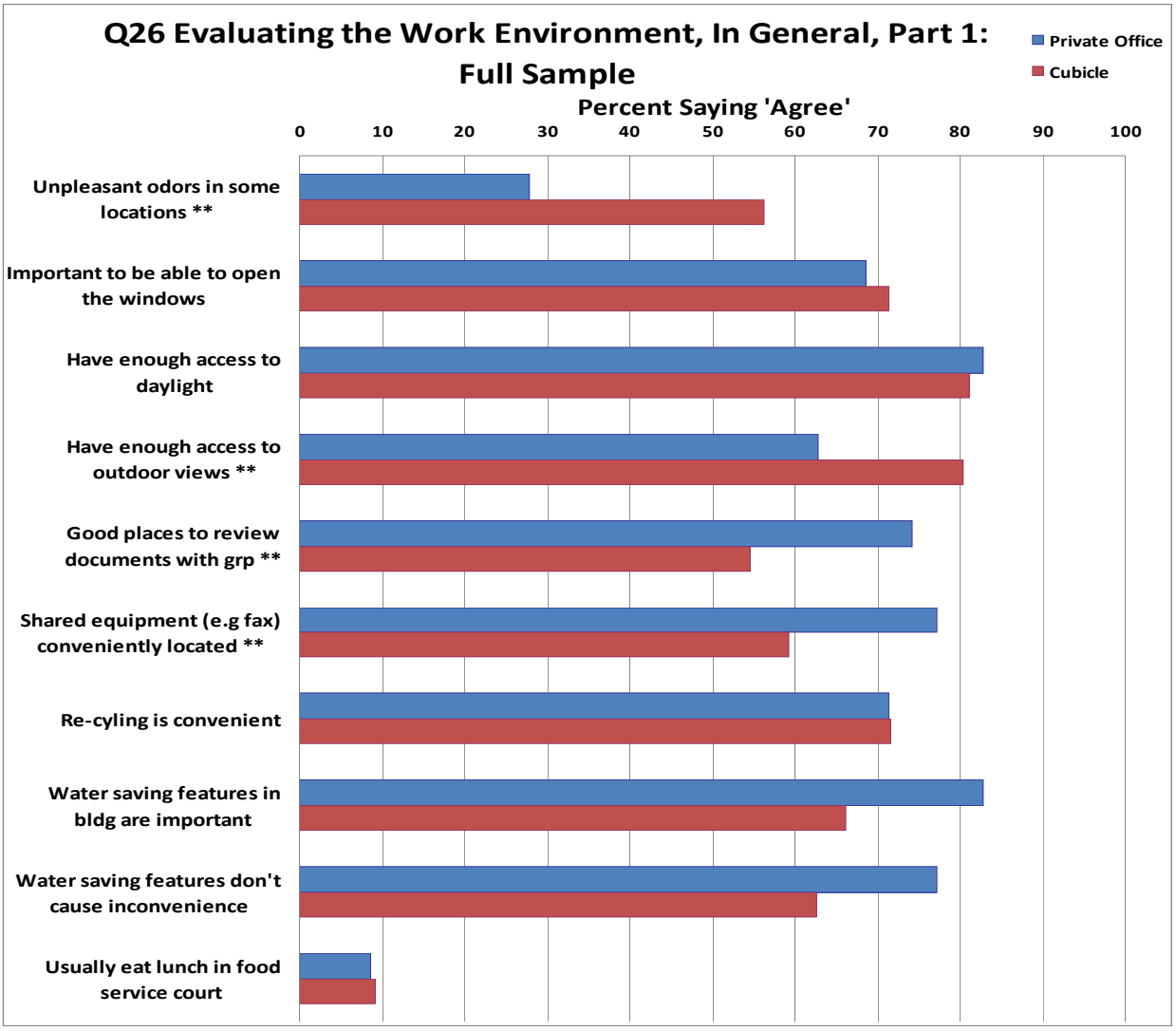
**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks

Evaluating the Work Environment, in General

Windows, Water-Saving, Recycling, Shared Spaces, and Odors

Full sample:
Figure 44 below addresses responses to items in question 26. They primarily consist of window related issues, water saving features in the building, and evaluations of a number of shared building features.

Figure 44. Evaluating the work environment, in general, Part 1: Full sample



**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks

As can be seen in Figure 44 above, more than 50% of the people were positive about 8 of the 10 issues.

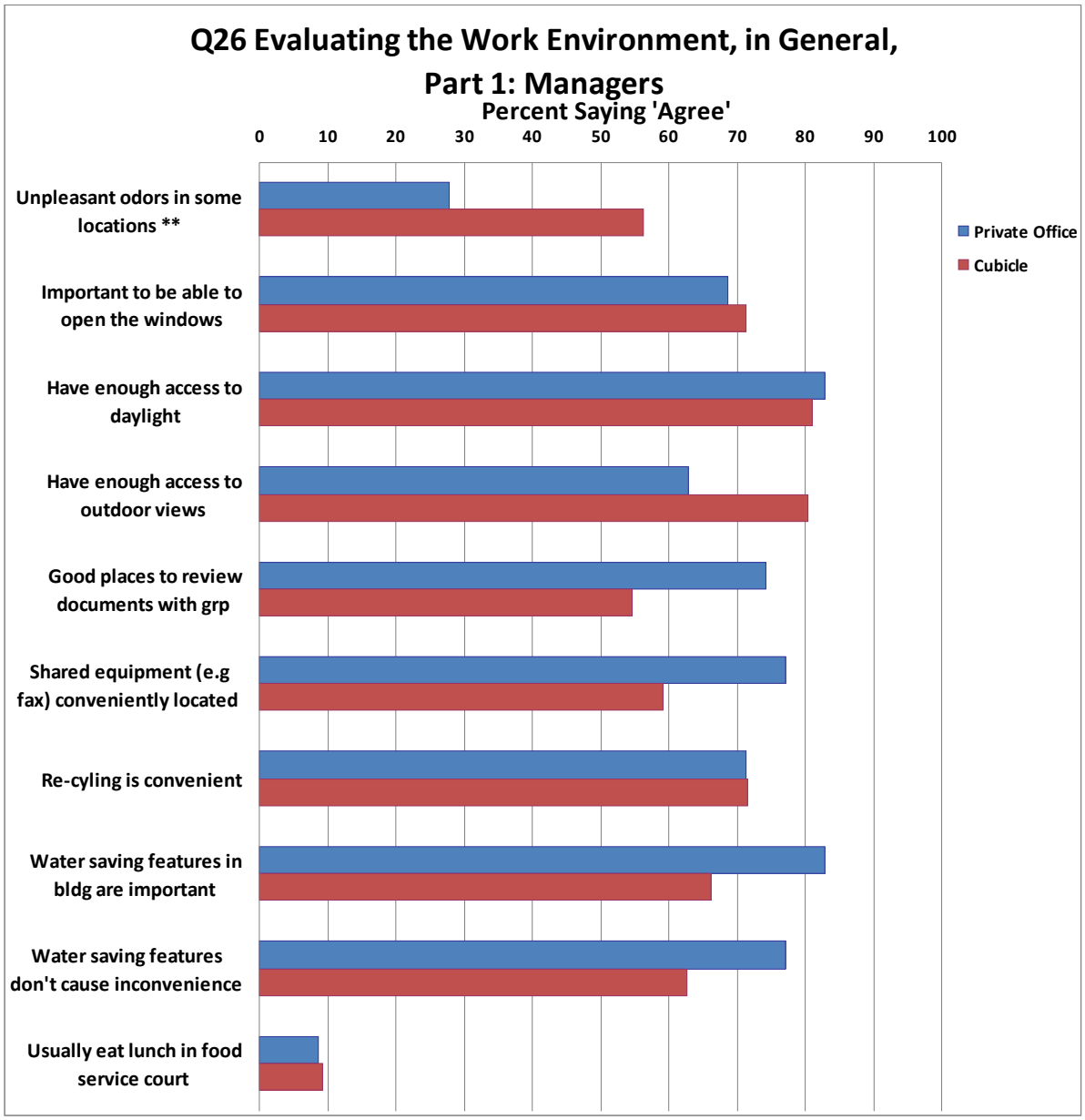
One of the items where there were significant differences between those in offices and cubicles is that of experiencing unpleasant odors in some location in the building. In fact, 56% of those in cubicles report the presence of unpleasant odors. Also, only 28% of the people in offices reported specific locations for odors, whereas 45% of those in cubicles reported locations. (Areas frequently mentioned had to do with the restrooms and restroom features, and food odors in the atrium or other food areas. See Appendix A for specific details, and Figure 15, discussed previously in Section 3.)

Note also that very few people reported usually eating lunch in the food service court. Reasons for that are detailed in the verbatim responses in Appendix A, relating to evaluations of the building interior.

People were generally very positive about windows, daylight, and outdoor view issues. However, those in cubicles were significantly more positive than those in offices in terms of 'having enough access to outdoor views'. Obviously this would be because those in cubicles sit near the windows, and can see out of them easily.

Managers only:
Figure 45 indicates that the responses of the managers in cubicles and offices follow the same pattern as that for the full sample. Over 50% of all managers are positive about most of the features, and those in offices are positive about eight of the items at a level of 60% or higher.

Figure 45. Evaluating the work environment, in general, Part 1: Managers



**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks

Note that, while the pattern is identical to the full respondent sample, there are no significant difference between managers in office or cubicles for 'having enough access to outdoor views', 'having good places to review large documents with a group', and with feeling that 'shared equipment is conveniently located'. That is primarily due to the small sample size.

The only significant difference between those in cubicles and those in offices is for 'unpleasant odors in some locations'. Over 55% of those cubicles report experiencing them at some times.

Air Quality, Furnishings, Flooring, Maintenance, Safety, and Break Areas

Figures 46 and 47 (below) report comparisons for the items in the last part of Question 26. It is important to note that there are four items for which a low percent of agreement is a positive response.

Full sample:
Colors and materials used throughout the building were more positively evaluated by those in offices, and those in cubicles reported more uncomfortable drafts in meeting rooms (perhaps they used the meeting rooms more often than those who could use their office for some meetings).

Although there were differences between office and cubicle responders, with those in cubicles being less positive, there were generally fewer than 20% who reported being bothered by walking on the raised flooring.

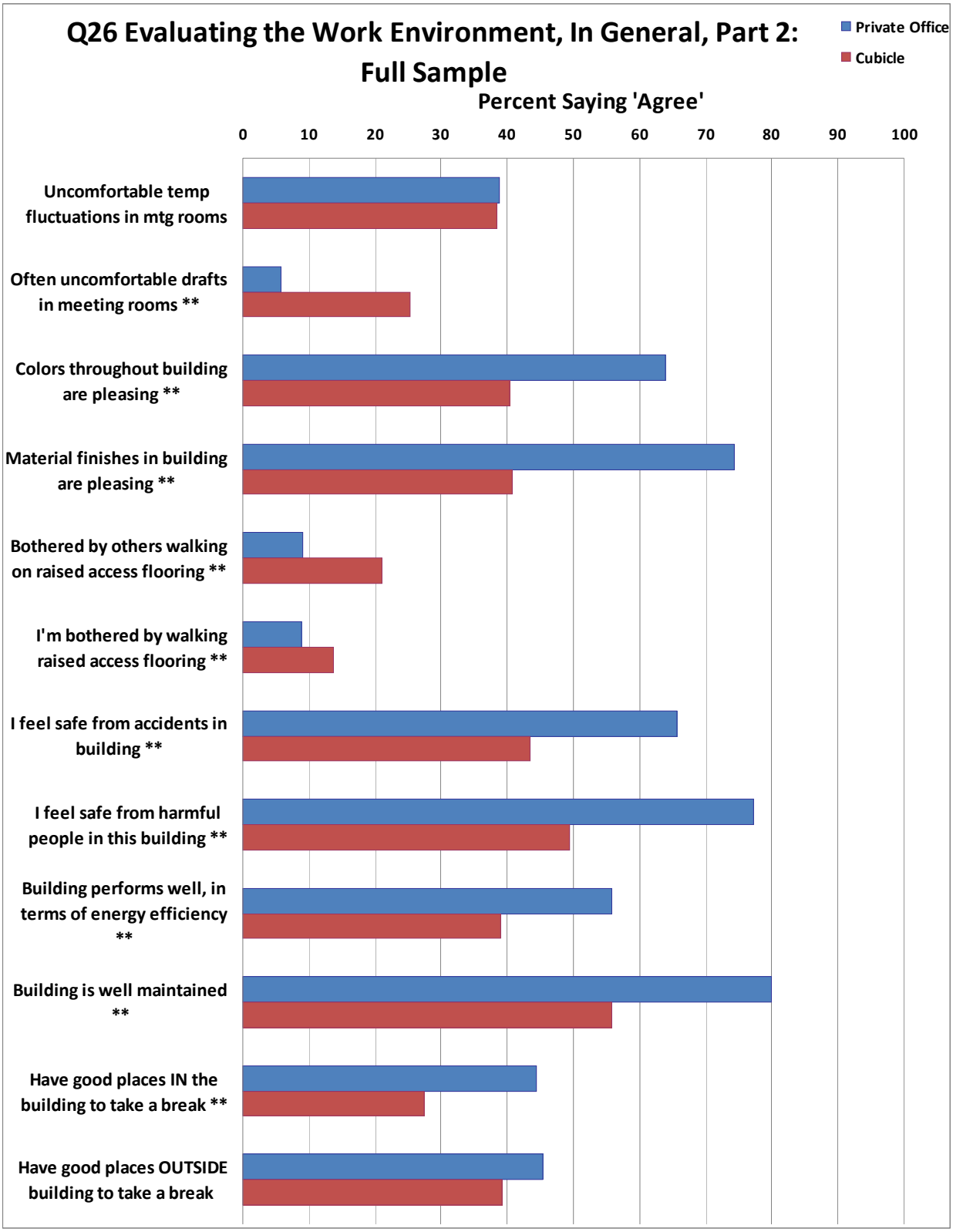
The most positive evaluation was for building maintenance, although those in cubicles were less positive (56% vs. 80%). They were also less optimistic about the building performing well, in terms of energy efficiency, although they were still fairly positive (39% vs. 56%).

Places to 'take a break, relax, or unwind', both inside and outside were not highly rated. Office people were significantly more positive than those in cubes for 'inside breaks', perhaps because they felt more comfortable being able to do so in their own workspace. Again, see Appendix A for specific comments.

Finally, two items relating to perceived safety (from accidents or harmful people) in the building showed differences between office and cubicle occupants. In both cases people in cubicles reported lower, although still positive, levels of safety.

See the next page for Figure 46, illustrating these findings.

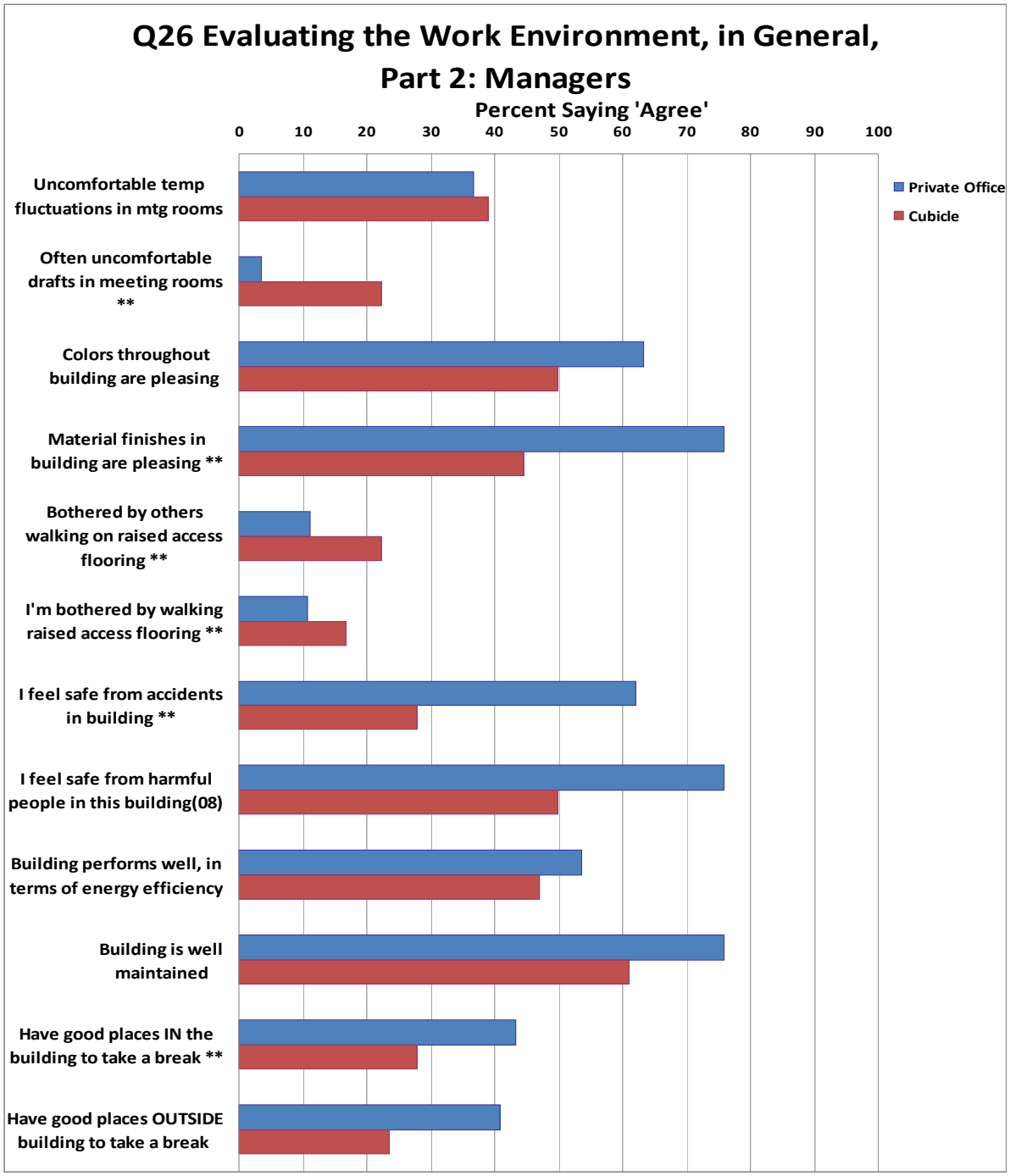
Figure 46. Evaluating the work environment, in general, Part 2: Full sample



**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks

Managers only:
Figure 47 shows the same general pattern as for the full sample. However, it can be seen that there are three items for which there is no significant difference between managers in cubicle or offices (when there was a significant difference in the set of full respondents). That is likely due to the smaller sample available for this analysis.

Figure 47. Evaluating the work environment, in general, Part 2: Managers



**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks

While there are very few people reporting uncomfortable drafts in meeting rooms, there is still a statistically significant difference (less than 5% for managers in cubes, and more than 20% for managers in cubicles. That may be because those in cubicles use those spaces more than office holders, because of limited space for meetings in their cubicle workspaces. If they use them more, they may be more aware of drafts.

Evaluating the Lewis & Clark Building & Site, in General

Many of these items (in question 27 of the survey) covered different and additional aspects of some of the previous issues.

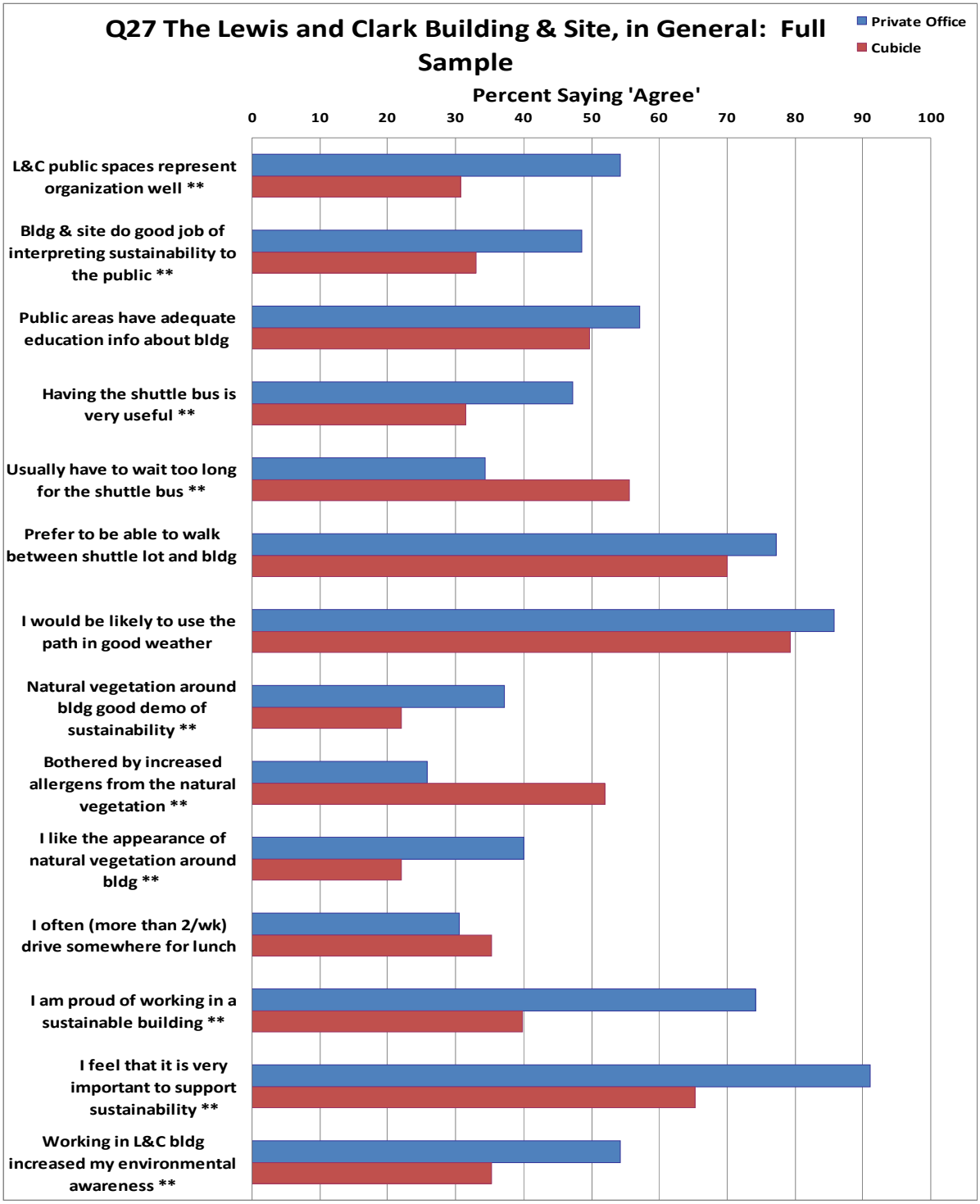
Full sample:
Figure 48 (below) shows that there were significant differences between the perceptions and beliefs of those in offices vs. cubicles (full sample) for 10 of the 14 items. Issues of how well the building and site represented the organization and interpreted sustainability to the public received significantly more positive evaluations by those in offices than cubicles. As well, they reported higher levels of being proud of working in a sustainable building, feeling that it is important to support sustainability, and that working in the building has increased their environmental awareness. It is not clear from the data why this might be so.

The items dealing with natural vegetation and related issues are significantly more positive for those offices than in cubicles (as they were for the evaluation of the landscaping, shown in Figure 42, earlier in the report). People in cubicles are less likely to feel that natural vegetation is a good demonstration of sustainability, like the appearance of it less, and report being more bothered by increased allergens from the vegetation. In terms of being bothered by the allergens, note that the cubicle occupants are closer to windows, which may be open occasionally, thus allowing allergen entry.

Finally, the two items with the highest levels of agreement (there are no significant differences between office and cubicle respondents) have to do with their preference for and potential use of a path between the shuttle parking lot and the building (between 70 and 86% agreement). A related issue is that cubicle respondents report having to wait longer for the shuttle bus (over 50%), and less likely to feel that the shuttle bus is useful.

See Figure 48, on the following page, for the illustration of these findings.

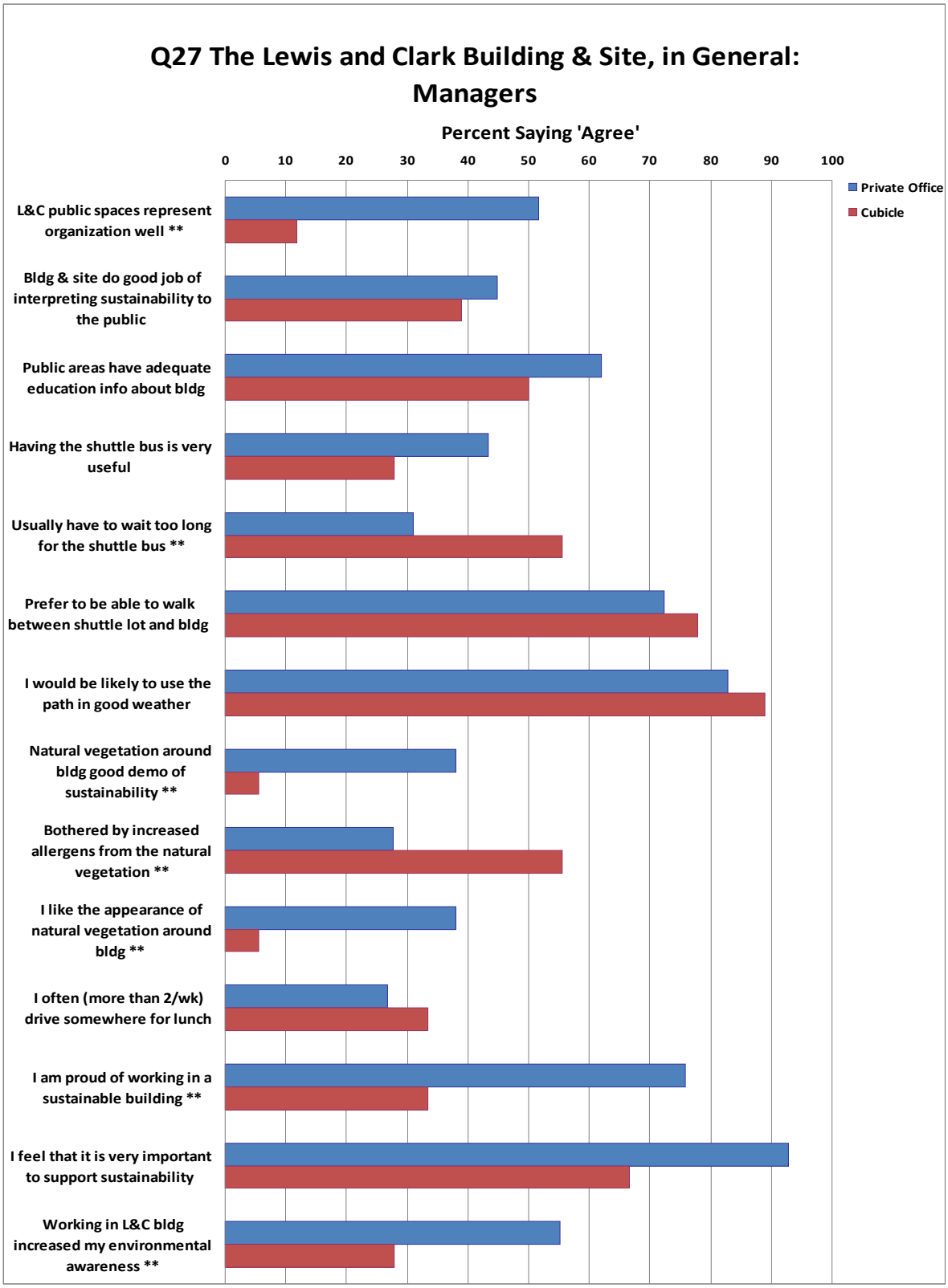
Figure 48. The Lewis & Clark building & site, in general: Full sample (Q27)



**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks.

<u>Managers only:</u>
Figure 49 (following page) shows similar results to that for the full sample, with two general exceptions.

Figure 49. The Lewis & Clark building & site, in general: Managers (Q27)



**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks.

Two of the items ('building & site do a good job of interpreting sustainability to the public' and 'having the shuttle bus is very useful') do not have significant differences between office and cubicle managers, as they did for the full sample. That is likely due to the smaller sample of respondents being tested.

Three items, showing statistical differences for both the full and manager samples, have the same pattern, but they are more pronounced for the manager only comparison. That is, more than 50% of the managers in offices are positive about 'Lewis & Clark public spaces represent the organization well', while only slightly more than 10% of those in cubicles agree. 'Feeling that natural vegetation around the building is a good demonstration of sustainability' has almost 40% agreement by those in offices, but only around 5% agreement by those in cubes. And finally, almost 40% of the managers in offices agree that 'I like the appearance of the natural vegetation around the building'; only about 5% of those in cubes agreed.

The reasons for this disparity in manager evaluations are not clear. It is shown for numerous items that people In cubicles are not as positive about various features of the work environment, particularly those dealing with their workspaces. Is it possible that this level of unhappiness is 'carrying over' to these exterior issues?

Work Experiences (Where you worked *BEFORE*, and *HERE*)

This set of questions in the survey (Question 28) asked about experiences with where people had worked prior to coming to work in the Lewis & Clark building, in comparison to those same kinds of experiences at the Lewis & Clark building. These items had to do with the frequency of experiencing various health related issues, as well as several satisfaction issues.

In order to allow easy comparison between how people responded to the Lewis & Clark building in comparison to their prior work location, the results will be presented in the following order: (Note: Because the 'Office respondents' for the full sample are mostly the mangers in offices, those graphs will be very similar: the number of respondents for each group are shown below.)

Health Experiences

- Full sample: Office respondents (Figure 50) (# respondents=36)
- Full sample: Cubicle respondents (Figure 51) (# respondents=174)
- Manager sample: Office respondents (Figure 52) (# respondents=30)
- Manager sample: Cubicle respondents (Figure 53) (# respondents=18)

Satisfaction Experiences

- Full sample: Office respondents (Figure 54) (# respondents=36)
- Full sample: Cubicle respondents (Figure 55) (# respondents=174)
- Manager sample: Office respondents (Figure 56) (# respondents=30)
- Manager sample: Cubicle respondents (Figure 57) (# respondents=18)

The statistical analysis used to test the differences between prior workplace evaluations and the Lewis & Clark workplace evaluations was done by paired sample t-test to test for the differences between the mean responses of each tested group. Significant differences

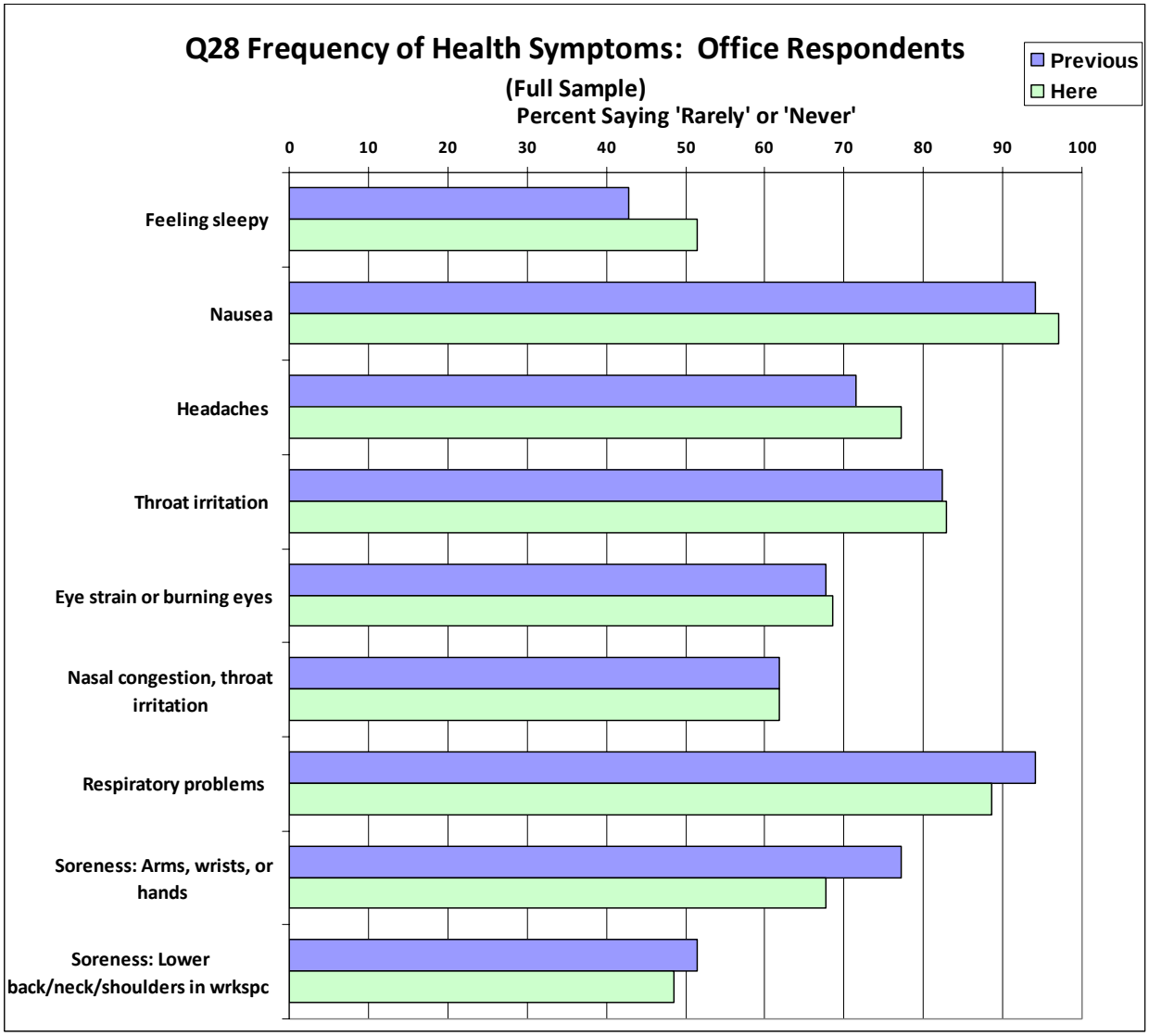
between 'Prior' and 'Here' will be shown by double asterisks. Entries in the following figures is for percentage level of experience; not the mean score.

Health Related Experiences ('Previous' and 'Here')

In the figures in this section, high percentages are indications that the people 'rarely or never' experienced the health problems, thus is a positive evaluation.

Full sample, Offices:
Figure 50 shows that there were no statistically significant differences in how the full sample of people in offices rated their prior and current working environments.

Figure 50. Frequency of health symptoms: Full sample, Office respondents



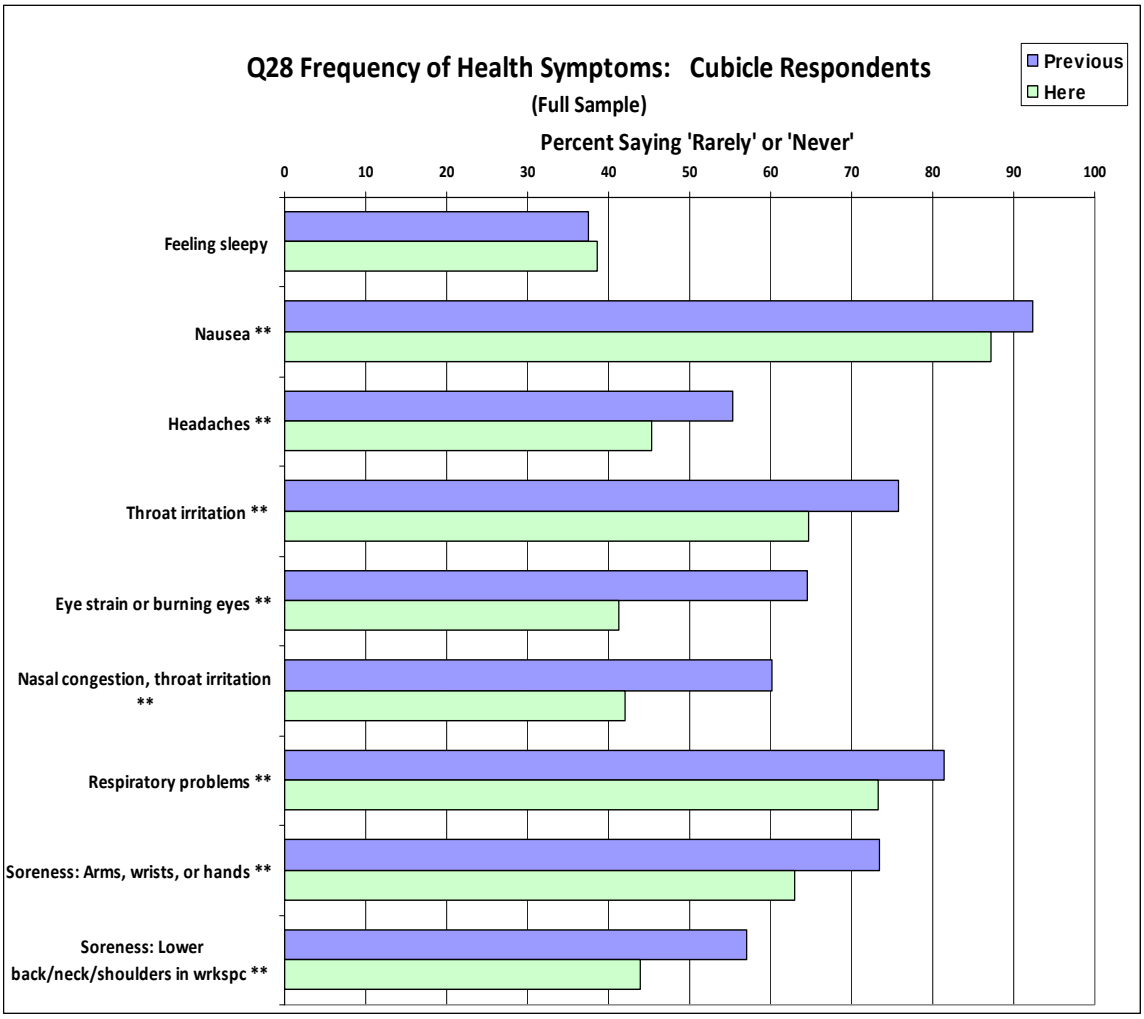
There were no statistically significant differences between 'Prior' and 'Here' experiences.

The least common experiences were 'nausea' and 'respiratory problems', In general they were experienced by fewer than 10% of the people in offices. The most commonly

experienced health symptom was that of 'feeling sleepy occasionally' (around 50%), and 'feeling soreness in the lower back/neck/ and shoulders, while in their workspace' (at about 50% also).

Full sample, Cubicles:
Figure 51, below, shows the responses of all people in cubicles (the full sample). In general, they reported greater frequencies of experiencing the health symptoms (as shown by lower percentages of reporting 'rarely or never' experiencing them.

Figure 51. Frequency of health symptoms: Full sample, Cubicle respondents



**Items with statistically significant differences between 'Previous' and 'Here' responses are shown with two asterisks.

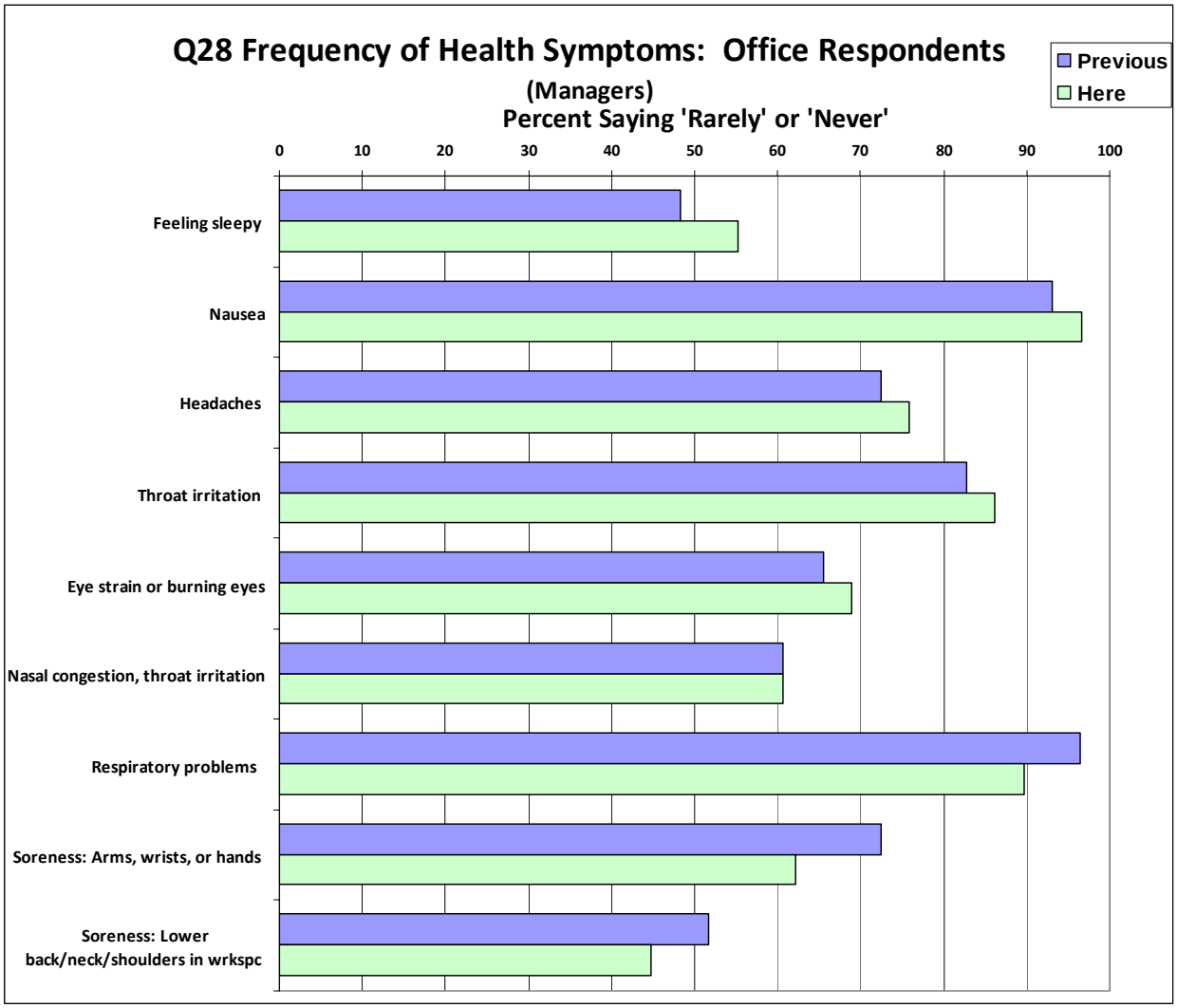
Additionally, in contrast to how the full sample of people in offices responded, there were numerous differences between 'prior' and 'here' experiences. The striking result is that in all of these cases, the people are saying that they have more health symptoms in the Lewis & Clark building, than they did where they worked before.

Important note: There was no information about the type of workspace they had in their prior location, thus it is quite possible that a number of these people may have moved from an office to a cubicle. That would be expected to have a negative impact on their perceptions of

their current workspace (a cubicle), so this might be a major reason for these results. In contrast, for those now in offices, some of them may have come from cubicles, thus would be expected to be more positive in their evaluation. Nevertheless, it is clear that those people now in cubicles, in the Lewis & Clark environment, are reporting more health symptoms than they felt they had, in their previous work environment.

Managers only, Offices:
Figure 52, below, for the Managers in offices, shows that they reported no differences in the frequency of health symptoms experienced in their prior work location as compared to their experiences in the Lewis & Clark building. As for the office holders, in the full sample, they did report higher levels of 'soreness in their lower back', as well as for 'feeling sleepy, occasionally', than they did for the other symptoms. 'Nausea' and 'respiratory problems' were least experienced.

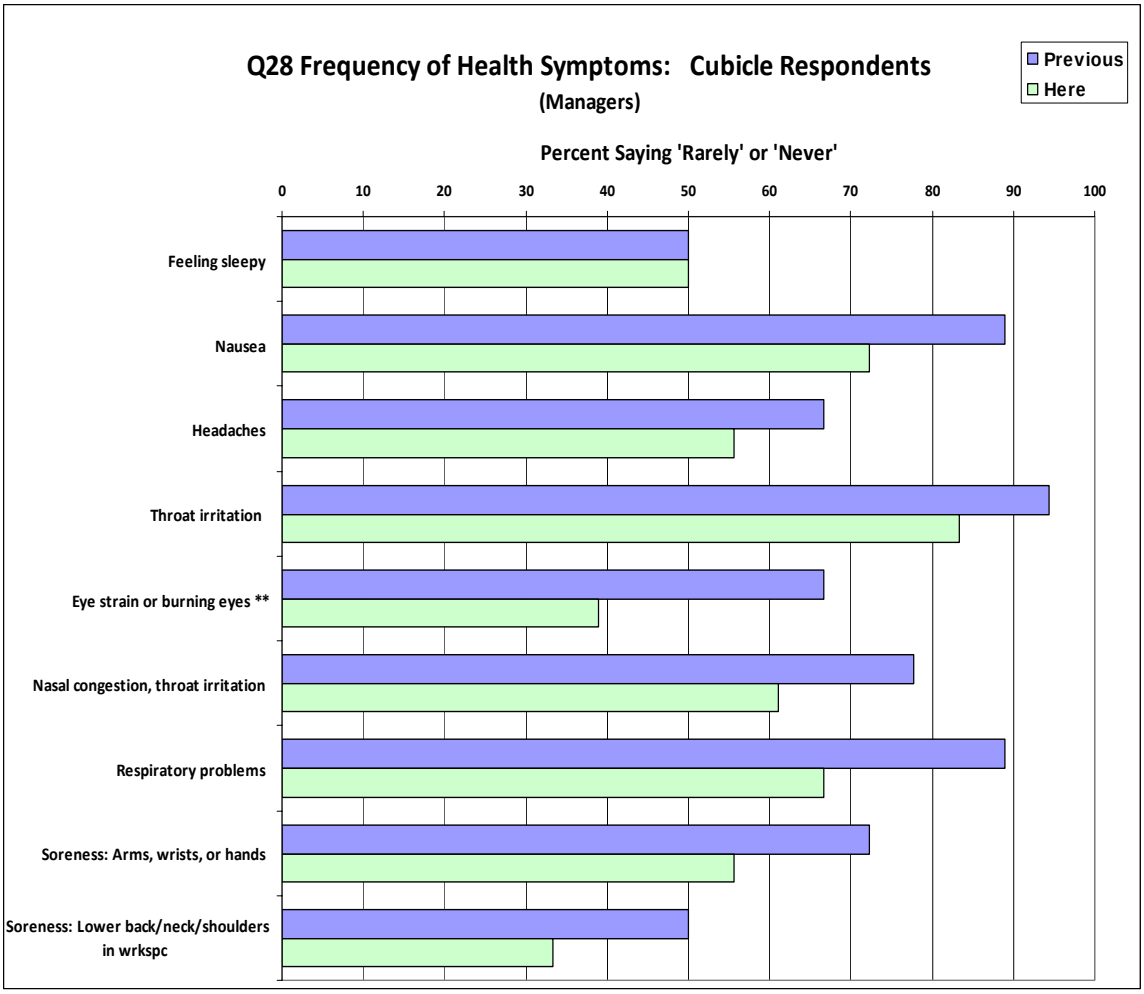
Figure 52. Frequency of health symptoms: Managers, Office respondents



There were no statistically significant differences between 'Prior' and 'Here' experiences

Managers only, Cubicles:
In contrast to the responses by the cubicle occupants in the full sample (Figure 51 above), managers in cubicles showed a significant difference in responses about their previous work location and the Lewis & Clark building for only one health symptom. Managers, now in cubicles, report higher levels of 'eye strain, or burning eyes' in the Lewis & Clark building (shown as lower percentages of 'rarely or never' having the experience).

Figure 53. Frequency of health symptoms: Managers, Cubicle respondents



**Items with statistically significant differences between 'Previous' and 'Here' are shown with two asterisks.

Summary: Health Experiences:
In general, respondents reported low levels of health related symptoms, while in the Lewis & Clark building, except for 'feeling sleepy' and 'lower back/neck/shoulder pain'. The levels of those reporting 'rarely or never feeling sleepy' was around 50% for those in offices, and around 40% for those in cubicles. Lower back pain received 'rarely or never' rating by roughly 40% of the cubicle respondents and by roughly 50% of those in offices.

The biggest contrast was that for the differences between experiences in the previous work location, in comparison to the Lewis & Clark location, for those in cubicles. People in cubes were more negative about their experiences in the Lewis & Clark building for numerous

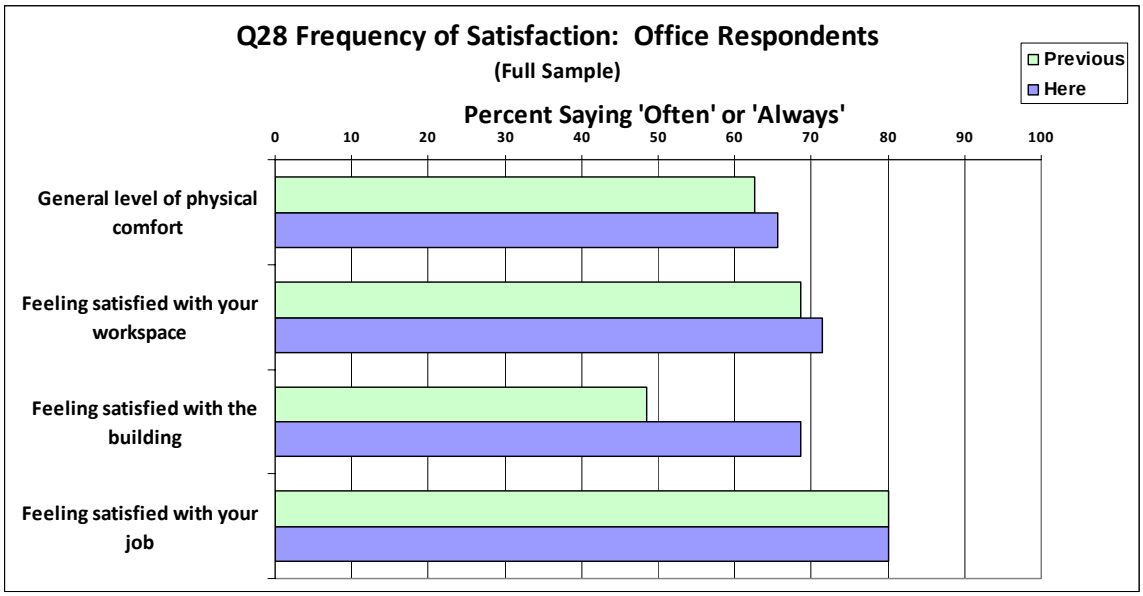
symptoms, even if they were rarely experienced. Note: One possible reason for this may have had to do with the structure of the survey question. Ratings of these symptoms were set up in parallel columns. Thus it was very easy to intentionally give a more negative rating to one location, in comparison to the other, if a respondent wished to do this. People in cubes at Lewis & Clark are unhappy with a number of aspects of their work environment; they could have allowed this general feeling to carry over in their responses to this question.

Satisfaction Experiences ('Previous' and 'Here')

Four figures will show results for the satisfaction comparison items; these will be for the 'Full sample' of office and cubicle respondents, and for the 'Manager sample' of office and cubicle respondents.

Full sample, Office Respondents:
In Figure 54, below, there are no significant differences between the 'previous' and 'here' comparisons for office respondents. Although the comparison of feeling satisfaction with the Lewis & Clark Building appears to be different, it only approaches significance (p=.06).

Figure 54. Satisfaction comparisons: Full sample, Office respondents

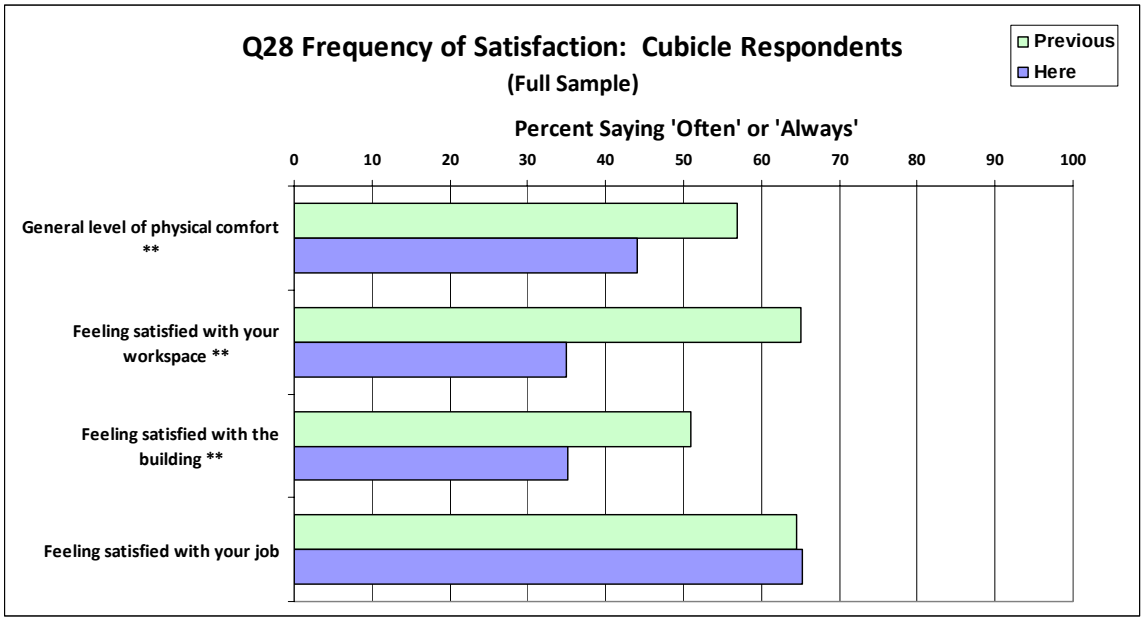


There were no significant differences between 'Previous' and 'Here' for Office Respondents.

Full sample, Cubicle respondents:
As can be seen in Figure 55, below, the cubicle respondents appear to show lower levels of satisfaction than the office respondents do, both for 'previous' and 'here' evaluations. In addition, statistical comparisons between 'previous' and 'here', of the mean scores on the items showed that there were statistically significant differences, for the cubicle respondents, for three
of the four satisfaction experiences. Where there are differences, the cubicle respondents evaluate their level of satisfaction with their previous work location as higher than with the Lewis & Clark Building. This is similar to the ratings of health symptoms by cubicle

respondents, previously discussed above. They reported higher levels of experiences in comparison to those in offices.

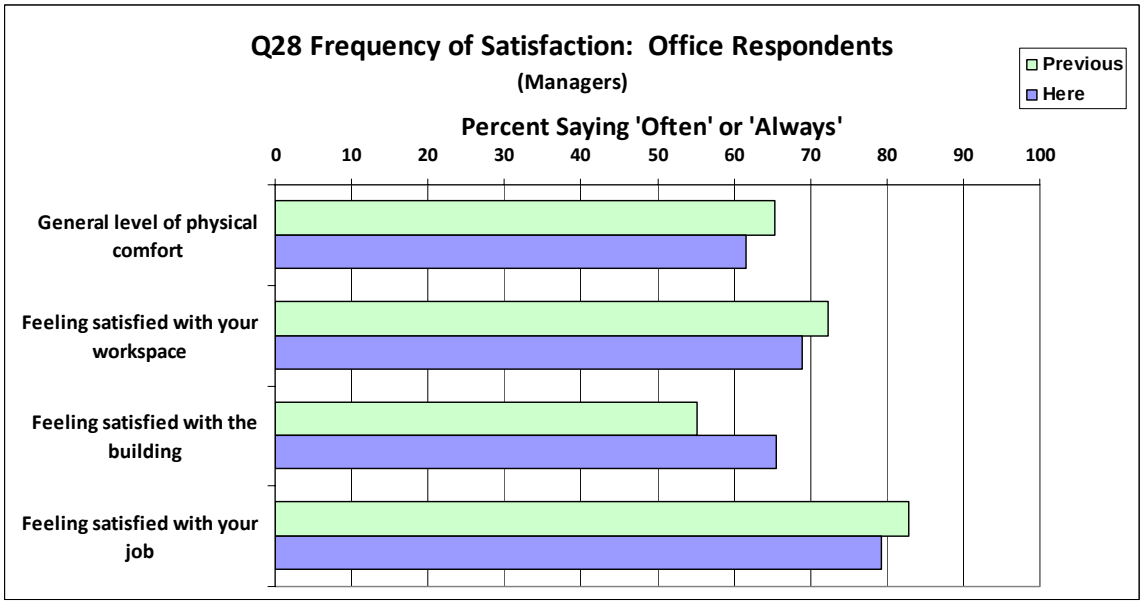
Figure 55. Satisfaction comparisons: Full sample, Cubicle respondents



**Items with statistically significant differences between 'Previous' and 'Here' are shown with two asterisks.

Managers only, Office respondents:
Figure 56 shows that there were no differences in levels of satisfaction or comfort between their prior work location, and the Lewis & Clark location, for managers in offices. In general, ratings were positive, with the highest level of satisfaction being expressed for their job satisfaction (around 80%). Building satisfaction was lowest, at about 60% approval.

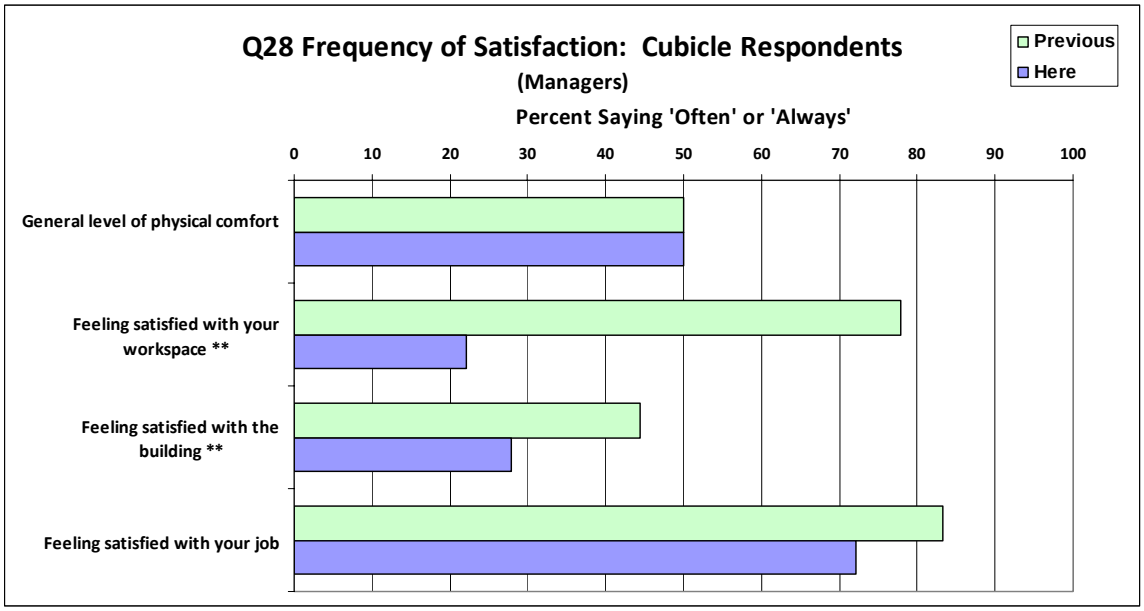
Figure 56. Satisfaction comparisons: Managers only, Office respondents



There were no significant differences between 'Previous' and 'Here' for Office Respondents.

Managers only, Cubicle respondents:
Figure 57 shows that there are generally lower evaluations by the managers in cubicles, as compared to the managers in offices (Figure 56 above). The only exception to that is they still report high levels of 'job satisfaction' in both their prior work location and in Lewis & Clark.

Figure 57. Satisfaction comparisons: Managers only, Cubicle respondents



In addition, there are significant differences between the 'prior' work location and the Lewis & Clark location for 'feeling satisfied with your workspace' (less than 25% report satisfaction) and with 'feeling satisfied with the building' (less than 30%).

Summary, Satisfaction issues:
As with the health related symptoms, those in cubicles were less positive about their levels of satisfaction, in comparison to those in offices.

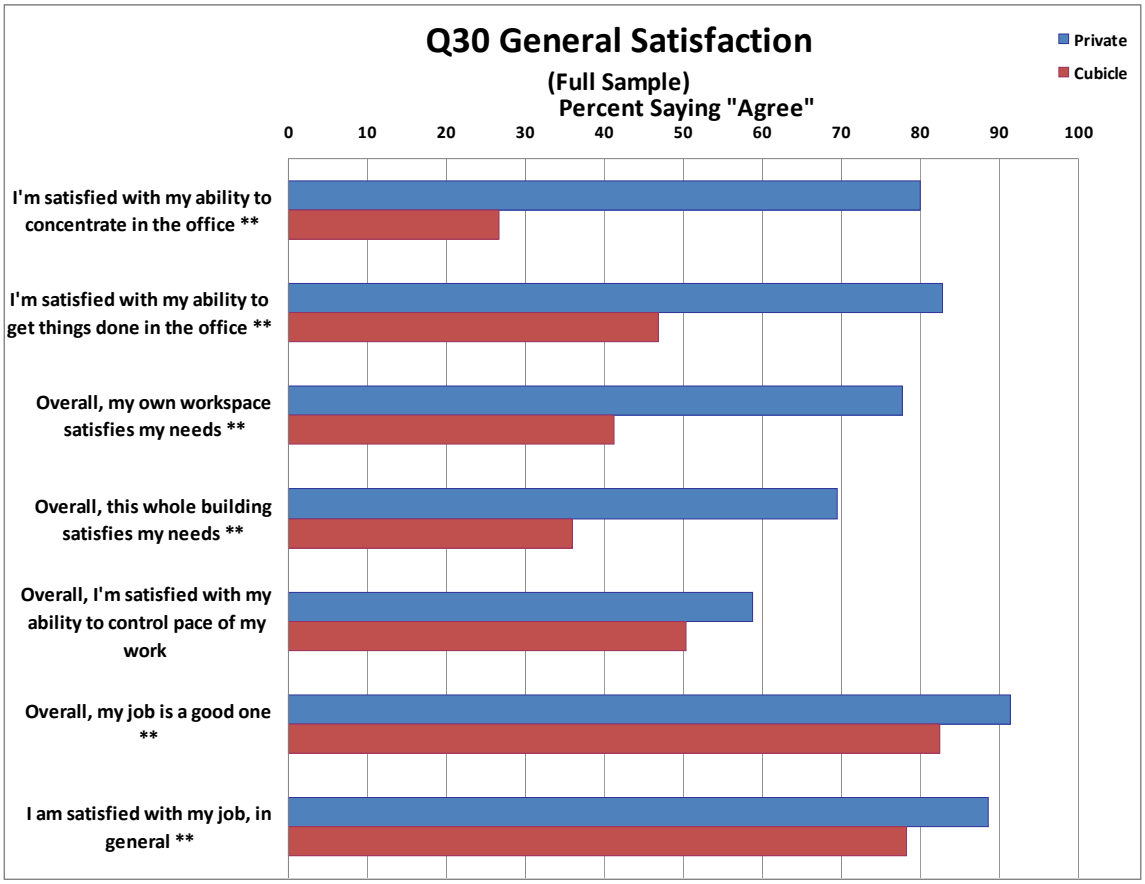
General Satisfaction

The final section of structured questions dealt with overall satisfaction (Question 30). These items are used as part of the important 'outcome measures' dealing with job and workspace satisfaction.

Full sample:
As can be seen below, in Figure 58, there are statistically significant differences between the responses of those in cubicles and offices, for six of the seven items. In all cases those in offices reported higher levels of satisfaction than those in cubicles.

Feeling satisfaction over their ability to control the pace of their work was the only item for which fewer than 60% of the office respondents were satisfied. Their highest levels of satisfaction were with their job, closely followed by their ability to concentrate, and get things done in the office. They had slightly lower levels of satisfaction with the physical aspects of their workspace and the building.

Figure 58. General satisfaction: Full sample



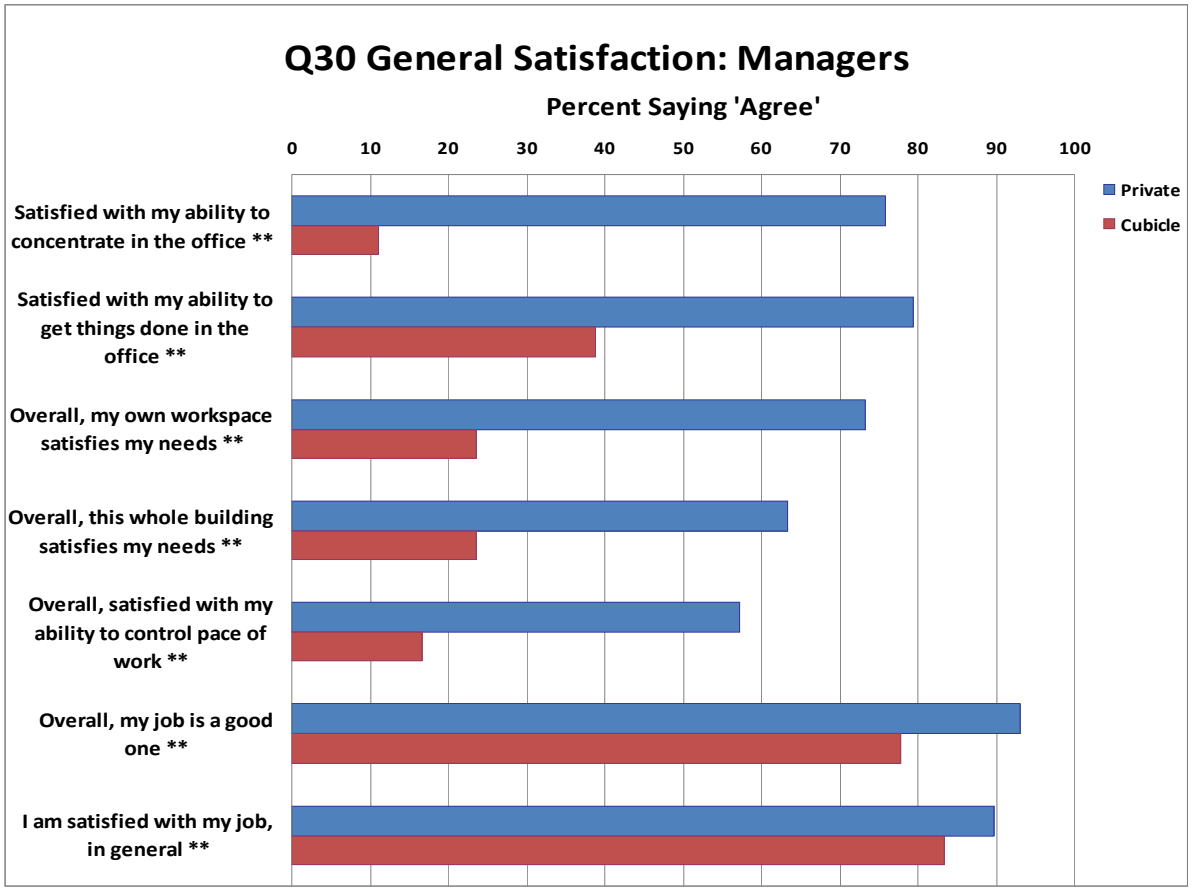
**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks.

Those in cubicles were least satisfied with their ability to concentrate (less than 30%), a very typical finding for people in open offices.

<u>Managers only</u>:
To illustrate that these findings are due to the workspace type, rather than being confounded by Job Type (since nearly all those in offices are managers), the findings for the for 'Managers only' comparisons are also shown below.

Here the findings are even more powerful. Managers in cubicles report low levels (less than 25%) of satisfaction with their 'ability to concentrate', with their 'ability to control the pace of their work', and with their 'satisfaction with their workspace'. They also report less than 25% levels of satisfaction with how well the 'whole building satisfies their needs'.

Figure 59. General satisfaction: Managers (Q30)



**Items with statistically significant differences between Offices and Cubicles are shown with two asterisks.

On a more positive note, managers in cubes do report high levels of satisfaction about their job (more than 80%), even though it is statistically lower than that reported by those in offices (90%).

General satisfaction conclusions:
People in offices report consistently higher levels of satisfaction than those in cubes.

General Conclusions

These results show clearly that people in cubicles are generally less satisfied than those who have offices. They are also less positive in a number of more specific evaluations of their workspace and work place. The degree to which these work environment evaluation can impact important work outcomes like job satisfaction and performance will be considered in the next major section of this report (Section 5. Work Environment Impacts on Important Outcomes).

5. Work Environment Impacts on Important Outcomes

While the previous 3 sections have provided descriptive and comparative information about how the different employees responded to the survey evaluating the Lewis & Clark work environment, **the most important information for future planning** has to do with the determination of which aspects of the work environment have the most powerful effects on important outcomes of satisfaction and performance. Those are reported below, following the explanation of how this was done.

The Analysis Process

The process, used in this section, for the analysis of this survey has been extensively used in prior workplace evaluations, as well as evaluations of other types of environments (e.g. housing) by Weidemann, and BOSTI Associates. As was true for all the previous research, the survey used for this evaluation contained many items, because the workplace is a very complex environment. In order to reduce that complexity, for greater generalizability, these survey items were examined by a statistical analysis that allowed groups of similar items to be identified. Having such groups of similar items is useful for the reporting of what workplace aspects are most strongly related to the outcomes, because they allow the identification of more general issues. (Detailed information about individual items has already been presented in Sections 2, 3, and 4.) Also, it is conceptually clearer to look at a smaller set of more general workplace issues, rather than examine each specific survey item, one at a time.

Development of Indices for Outcomes and Potential Predictors

The process for identifying these groups of similar items is more fully described in Appendix B. Basically, it was a multivariate statistical analysis which provided information about what items empirically grouped together, in a conceptually meaningful way. For example, many specific items, relating to lighting features of the building, grouped together analytically. (Note: not all items 'fit' with others; these were retained as individual items for the later analyses.) Then the groups of similar items were tested for their reliability, by determining their Alpha reliability level (see Appendix B for further information). If the Alpha levels were acceptable, then indices (a single measure, summarizing the items in each group) were statistically created for all the sets of related items. For example, the index of "Evaluation of Building Light Features" was based on responses to 8 items measuring different specific aspects of the building's light features. It was this set of indices, and remaining single items, that were used in the analysis to determine their link to the outcomes of satisfaction and performance.

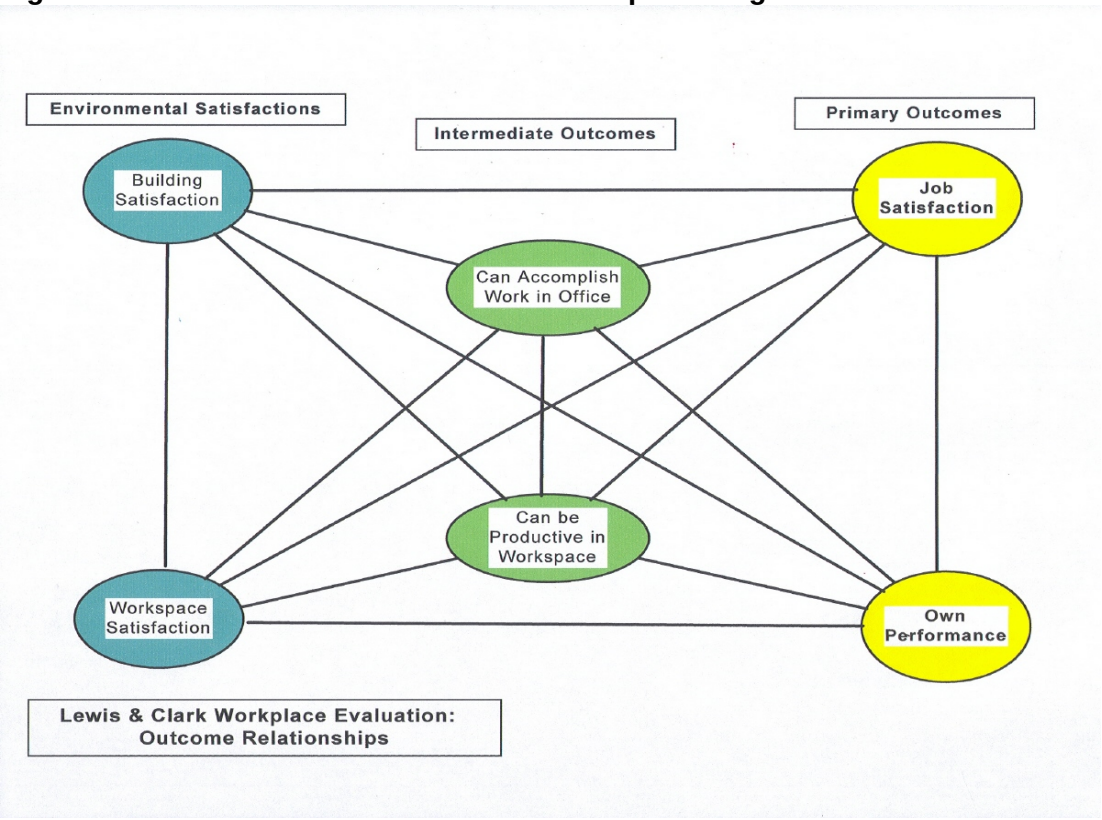
Items used as 'outcomes' were also used to develop indices. These items and indices have all been used previously in research by the author. The indices include measures of workspace, building, and job satisfaction, and measures of general performance, and productivity in the workspace. Additionally, indices and individual measures of health related symptoms were also created, based on analyses of responses to the survey items. (The table showing all of these indices, the items that were used to create them, and their Alpha reliabilities, are shown in Appendix B**.)**

Relationships among the outcomes

While not a direct focus of this report, it should be noted that strong empirical relationships were found among the various outcome measures, again illustrating the complexity and importance of many different workplace features. A diagram showing these interrelationships can be seen below, in Figure 59. For example, 'Workspace Satisfaction' is related to both 'Job Satisfaction', 'Being productive in my workspace', and 'Own Performance'.

The ovals in this diagram show the three levels of specificity of the survey outcome measures. To the far left are the two measures that represent employee satisfaction with the workspace and building. These are rather 'general' issues, in comparison to the much more specific items also on the survey, but they are still more specific than any of the outcomes to their right. In the center are 'intermediate' outcomes; they are somewhat more general than the environmental outcomes, yet they are not as comprehensive, conceptually, as those to the furthest right in the diagram. Finally, to the far right in the diagram, the important **primary work outcomes** can be seen; they are the measures of 'Job Satisfaction' and 'Overall Own Performance'.

Figure 59. Illustration of obtained relationships among outcomes



The workplace environment is complex, and contains many inter-relationships among different features and issues, as well as among the outcomes. The above diagram illustrates those outcome relationships, through the lines that are drawn between the measures. Each of these lines indicates that there was a positive, statistically significant, relationship among the issues. The figure happens to be symmetrical, and that is a function of the particular issues shown in it. Workplace evaluations by the author have empirically demonstrated the above relationships, and they were also found in this research. What may vary from case to

case is the amount (or strength) of the relationship among the outcomes, as well as the actual outcomes, themselves.

These outcome relationships (in Figure 59, above) are not the direct focus of this research. But they are shown to illustrate that **anything that affects one of them will likely have some impact on the others**, This means, for example, that doing something to the workplace environment that directly influences 'Workspace Satisfaction', will likely also indirectly affect the more general outcomes of 'Job Satisfaction' and 'Own Performance'.

More importantly, any workplace feature that has an impact on any of the outcomes, will also be affecting them all, even if indirectly. Obviously, knowledge of the existence of these relationships can be useful for future planning and design of workplaces.

Knowing that there is a relationship is not sufficient, however. One must understand the strength and direction of that relationship. For example, evidence clearly shows that the 'ability to concentrate' has a positive, and strong, impact on workspace satisfaction, and being productive in the workspace. In contrast, the 'number of interruptions' that people experience in their workspace has a negative impact (i.e., the more interruptions there are, the less able people are to being productive). Furthermore, both of these ('ability to concentrate' and 'number of interruptions') are affected by the type of workspace that an employee occupies.

Determining What Workplace Features Link to the Outcomes: The Issue

The set of obtained workplace indices, and the remaining individual workplace items, were analyzed to determine the strength and direction of their relationship to the important outcome indices relating to satisfaction and performance. This process involved multivariate correlation analysis, which shows the strength and direction of the correlations (Pearson correlation) among the variables. The actual correlation values will not be shown in the tables; instead the strength of the correlation is shown by different sized circles; larger circles mean stronger relationships. This is done simply for ease of interpretation.

The remainder of this section of the report will now focus upon what specific features in the workplace were shown to have an empirically determined relationship to these more general outcomes of performance and satisfaction.

What the Following Tables Will Show

The material presented below provides results about which evaluations of the workspace, the building interior, and the building exterior are most strongly related to each of the intermediate and primary outcomes of performance and satisfaction, which were shown in the Figure 59, above.

Strength and direction of the relationships:
Each table shows the workplace features which were statistically significant correlates of the responses for each outcome measure. The strength (size) of that relationship is shown by the relative size of the circle associated with the related index or item. Table 32 below

provides information to show the size of the Pearson correlation coefficient which is associated with the different sized circles.

Table 32. Key: The correlation level associated with circle size

(ALL CORRELATIONS ARE STATISTICALLY SIGNIFICANT)			
MID-TEENS TO .29	#	**.50 TO .69**	#
.30 TO .49	#	**.70 AND HIGHER**	#

Correlation values can range between +1.00 (perfect positive relationship), through 0 (no relationship), to -1.00 (perfect negative relationship.

The color of the circle also shows the direction of the relationship. If it is a positive relationship (e.g., the more my workspace helps me to do quiet work, the more productive I can be), that circle is black. If it is negative, the circle is red. For example, as can be seen below by the red circles, the more interruptions they experience, and the longer it takes them to return to their pre-distraction level of concentration, the less workspace productivity they report.

The percentage of respondents who were positive about the workplace issue is also shown in the far right column of each table. When the percentage of positive responses falls below 40%, those percentages are highlighted in yellow, for ease of identification of potential problems. (The 40% value is arbitrary; depending upon what someone considers a problematic level.)

Use of the Information

By considering both types of information (relationship and evaluation), it is easy to see first, how important each feature or issue is for the outcome, and secondly, how well (or poorly**)** that feature is evaluated**. It is this type of information that can be particularly useful for in understanding a specific work environment, as well as for future planning and design.** Work environments need to support those most important issues.

For example, if a survey evaluation were to be used as an assessment tool, to provide information about potential modifications which would help that specific workforce, attention should focus on the workplace features which have the strongest impacts on performance, and which receive poor evaluations. If those issues were addressed in modifications, the potential for benefit to the employees would be highest.

For more general use, as in future planning and design, the workplace features which have the biggest impacts should receive the highest priorities for consideration.

Order of Presentation of Results

First, results showing the workplace features which have an impact on performance outcomes will be shown. Results for satisfaction outcomes will follow that. Finally, results showing workplace features that are statistically related to several health-related outcomes are presented.

As will be seen below, in all the tables, workplace features typically have a somewhat stronger relationship with the satisfaction issues, than they do to performance issues. And their relationships to general health issues are relatively smaller, yet. However, they do have statistically significant impacts upon all these important outcomes. Thus they should be considered in decisions about the workplace.

What Workplace Features Relate To Performance?

Two different performance measures were used. The first two are more specific, and were the 'intermediate outcomes' shown in the Figure 59, above. They measure how productive the employees felt they could be, in their workspace, and how satisfied they were with what work they could accomplish in the office. The third, 'Own Performance' is an index based on four items about their general level of performance. (Note: In all cases, these performance measures are based on self-reports. While the popular view of self ratings of performance is that people will be inaccurate and will over-report their general level of performance, previous research by the author, and others, has shown that there is, in fact, a strong statistical correlation between manager evaluation and self-evaluations. Thus self reports of performance can be used as a reliable measure. Furthermore, the issue of possible 'over-reporting' of performance 'level' is not relevant for this research. These analyses do not rely upon the actual level of performance; they only rely upon the statistical relationships between that performance and the workplace evaluations.)

The following tables group the workplace issues influencing performance measures first in terms of those that are relatively general, e.g. "satisfaction with the workspace". These are followed by those relating more specifically to the workspace, to the building interior, and finally, to the building exterior. Note: Items in italics in this list represent indices (shown in Appendix A), and consist of more than one survey question. Non-italicized items represent single survey items.

It will be seen that the relationships between workplace features and performance measures are strongest for the most specific measure (e.g., 'I can be productive in my workspace'). They are less powerful for the more general measure of overall performance (e.g., 'Own Performance'). This is a finding similar to previous research, and is not surprising. There are many more non-workspace issues that can affect general performance (e.g. technology, pay & incentives, work-life balance issues, etc.). But it is important to know that 'being productive in my workspace' is one of the most powerful predictors of 'Own Performance' (regression analyses), thus whatever affects it, will also indirectly affect the more general measure of performance. Both are important, in understanding the impact of the workplace upon performance.

Workspace Aspects Related to Performance

As can be seen below in Table 33, general satisfaction with the workspace is significantly related to both performance measures, although it is strongest for being 'productive in their own workspace'. At least 50% of the respondents were generally satisfied with their workspace, also.

More specific workspace characteristics which also had the strongest impacts on an employee's ability to be productive in their workspace were those features which allowed them to do quiet solo work, and experience few distractions. Items included in the index of 'Workspace Acoustics/Distractions' include those having to do with not being distracted by other's conversations, being satisfied with the heights of the walls in their workspace, and reporting that other people are generally considerate of people's need to concentrate.

Table 33. Workspace aspects related to performance measures

WORKSPACE ASPECTS (*Items in italics=indices*; non-italicized=single items)	**I Can Be Productive in Workspace**	**Can Accomplish Work in Office**	**Own Performance**	**Percent Positive or Agree**
Satisfaction with Workspace	#	#	#	50.5%
Features for Focused Work:				
Workspace Acoustics Good/Distractions Few	#	#	#	29.2%
Workspace Helps Doing Quiet Work	#	#	#	22.9%
Total # of Reported Interruptions/day	#	#	---	
Average minutes to return to pre-distraction concentration	#	---	#	
Design Features:				
My workspace is well designed	#	#	#	35.3%
Workspace Design: Storage, Furniture, Space	---	#	---	62.5%
I'm physically comfortable when seated and doing work	#	#	---	54.9%
Workspace Color & Materials Pleasing	#	#	#	40.7%
Workspace Light: Electric/Natural & Control	#	#	#	69.3%
Workspace Temperature, Air Control & Quality, Drafts	#	#	---	51.9%
Don't often have glare on my computer screen	#	#	---	58.1%
Interactions:				
Support for Workspace Meetings & Phone Use	#	#	#	23.4%

WORKSPACE ASPECTS *(Items in italics=indices*; non-italicized=single items)	**I Can Be Productive in Workspace**	**Can Accomplish Work in Office**	**Own Performance**	**Percent Positive or Agree**
Q12f Helps going to someone else's workspace	#	#	---	28.8%

Key: (Red=Negative correlation, inverse relationship; black=Positive correlation, relationship)

The general evaluation that their workspace is well designed is also strongly related to feeling that they can be productive in that workspace. And there are clear indications of how important various specific workspace features are. But in terms of this specific work environment, it can also be seen that less than 36% of the respondents felt that their workspace was well designed, thus their feelings about productivity would be lessened.

Finally, the importance of workspace support for interactions is shown. However, fewer than 30% of the respondents were positive about this. Results in an earlier section of this report, comparing respondents in cubicles to those in offices, clearly showed that those in cubicles felt they were hindered in terms of being able to do these important work activities.

Building Aspects (Interior) Related to Performance

Figure 34, below, again shows that building features had a more powerful relationship with 'being able to be productive in my workspace', than with employees' ratings of their 'Overall performance'. That is not surprising, since general performance can be influenced by many other things, in addition to workplace characteristics.

The strongest effects were found with general issues (e.g., 'Satisfaction with the L&C Building'), with employee beliefs in the importance of sustainability ('Employee Support for Sustainability'), and employee evaluations of how well the building and site serves to interpret sustainability and represent the organization well ('Interpretation of L&C Building to Public'). These all had an impact on performance measures.

But the relationship between various design aspects of the building were also strongly related to the specific performance measures. For example, the positive evaluations of the many different light features in the building, and the building's furniture, colors and material finishes, were strongly related to 'being able to accomplish work in the office'. Ratings of numerous other specific design features also had positive relationships to the performance measures.

Table 34. Interior building aspects related to performance

BUILDING ASPECTS (Interior) *(Items in italics=indices*; non-italicized=single items)	**I can be Productive in Workspace**	**Can Accomplish Work in Office**	**Own Performance**	**Percent Positive or Agree**
Satisfaction with L&C Building	#	#	#	45.1%
Employee Support for Sustainability	#	#	#	59.8%
Interpretation of L&C Building to Public	#	#	---	44.4%

BUILDING ASPECTS (Interior) *(Items in italics=indices*; non-italicized=single items)	**I can be Productive in Workspace**	**Can Accomplish Work in Office**	**Own Performance**	**Percent Positive or Agree**
Perceived Safety from Accidents/Others	#	#	#	56.1%
This building is well maintained	#	#	#	61.0%
Always/often physically comfortable here	#	#	#	48.0%
Design Features:				
Evaluation of Building Light Features	#	#	#	65.1%
Building Furniture, Colors, Material Finishes	#	#	#	53.2%
Evaluation of Low Flow Faucets & Toilets	#	#	#	64.8%
This building performs well, in terms of energy efficiency	#	#	#	42.0%
Support for Water Saving Features	#	#	#	71.5%
Walking on Raised Flooring No Problem	#	#	#	44.0%
There are few unpleasant odors in this building	#	#	---	29.8%
Environment helps taking break, recharging self NOT in workspace	#	#	#	26.2%
Re-cycling is convenient for me	#	#	---	71.2%
The floor air vents	#	#	---	38.2%
Access to Outdoor Views & Daylight	#	#	---	82.7%
Recycling chutes	#	#	---	77.0%
Few Drafts & Temp Fluctuations in Meeting Rooms	#	#	---	27.0%
It is important to be able to open the windows	---	---	#	71.1%
Interactions:				
Interactions & Informal Learning	#	#	#	72.1%
Shared Space: Atrium/Food Court/Breaks/Teaming & Interview Rooms/Shared Equipment	#	#	#	60.6%
Support for Working with Others	#	#	---	30.2%
Support for Group Meetings Outside Workspace	#	#	#	56.6%

Key: (Red=Negative correlation, inverse relationship; black=Positive correlation, relationship)

Another major finding has to do with the support that the building provides for interaction. (Note: Having opportunities for informal interactions and informal learning has consistently been a predictor of higher performance, in previous BOSTI research.)

As a final note, there are a number of the features shown above which show relatively low levels of positive evaluations (cells shown in yellow indicate less than 40% of the employees are positive). To the extent that these negatively evaluated features affect performance evaluations, they will act to reduce performance, clearly an undesirable situation.

Building Aspects (Exterior) Related to Performance

Exterior issues which are related to performance are shown below, in Table 35. Note that, as has been found in previous research, having 'good places to take breaks (relax, recharge)' is something that does increase employee reports of their workspace productivity. This has particularly been true, in past research, for those who occupy more open workspaces. Those people often report that they feel uncomfortable taking a few moments to relax, when in view of other employees.

Some of the survey items asked about issues that addressed the outside areas of the Lewis & Clark building. Table 35 shows the direction and relative strengths of those relationships with the three performance measures. Again, the features show a stronger relationship to the more specific performance measures: 'being productive in their workspace' and 'being able to accomplish work in the office'.

Positive evaluations of having good places outside to take a break, the shuttle service, and the vegetation and landscaping around the building are positively associated with the more specific performance features.

Table 35. Exterior building aspects related to performance

BUILDING ASPECTS (Exterior) *(Items in italics=indices*; non-italicized=single items)	**Productive in Workspace**	**Can Accomplish Work in Office**	**Own Performance**	**Percent Positive or Agree**
We have good places OUTSIDE the building to take a break, relax	#	#	#	40.6%
Shuttle Services	#	#	---	29.3%
Natural Vegetation & Landscaping Around Building	#	#	#	25.6%
I often (more than 2/wk) drive somewhere to eat lunch	#	#	---	34.4%

Key: (Red=Negative correlation, inverse relationship; black=Positive correlation, relationship)

Finally, the shuttle items, and the issues about vegetation and landscaping, which received low levels of positive evaluations, are also influential on performance levels. A note: While the implication that these very specific features could affect performance may seem to be an overstatement, one must remember that 'small' annoyances or nuisances, when repetitious, can act to negatively affect much more general feelings. Hence, they should not be ignored.

What Workplace Features Relate To Satisfaction?

Satisfaction (with one's job, with one's environment) is an important concept because it has often been associated with affecting the retention of employees. The retention of good employees is particularly important for many organizations because the cost and efforts associated with recruiting and training new employees is generally very high. Retention was not an issue examined in this particular research. However, satisfaction measures were examined, and addressed below.

Three 'levels' of satisfaction measures are examined in this section. The most specific has to do with a set of items that measured employee satisfaction with their workspace. Somewhat more general was 'Building Satisfaction', and finally, the most general measure of all addressed 'Job Satisfaction'. (The specific items within each of these indices can be found in Appendix B.)

Again, as with the performance measures, the strongest relationships between building features were found with the more specific outcomes of 'Workspace' and 'Building' Satisfaction. That would be expected, since the building features are also fairly specific. The more general measure of 'Job Satisfaction', as with 'Performance', can be affected by many other issues than building features. Issues dealing with the workspace will be shown first, followed by building features (both interior and exterior aspects).

Workspace Aspects Related to Satisfaction

As can be seen in Table 36, on the following page, employees' 'satisfaction with their workspace' had a very strong relationship to 'building satisfaction', and a smaller impact on overall 'job satisfaction'.

Again, as for the performance measures, those workspace issues that had to do with providing a workspace that supported the most important, and most frequently occurring, work activity of doing quiet focused work, alone in their workspace, were strongly related to satisfaction, especially 'Workspace Satisfaction'. Of concern for the Lewis & Clark work environment is the fact that respondents generally felt that the work environment did not support these well. See the issues marked by yellow cells, and the red circled issues below. Negative evaluations of these would be associated with lower satisfaction levels.

Numerous design features had strong relationships with satisfaction, ranging from the very general evaluation that their workspace was well-designed to much more specific features. For example, positive evaluations of workspace features dealing with the amount of space, storage, and furniture, as well as with lighting and the colors and materials in the workspace were all associated with higher levels of satisfaction.

It is clear, in Table 36 below, that workspaces that allow for quiet, undisturbed work, as well as the general feeling that the workspace is well designed, are the most powerful links to workspace and building satisfaction. And, as was shown clearly in Section 4 (the comparison of workspace types), private offices support these features much more strongly than cubicles do.

Table 36. Workspace aspects related to satisfaction

WORKSPACE ASPECTS *(Items in italics=indices*; non-italicized=single items)	**Workspace Satisfaction**	**Building Satisfaction**	**Job Satisfaction**	**Percent Positive or Agree**
Satisfaction with Workspace	N/A	#	#	50.5%
Features for Focused Work:				
Workspace Acoustics Good, Distractions Few	#	#	#	29.2%
Workspace Helps Doing Quiet Work	#	#	#	22.9%
Total # of Reported Interruptions/day	#	#	#	
Average minutes to return to pre-distraction concentration	#	#	---	
Design Features:				
My workspace is well designed	#	#	#	35.3%
Workspace Design: Storage, Furniture, Space	#	#	#	62.5%
Workspace Color & Materials Pleasing	---	#	---	40.7%
I'm physically comfortable when seated and doing work	#	#	#	54.9%
Workspace Light: Electric/Natural & Control	#	#	#	69.3%
Workspace Temperature, Air Control & Quality, Drafts	#	#	#	51.9%
Don't often have glare on my computer screen	#	#	---	58.1%
Interactions:				
Support for Workspace Meetings & Phone Use	#	#	#	23.4%
Q12f Helps going to someone else's workspace	#	#	#	28.8%

Key: (Red=Negative correlation, inverse relationship; black=Positive correlation, relationship)

Building Aspects (Interior) Related to Satisfaction

Figure 37 shows that workspace satisfaction was strongly linked to general issues of employee satisfaction with the building, with employee support for sustainability, and with the feeling that the building was interpreted well for the public. However, the percentage of respondents who felt positive about 'building satisfaction' and how well the building and site did, in terms of interpreting sustainability and representing the organization (items in the 'interpretation of the Lewis & Clark building to public' index), was generally low, suggesting the need for improvements to these aspects. (In fact, Appendix A shows numerous comments from the employees who made suggestions about these issues.)

In addition, numerous building features relating to sustainability also had positive links to satisfaction, particularly with building satisfaction. That these sustainable features are related to satisfaction is important. It is also important to note that not all levels of evaluations of the specific features were high. That would suggest that alternative ways to address some of these features should be explored in the future. Additionally, the fact that most respondents were in cubicles, rather than in offices, may also have made some of these evaluations levels lower.

Figure 37. Interior building aspects related to satisfaction

BUILDING ASPECTS (Interior) (*Items in italics=indices*; non-italicized=single items)	**Workspace Satisfaction**	**Building Satisfaction**	**Job Satisfaction**	**Percent Positive or Agree**
Satisfaction with L&C Building	#	N/A	#	45.1%
Employee Support for Sustainability	#	---	#	59.8%
Interpretation of L&C Building to Public	#	#	#	44.4%
Perceived Safety from Accidents/Others		#	#	56.1%
This building is well maintained	#	#	#	61.0%
Always/often physically comfortable here	#	#	#	48.0%
Design Features:				
Building Furniture, Colors, Material Finishes	#	#	#	53.2%
Evaluation of Building Light Features	#	#	#	65.1%
Walking on Raised Flooring No Problem	#	#	#	44.0%
Evaluation of Low Flow Faucets & Toilets	#	#	#	64.8%
This building performs well, in terms of energy efficiency	#	#	#	42.0%
Support for Water Saving Features	#	---	#	71.5%
There are few unpleasant odors in this building	#	#	#	29.8%
Environment helps taking break, recharging self NOT in workspace	#	#	#	26.2%
Re-cycling is convenient for me	#	#	#	71.2%
Access to Outdoor Views & Daylight	#	#	---	82.7%
The floor air vents	#	#	#	38.2%
Recycling chutes	#	#	#	77.0%
Few Drafts & Temp Fluctuations in Meeting Rooms	#	#	---	27.0%

BUILDING ASPECTS (Interior) *(Items in italics=indices*; non-italicized=single items)	**Workspace Satisfaction**	**Building Satisfaction**	**Job Satisfaction**	**Percent Positive or Agree**
Interactions:				
Shared Space: Atrium/Food Court/ Breaks/ Teaming & Interview Rooms/Shared Equipment	#	#	#	60.6%
Interactions & Informal Learning	#	#	#	72.1%
Support for Working with Others	#	#	#	30.2%
Support for Group Meetings Outside Workspace	#	#	#	56.6%

Key: (Red=Negative correlation, inverse relationship; black=Positive correlation, relationship)

Note the success of the building, particularly in terms of support for interactions and informal learning, as well as the more specific shared spaces (atrium, break areas, teaming & interview rooms, etc.) These are all highly linked to building and workspace satisfaction (although to a lesser degree with job satisfaction). And they received high positive (60% to 70% range) evaluations by the respondents.

Building Aspects (Exterior) Related to Satisfaction

Table 38 shows that evaluations of exterior spaces also have impacts on satisfaction, although to a lesser degree than the building itself. This would be expected, since the satisfaction issues relate more specifically to the building. As is typical of the previous results, the links to the more general outcome, 'job satisfaction', are smaller.

Table 38. Exterior building aspects related to satisfaction

BUILDING ASPECTS (Exterior) *(Items in italics=indices*; non-italicized=single items)	**Workspace Satisfaction**	**Building Satisfaction**	**Job Satisfaction**	**Percent Positive or Agree**
We have good places OUTSIDE the building to take a break, relax	#	#	---	40.6%
Shuttle Services	#	#	#	29.3%
Natural Vegetation & Landscaping Around Building	#	#	#	25.6%
I often (more than 2/wk) drive somewhere to eat lunch	#	#	---	34.4%

Key: (Red=Negative correlation, inverse relationship; black=Positive correlation, relationship)

What Workplace Features Relate To Health Symptoms?

Job satisfaction and performance are the most commonly addressed issues for workplace environments. But health issues are also now receiving attention. If people experience unpleasant health symptoms, or are sick more often (not measured in this research), it is reasonable to expect that these health issues will also impact performance and satisfaction.

Question 28 of the survey asked the respondents how frequently they experienced a number of health symptoms in the Lewis & Clark building. That set of 7 items was combined to create 2 measures (indices, shown in Appendix B). The first index (two items) measured the frequency of muscle soreness (back, neck, shoulders, etc.). The second index (5 items) had mostly to do with nose and throat soreness, headaches, and eye strain. They are the health outcomes shown in the tables below.

Workspace Aspects Related to Health Symptoms

Table 39 shows the workspace features that were linked to these two general types of health symptoms. Also shown in the table is the percentage of respondents who were positive about that workspace feature.

In general, the workspace features related to experienced health symptoms in the Lewis & Clark building were relatively low, in comparison to their impacts on performance and job satisfaction. But it is important to note that there were relatively few reports of health problems (see Sections 3 and 4, for comparisons by Job Types, and by Workspace Type).

Table 39. Workspace aspects related to health symptoms

WORKSPACE ASPECTS *(Items In Italics=Indices*; Non-Italicized=Single Items)	**Little muscle soreness**	**Few nose, throat, headache, or eye problems**	**Percent positive or agree**
Satisfaction With Workspace	#	#	50.5%
FEATURES FOR FOCUSED WORK:			
Workspace helps doing quiet work	#	#	22.9%
Total # of reported interruptions/day	#	#	
Average minutes to return to pre-distraction concentration	#	#	
Workspace acoustics good/distractions few	#	#	29.2%

WORKSPACE ASPECTS *(Items In Italics=Indices*; Non-Italicized=Single Items)	**Little muscle soreness**	**Few nose, throat, headache, or eye problems**	**Percent positive or agree**
DESIGN FEATURES:			
I'm physically comfortable when seated and doing work	#	#	54.9%
Don't often have glare on my computer screen	#	#	58.1%
My workspace is well designed	#	#	35.3%
Workspace design: storage, furniture, space	#	#	62.5%
Workspace color & materials pleasing	#	#	40.7%
Workspace temperature, air control & quality, drafts	#	#	51.9%
Workspace light: electric/natural & control	#	#	69.3%
INTERACTIONS:			
Q12f helps going to someone else's workspc	#	#	28.8%
Support for workspace meetings & phone use	#	#	23.4%

Key: (Red=Negative correlation, inverse relationship; black=Positive correlation, relationship)

Their overall satisfaction with their workspace did link to both general symptoms at a moderate level. Specific workspace features had impacts also, but at a lesser level.

Building Aspects (Interior) Related to Health Symptoms

Table 40 shows the effects of interior aspects of the building, in terms of relationships to the health symptoms.

Again, the linkages were small or moderate in strength. But building aspects did have a somewhat stronger effect on respiratory, headache, and eye issues than upon muscle soreness.

Table 40. Interior building aspects related to health symptoms

BUILDING ASPECTS (Interior) *(Items in italics=indices*; non-italicized=single items)	**Little Muscle Soreness**	**Few Nose, Throat, Headache, or Eye Problems**	**Percent Positive or Agree**
This building is well maintained	#	#	61.0%
Always/often physically comfortable here	#	#	48.0%
Perceived Safety from Accidents/Others	#	#	56.1%
Employee Support for Sustainability	#	---	59.8%
Interpretation of L&C Building to Public	---	#	44.4%
Satisfaction with L&C Building	#	#	45.1%
Design Features:			
Environment helps taking break, recharging self NOT in workspace	---	#	26.2%
The floor air vents	#	#	38.2%
There are few unpleasant odors in this building	#	#	29.8%
Re-cycling is convenient for me	---	#	71.2%
This building performs well, in terms of energy efficiency	#	#	42.0%
Evaluation of Building Light Features	#	#	65.1%
Building Furniture, Colors, Material Finishes	#	#	53.2%
Walking on Raised Flooring No Problem	#	#	44.0%
Access to Outdoor Views & Daylight	#	#	82.7%
Few Drafts & Temp Fluctuations in Meeting Rooms	#	#	27.0%
Support for Water Saving Features	---	#	71.5%
Evaluation of Low Flow Faucets & Toilets	#	#	64.8%
Interactions:			
Support for Group Meetings Outside Workspace	#	#	56.6%
Support for Working with Others	#	---	30.2%
Interactions & Informal Learning	#	---	72.1%
Shared Space: Atrium/Food Court/ Breaks/Teaming & Interview Rooms/Shared Equipment	#	---	60.6%

Key: (Red=Negative correlation, inverse relationship; black=Positive correlation, relationship)

As would be expected, there are somewhat stronger effects between 'unpleasant odors', 'building furniture, color, material finishes' and the 'evaluation of low flow faucets and toilets' with nose, throat, etc. problems. It is likely that the odors that people complain about (Appendix A) are a good part of this.

Building Aspects (Exterior) Related to Health Symptoms

Table 41 shows again that, while there are linkages between evaluations of exterior aspects of the building, and the outcomes, they are relatively small in comparison to the other interior aspects of the building.

Table 41. Exterior building aspects related to health symptoms

EXTERIOR BUILDING ASPECTS *(Items In Italics=Indices*; Non-Italicized=Single Items)	**Little muscle soreness**	**Few nose, throat, headache, or eye problems**	**Percent positive or agree**
We have good places outside the building to take a break, relax	#	#	40.6%
Shuttle services	---	#	29.3%
Natural vegetation & landscaping around building	#	---	25.6%

Key: (Red=Negative correlation, inverse relationship; black=Positive correlation, relationship)

Summary

Although the previous tables have only shown circles to indicate the strength of the relationship between the various workplace features and the outcomes, the following table (Table 44) will show the average of the actual correlations among the groups of these issues. (Correlation values can range between **+1.00** (perfect positive relationship), through **0** (no relationship), to **-1.00** (perfect negative relationship.)

Table 44, below, provides a general overview of the relative impact of each group of workplace features upon each of the outcomes. Each of the following sections will address different aspects of the table.

Workspace Features and Their Link to Workspace and 'Building Satisfaction'

The cells that are highlighted in yellow show the correlations of the workspace features with workspace outcomes. As would be expected they are high and positive, meaning that the better these workspace features (shown specifically in the Section 3 & 4 tables) work for the employees, the greater their satisfaction will be. It can also be seen that workspace features

also have a strong effect on 'building satisfaction'. Again, this would be expected since the workspace is part of the building, and the space that people use the most.

Table 44. Average correlations across workplace features and across all outcomes

	WORKPLACE OUTCOMES					
CATEGORIES OF FEATURES:	**Workspace Satisfaction**	**Building Satisfaction**	**Job Satisfaction**	**Can be Productive in Workspace**	**Own Perform-ance**	***Ave. across all outcomes***
Satisfaction with Workspace	NA	0.78	0.37	0.68	0.25	**0.52**
Focused Work in Workspace	0.58	0.55	0.28	0.44	0.24	**0.42**
Workspace Design Features	0.51	0.46	0.23	0.38	0.23	**0.36**
Workspace Interaction	0.52	0.49	0.27	0.42	0.15	**0.37**
General Building Aspects: Interior	0.54	0.61	0.32	0.48	0.24	**0.44**
Building Design Features: Interior	0.41	0.45	0.24	0.34	0.21	**0.33**
Building Interactions	0.56	0.59	0.30	0.45	0.16	**0.41**
Building: Exterior Aspects	0.36	0.43	0.24	0.27	0.17	**0.29**
Average by Outcome, across all features	***0.50***	***0.55***	***0.28***	***0.43***	***0.21***	
All correlations are statistically Significant, at p=.05 or better						

Building Features and Their Link to 'Building Satisfaction'

The cells shown in blue, in Table 44 above, are the relationships between building features and 'building satisfaction'. Again, these are high, ranging from a moderate level of .43 to a high of .61.

Which Outcomes are Most Affected by Workplace Features, Overall?

The bottom row of Table 44 shows the average correlation (across all workplace features) for each outcome. This value provides a view of the relative importance of the workplace features, evaluated in this employee survey, upon each of the individual outcomes.

It is clear that the work environment features had strong effects on **workspace and building satisfaction**, with correlations of .50, and .55, respectively. There was an almost equal impact on employees' feeling that they could be '**productive in their workspace'**, a very specific performance outcome. There is less effect on the more general outcomes.

As has been found in previous research, the influence of work environment features on the more general outcomes of '**own performance**' and '**job satisfaction**' are certainly present, but are a bit less strong. These outcomes can clearly be influenced by additional factors not measured in this research. However, it is still critical to recognize that the more specific workplace outcomes (workspace & building satisfaction, being productive in the workspace) also affect overall job satisfaction and performance. **So anything affecting these specific outcomes will also likely influence the more general ones of job satisfaction and overall performance.**

Which workplace features have the strongest overall links to all outcomes?

An examination of the farthest right column of Table 44 shows the average (across all outcomes) of the correlations for each general category of features examined in this section of the report. It is clear that '**satisfaction with the workspace'** has the strongest overall effect on all outcomes, with an average correlation of .52. Closely following that evaluation is the set of evaluations having to do with being able to do '**focused work in the workspace'**, with '**general aspects of the building interior**' and with the building support for '**interactions**', all with correlation levels in the .40s.

Of a lesser impact, but still clearly important, are three of the remaining four work environment features ('workspace design features', 'support for workspace interactions', and 'building interactions & shared spaces').

The set of features which had the least, although still significant, impact on the average of overall outcomes was that dealing with 'exterior aspects of the building'.

These findings clearly support the general importance of workplace features in terms of influencing important business outcomes. ***The workplace is a 'tool', one that can be designed and managed to optimize its benefits for employees and the organization, as well.***

Primary Implications for Future Design and Planning

The primary results of this evaluation strongly support the idea that the work environment should be thought of as a 'tool' to support the work activities that employees need to do. Design that supports that work will result in higher levels of satisfaction (and thus retention) as well as greater levels of performance. The following are general implications from the employee survey results.

1. **Offices vs. Cubicles**: Nearly all employees will spend the majority of their time working alone, quietly, in their workspace. Enclosed offices support this work activity better than open office cubicles since they mitigate noise and distractions and casual interruptions. Enclosed offices also provide a better environment for informal learning and meetings that must occur in workspaces. And clearly, they will limit the disruptive effects of telephone use, as well.

2. **Shared Resources**: As we attempt to provide equal access to desirable features such as natural light and views, the issue becomes one of how to allow for these features and provide

enclosure for workspaces at the same time. There are now various solutions available in the market that incorporate clear panels to allow access to light and views while providing a buffer to the distractions that reduce productivity.

Note: While enclosed workspaces, as described in items 1&2, are initially more expensive, their payoff comes quickly, with increased employee performance, satisfaction and retention. The cost of people (employees) accounts for 82% of the primary cost of business over 10 years; whereas the initial workplace costs account for only about 5% of the 10 year cost (*BOSTI Associates, 2001*).

3. **Shared Space**: Providing opportunities for employee interaction, collaboration, and informal learning is another key factor affecting employee satisfaction and performance. Providing such spaces that are easily available to employees, yet not immediately adjacent to open workspaces where they can become a further distraction to employee performance, is essential.

4. **Sustainability**: When an organization pursues specific design features that are beyond the common design features in the buildings of the day, great care must be taken to provide the employees and other building visitors with information regarding these features. By educating all employees, they will act as knowledgeable ambassadors, able to highlight key features for visitors and future employees. Additionally, signage and demonstration displays, both within and without the building, are among the ways to provide information about innovative features, to public and employees alike.

APPENDIX A

Content Analysis of open-ended responses

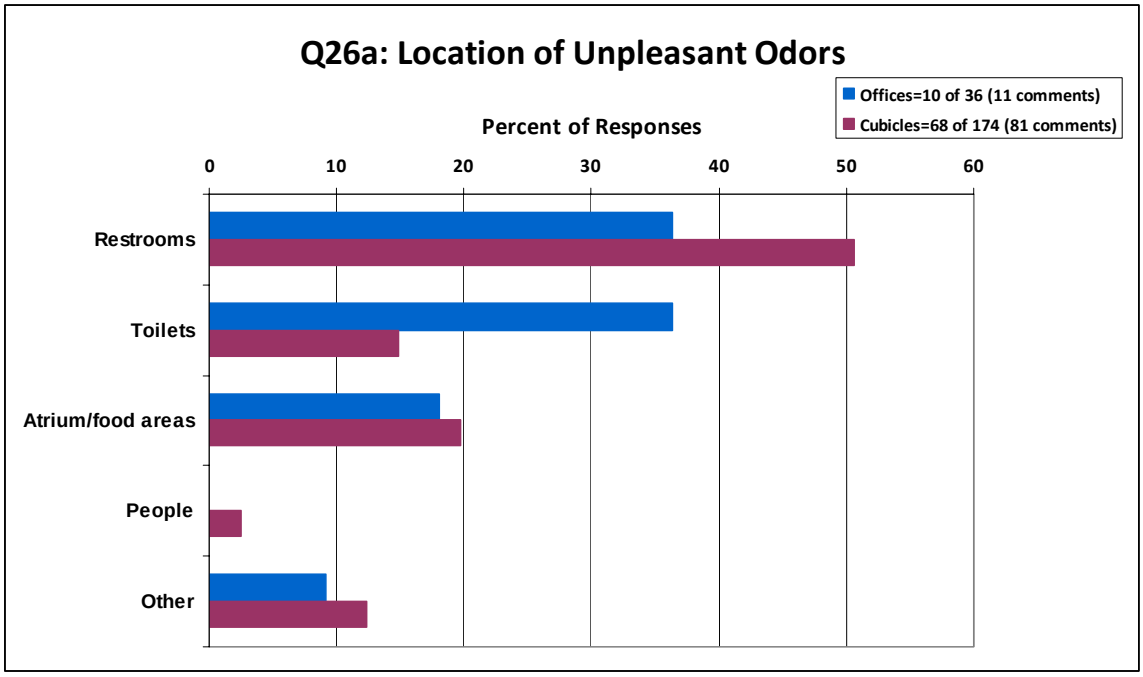
All comments made by respondents to the following issues were recorded, and then sorted and counted to determine the percentage of the respondents that fell into the various categories associated with these items.

The following pages present the verbatim comments to each of these questions, with no identifying information attached. At the beginning of each set of responses, a graph is shown which summarizes the results of a content analysis. Each shows the general types of categories of responses in each set, as well as the number of comments that fit into each of those categories.

Written Responses: Location of odors in the building (Q26a)

Question 26a, in the section of the survey dealing with evaluating the work environment, in general, allowed respondents to write in the location of those odors. This will be presented first, followed by the much larger section (described below) which deals with many aspects of the work environment. (Note: The results in Figure 1 below are shown for cubicle and office respondents separately; the following verbatim responses do not distinguish between those in cubicles from those in private offices)

Figure 1. Categories of unpleasant odor locations in the building (Q26a)



Following are the verbatim responses to this question.

Location of Unpleasant Odors in the Building (Q26a)

(78 of 216 people replied)

Waterless urinals- smells like a horse barn
restrooms
bathrooms
Guy across the aisle
First floor
Conf rooms 1E
women's bathroom, water in toilets
bathrooms
although the waterless urinals are, um, never mind :-)
bathrooms
restrooms and 1st floor hall
bathrooms
bathroom, atrium in morning
restroom
bathrooms
restrooms
bathroom toilets
bathroom
women's restroom, sometimes
sometimes in the restroom from the sewer system
atrium- burnt toast in mornings
bathrooms
bathroom
Bathrooms!
Ladies room
Waterless urinals
waterless urinals
bathrooms
restrooms
burnt toast in am- basement & people's lunch
bathrooms
women's restroom
whole place smells like burnt toast every morning
bathroom, 3rd floor
bathrooms, Monday morning
women's restroom, 2nd floor
workspace, restroom, food service area
Bathrooms & burnt toast in am in entire building
bathroom
women's bathroom on 2W
bathroom toilet water or drain
restrooms & first floor
kitchen/atrium
bathroom
restrooms

restrooms
in bathrooms
restrooms
bathrooms
urinals
hallway by IT & Gen Svc.
sometimes the restrooms
urinals
restrooms
restrooms
waterless urinals on Monday am
bathrooms
bathrooms, burnt toast in mornings
bathroom
men's restrooms
loading dock reeks of smoke
entry, 1st floor burnt toast
around the urinals
bathrooms, file room
urinals tend to retain an odor
bathrooms, smell like outhouses
bathroom
food area on 4/ restroom on 4
restrooms, atrium, constant food odors in wings due to absence of cafeteria
cafeteria, burnt toast in mornings
bathroom- frequent urine on floor near urinals
atrium, burnt toast every morning; also, the mens bathrooms usually smell like urine
wherever people are
food area on 1st floor
throughout building several afternoons
waterless urinals, food service
1W-2nd floor restroom
urinals can be very nasty
burnt toast, food service
bathroom occasionally
bathrooms
restroom
men's urinals
recycling
bathrooms
atrium in am; burnt toast
compost bins, when open
near workstation, men's room, food court
restrooms
waterless urinals foul the air in the bathrooms
bathrooms
rest rooms

Written Responses to Questions About Specific Building Areas (Q 31)

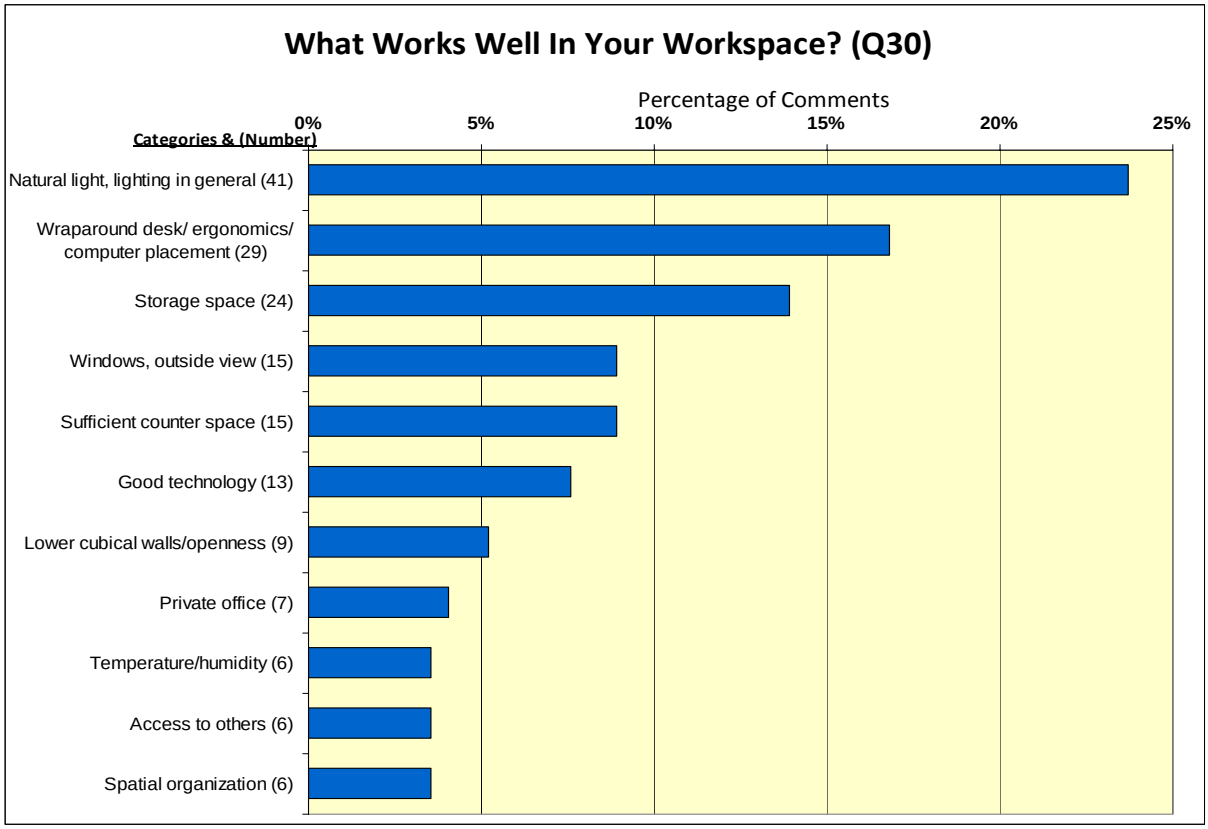
At the end of the employee survey, which primarily consisted of structured questions requiring only a check mark or number to be written down, there were a series of open-ended questions which allowed respondents to add additional information.

These questions asked for comments about what worked well, and what needed improvement, in three general areas: the workspace, the building, and the area outside and around the building. There was a final question asking for any additional comments about their work environment.

The verbatim responses to each of these questions are shown below. Categories of responses were generated to summarize the results and are shown as a figure before each set of verbatim responses. The figures will show the categories of responses, the number of comments made in each category, and what percentage of the total responses that category was used.

What works well in your workspace?

Figure 2. What works well in your workspace? (171 Comments from 145 respondents)



Clearly, the natural lighting, and lighting in general, were the most popular aspects of their workspace (receiving almost 25% of the comments).

The verbatim responses to this question follow.

What works well in your workspace? *(145 of 216 respondents replied, with 171 comments)*
Plenty of flat tabletop workspace. Temp is pretty constant, a little high & needs more circulation, but stays at 73
Lighting, privacy
No complaints other than noise levels
Putting on earbuds and listening to music
Natural lighting is a huge benefit. The lower cubicle walls took some time to get used to, but are acceptable. They contribute to group discussions and open communication.
The people I work with
I like being able to see outside
Wraparound work area/ desktop
I like that it's open so I don't feel closed in but unfortunately because of the low walls the noise levels are very distracting
The temperature and humidity levels are just fine for me; I'm physically comfortable
Location for technology hookups. Even though open area noise doesn't usually bother me -- quite a bit of noise but I was used to it before moving to the building.
Like the natural light and view. Plenty of storage.
Communications equipment-fast, efficient
Color, size, I'm lucky to have a door.
Sound (quiet), lighting, access to staff. Office is small but efficient. Entire group has good lighting and access to windows is as good as taking a break.
Being close to people I work with
Daylighting. HVAC
My office space works pretty well. I like my chair and my cubicle.
Not much
Natural light! Recycling is nearby
The open cubies, plenty of counter space
Layout. "Book shelves". Temp. Lighting
How space is organized
Surface space good, file room adequate. Computer screen can avoid glare.
Desk is at lowered height, vent has been moved, I'm pretty good. Light falls over my shoulder from light above me.
Layout of cube design
The cubicle design facing the south. Table top should be on the right side of cube for a right-handed person.
My computer monitor location
Overall setup is good. Good counter space
I do have good lighting and like to see the view outside. It does distract me when people walk by.
Surface area, storage area, light (both natural and artificial)

Proximity to the window -- natural light and outside view
The worktop and storage work well. Being able to easily see outside.
My computer
The big windows are great and now that the light shelves or sails have been redone -- the light no longer hits us directly.
There is a great amount of space: plenty of work surface, shelving, etc. The natural light & view outside is great, too!
Indirect lighting
The shelves and the lights under them, the large amounts of work surface.
Lights, phone, computer
Arrangement and design good -- too small of countertop area -- more height to area w/ taller walls would add more potential shelf spaces -- more lighting overhead -- more comfortable chair.
The air quality and natural light are excellent
The ability to communicate easily among the team.
Daylight, good furniture, good lighting, good air quality.
File room within workspace
lots of electric outlets, the whiteboard.
Nothing
The lighting, office equipment.
Amount of space & worksurfaces, air quality, temperature all day except early morning. General lighting
desk space
The flow works well. Everything within reach.
computer and telephone work
The amount of space provided works well for my work volume (lighting around my work space is also good)
I like the "openness" of my workspace/ cubicle. I LOVE the natural lighting and view
I am completely satisfied with my workspace.
Like having lots of surface area so that I can spread my work out allowing for multi-tasking.
I love the natural lighting. I have a good amt. of desk space & shelving.
fan, chair
Desktop space, air circulation
I have the privacy of an office so can shut my door to meet with staff or others and to use my speaker phone.
My chair
Everything
Privacy- room to meet with co-workers and staff
The outside view is great, good working space (plenty of work area)
Lighting under cabinets

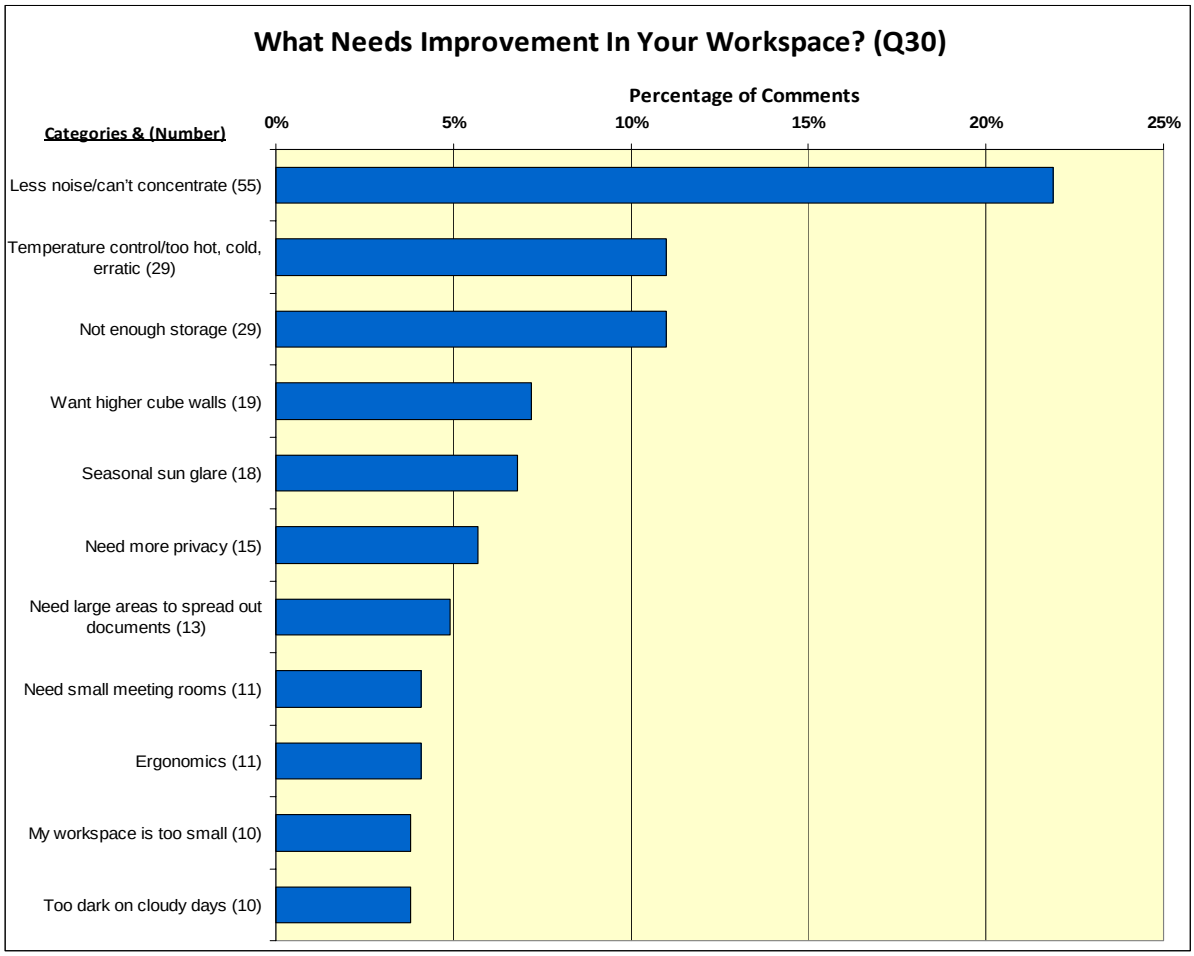
The layout of my work surfaces provides good amount of space, but still not enough for our large documents (one set of documents for a project I'm working on weighed nearly 50 pounds.
cubicle layout, lighting
Having a private office with a meeting area work well. Ventilation is terrible. It is generally warm in the summer and cold in the winter.
Nothing.
light
Having walls & door; having clear windows on the upper part of wall facing windows.
lowering of work surfaces has helped tremendously
Horizontal work surface and efficient file space.
The window. I rarely use electric lights -- only on very cloudy days.
View of outdoors.
Natural light from window, height of desk
Storage area
Outlets and lighting
Noise level is high. Voices travel a long distance and disrupt work environment. The layout of the cubicles works well; i.e., overhead storage, counter space, etc.
Its central location provides access to others (but that's not really a planned thing anyway). A lot of desktop space is available.
Lots of counter space
Light
Size of work station, close to kitchen and bathroom as I have walking issues.
MISSING
Overall size
Natural lighting, desk space.
Having the computer screen facing the wall shelves. I gain screen privacy and an outdoor view.
Door.
Storage and work surface area is excellent. Lighting is very good.
The abilitly to see outside.
Everything except keyboard and mouse placement.
Height of desk, lighting
Desk space
All aspects of lighting and the view.
Natural light, quiet
Having the wall on one side gives me somewhat more privacy than being on an end cube or in between other workers.
The countertops. I have quite a lot of space.
Like my workspace
Lighting (natural) is nice; adequate workspace.
Space -- I have a small table w/ seating for 4 staff -- very effective for meetings.

Daylighting, indirect lighting, colors, systems furniture & storage, air quality & height of systems panels if staff were more courteous about their level of voice.
Private office
Having a private office -- I deal with a lot of personnel issues and the privacy is very important.
I am fortunate to have a private office.
My computer
Nothing
Task lighting is OK
Space
Width of work space is good.
Everything
Low cubicle walls -- allow natural light to come in & allows the other staff to see if I am in
Daylight (hardly ever need to turn on lights) & I have a window I use when weather moves
The view is refreshing.
Workspace layout and location (4W), clean surfaces, not old and dingy like the JB.
Lighting, temperature control for the most part.
Lighting
Lighting, cubicle arrangement -- colors.
I like the view, but ….
Set up of area.
Overhead & surfaces.
Countertop workspace
Daylight within site
Enough space & privacy yet around others. Good outside view.
The amount of space.
Modular desks, daylighting.
Desk top space is great
Lighting -- natural & automatic
Computer
Private office allows me to concentrate easily on my work. Private office allows me to meet easily with one or two of my staff members.
Computers
Computer/ Phone
Adjustable lighting, amount of space, furnishings.
Desk space
I like the center island, but it makes my office smaller. All my equipment is within easy reach.
Lights
Overhead storage.
Computer, task lighting
The desktops are high enough (I am tall), plenty of shelf space; natural daylight and ability to see outside.

Amount of space, air quality
Desktop space -- plenty to spread out & do projects.
All
Overall set-up of my workspace. Location of computer screen and hard drive are well suited to how I do my job.
Surface work area is good
Adequate counter top space & shelving.
Natural light
Chair, keyboard tray, work surface, view of river.

What needs improvement in your workspace?

Figure 3. What needs improvement in your workspace? (263 comments from 169 respondents)



The most frequently mentioned problem is that of noise, and being unable to concentrate in their workspace (over 22% of the responses). Lack of storage and temperature issues were the next most common, each receiving over 10% of the comments.

Following are the verbatim responses to this question.

What needs improvement in your workspace? *(169 of 216 respondents replied, with 263 comments)*
Less noise, less openness, more ability to concentrate on my work.
Too small- I prefer to be able to have small supervisors' mtgs in my office-no longer possible. Also area is too small for the furniture I have. No window view of outdoors.
Well, be easier to concentrate if we had offices.
Too much background noise. Not enough privacy. Need small meeting rooms for small groups to discuss issues instead of doing it across work areas
All the noise, conversations, other people's phone calls, etc., are very distracting. There is no privacy
Storage. Quality of materials -- cubicle walls are flimsy and pieces come off or are loose.
If we could somehow introduce a noise-buffer without completely closing the individuals off, this would be useful
I don't have enough space to arrange my papers and files as efficiently as I would like. Much of my work involves extended periods of concentration and the open cubicle system is counterproductive (due to frequent distractions)
More space, to be able to concentrate on work better without hearing other workers' conversations. And better climate.
Lighting in winter months -- work until 5 pm -- don't have much light in late afternoon (north side). Glare from outside light.
Could be quieter
The big mechanical room outside my office- extremely loud
Access to printer, fax, some heat. Always cold.
Higher cube walls to block out noise, disruptions
Lighting, storage, sound and sight distractions
Noise
Lighting -- the lights go dim when the sun is out. It usually causes it to be darker than it should be. (2W). Then my desk lights don't provide enough light on my workspace.
Need privacy for discussions with employees -- can't always arrange for private meeting place, e.g., when a phone call comes in that is of a sensitive nature -- personnel issues, etc.
Maybe a little more privacy
Distraction prevention (full height walls); cubicles
A little work on glare issues
Just fine as is
Too many distractions from other people's conversations and the fan in the hallway. Too much natural lighting that causes glares and eye strain.
Glare off cube wall cap is bad at times and the glare from other people's work surface can be bad. The air vent noise is horrible. Very loud and makes concentrating and communicating very hard. Interferes with telephone calls.
Glare sometimes get from sun depends on time of year on how bad it is
Need walls to talk about personnel matters. **Feeling less like a sardine.**

As admin. Support person -- not enough work area (164) as such for a higher ranking person. Our staff are more the field individuals and our cubicles are too small for the volume of work we do
My chair, the setup of the cubicle, where my keyboard is located, having a vent right under and beside my desk.
Walls, space for work, filing cabinets (real ones)
Temperature
Cube walls too short; no privacy for meetings/ phone calls; lots of distractions.
I cannot get comfortable in my workspace all the time. I feel like I have to move forward to see my screen. I work with spreadsheets and paper & have no place to lay it in front of me to see it. I cannot control the air vent in my area, because my file cabinet covers it. I have no other place to put the file cabinet
Desktop area to my left and back. Uncomfortable. Unhandy. Things frequently fall off.
I'd love to have an office with walls but only my own messiness if stuck wth a cubicle
Upkeep -- cleaning & dusting.
The noise control. Put doors on the east side of the teaming room. The ceiling lights sometimes goes off due to lack of movement, turn the sensor.
Better lighting and walls
Air flow-hot hot
Air flow, design is hard to use, not near enough space (me, desk, 4 filing cabinets and 2 small storage spaces). I can turn around in my chair 360deg. and touch 3 walls.
I am frequently interrupted during the day. My cube is on the hallway & people often stop to talk. I often (2 days/ month) come in on the weekend to work on projects that require additional concentration. The building materials (cube walls) keep falling down & need to be re-stuck.
Sound, sound, sound! It is too noisy in here! I can hear every word of conversations as far away as the opposite end of the next row of cubes! Beeps & other electronic equipment sounds are ear-piercing! Please put some "white noise" in here, raise the cube walls ... something!
More cubicle walls to block out the noise & conversations better. Having an accessible locker to put my purse & walking shoes & coat would be nice instead of cluttering up my desk & floor. I don't trust leaving my coat on a coat hanger several aisles down as I could forget to pick it up at the end of the day.
Noise control
The excessive noise. Too many under desk cabinets. It's hard to stick thumb tacks into the cubicle walls. The cubicles are starting to fall apart.
My monitor faces the south windows. The bright outside light behind my monitor creates fatigue. The low cubes do not block sound very well. Light behind my monitor is fatiguing.
Storage -- privacy -- privacy for concentration -- pocket door to work area adjacent to my office for noise -- more ergonomic chairs -- better lighting and more counter space.
The fluctuation in the lighting throughout the day
Too loud!! Too many people talking, visiting each other, socializing; need larger work surface, need to adjust the height of work station -- need larger cube wall -- they make transparent panels -- to block the noise!!
temperature control.
Need privacy. Need enough space to use keyboard holder, need drawers for pencils, rulers, etc. Need higher walls for less glare, need more storage, need space for a visitor chair.
Lighting, noise control, distraction control
more privacy -- less noise from co-workers.

Sunlight glare, computer mouse location, blocking of visual & noise distractions.
not enough filing spaces window glare, temperature
sound travels in odd ways -- need white noise? Side light on door -- lack privacy.
adjustable keyboard holder
Noise level needs to be reduced -- lighting needs to be improved -- file room needs to be closer. Odors need to be controlled. File cabinets that work -- keyboard position needs to be improved -- main floor vents must be silenced.
too much direct sunlight - sun reflections off windshields-- too warm -- need less distractions, noise
N/A
file cabinets -- too light, tip too easily/ pieces of wall always break off. Example: corner pieces. Walls not sturdy
Noise. My cubicle too small for working with large maps
Poor quality workspace units. Cheap plastic items that are not secured to surface or easily break. Arrangement of surface area -- need to access better without other object in way. Quality of workspace unit would be better.
air from electronic/ wiring hole is often cold. Seems like during the winter the upper set of windows on the south side could use some shades/ filters that soften the sunlight.
wiring, computers, shelves, walls, space, privacy
outside noise (other people)
It would be nice if the motion sensors for the lights were more sensitive so wouldn't shut off on me while I'm in my office.
Need more space
need to have more natural light, access to windows
more privacy, walls are too short and have pieces falling off
occasional glitches in temperature & noise
Too much light causes eye strain & headaches. More storage space would be good. Better setup as far as foot space under computer workspace.
Wall height should be increased to provide more privacy and decrease interruptions.
We are stuck with what we have so it really doesn't matter. Higher cubicle walls and a suspended acoustical ceiling would help.
Noise reduction -- add acoustical tiles or baffles on ceiling to cut down on noise transmission, raise cubicle walls for added privacy & noise reduction. Fix HVAC vents on floor so they don't rattle when people walk on them, better air filtration (there's more dust here in 2+ years in the Jefferson Building after 5 years.
temp control
more privacy in cubicles
Ventilation is terrible. It is generally warm in the summer & cold in the winter. Climate control
It is extremely difficult to perform my job in the workspace. Table space, storage space, computer ergonomics, quiet for phone conversations, quiet for work concentration, wall space for hanging maps, file storage.
need more space, fewer interruptions
Offices are very small, but I'm very thankful to have one.
The materials used to build the work space- such as walls etc. do not hold together very well. Many parts are falling down. Walls need to be higher.
Noise reduction, reduce distractions
not satisfied with counters have one counter w/ rounded end against wall -- needs to be replaced.

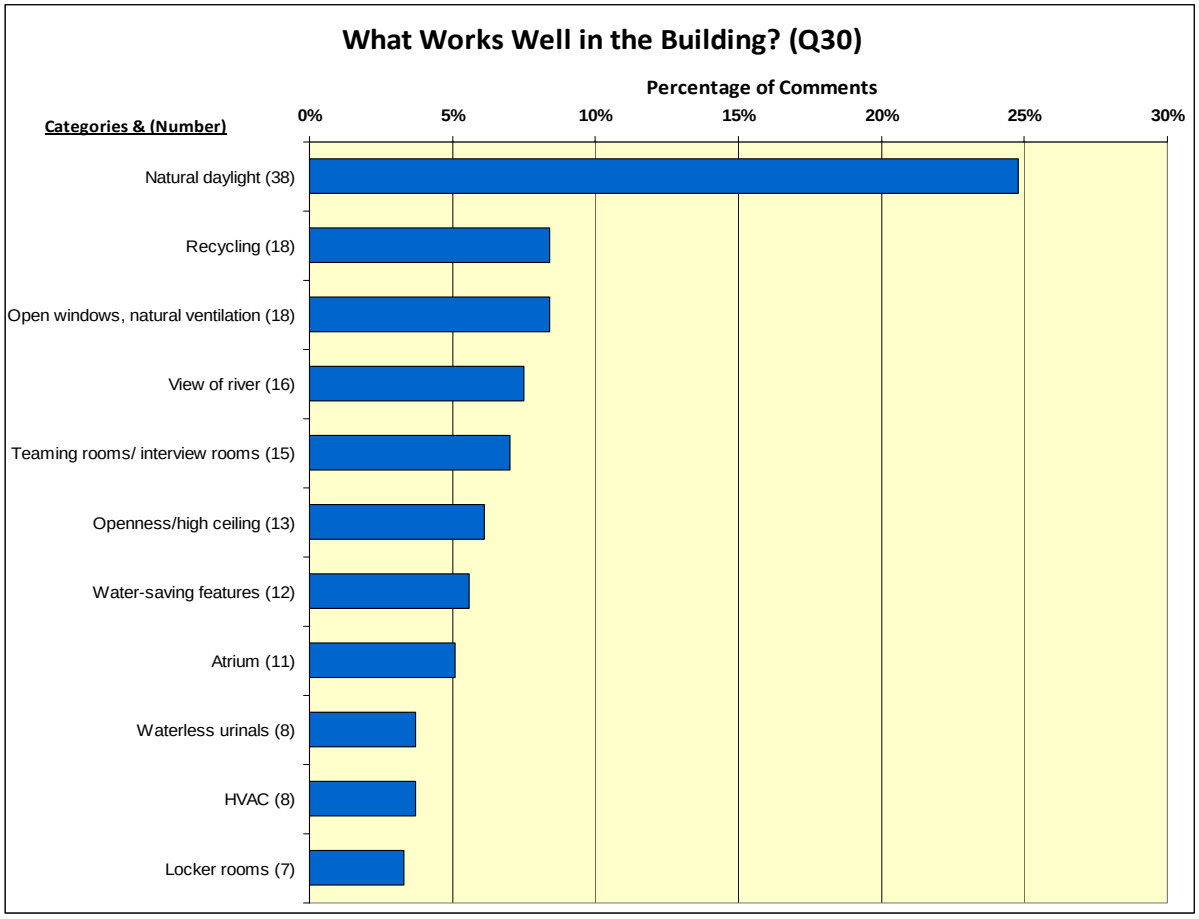
Chair
Screen on the window so bugs don't come in.
Storage, air flow, privacy
Noise & motion of others.
Better chair
More useable counter space/ workspace. Higher cube walls for a little more privacy.
Cubicles are constructed cheaply. Need to do something about the noise level. From my cubicle I can listen to conversations 20-30 feet away.
Lighting is only on one wall so on dark (overcast) days, it is dim, temperature is too cold, computer is limited on where it can be placed; NOISE, lack of overhead storage, lack of privacy, printing, faxing equipment nearby is noisy. I can hear folks walk in the door to 3 West! No capability to keep noise down with these ceilings. When others play music you can hear it -- head phones don't have long enough cords to plug them in and do work at the same time. So can't drown out distractions with music (as white hoise). Can't use cell phones in building and expect good reception.
Noise from others (phone calls, general talking, etc.) is very distracting. I'm always FREEZING! It can be 100 deg. outside and I have to wear 3 layers of clothing to work. It's ridiculous.
Temperature control; sound carries everywhere
temperature control
Believe furniture in office could be changed.
Quality of cubicle walls.
Noise level, people respecting the quiet -- others need to work.
The cloth shades that don't move don't prevent afternoon glare of facing outside. It is usually of short duration.
Furniture
The size, furniture -- both need to be better. I was in a wheelchair for 4 weeks due to surgery. I could not get into my cube at all. It was very inconvenient for me to be at work.
Cleaning inside cubicle is minimal.
I supervise 10 people and don't have an office with a door. This could be improved. It would be nice to have the ability to meet with employees to discuss sensitive issues. Speaker phone would also be useful. Light sensor in my area.
Keyboard/ mouse are poorly placed -- mouse falls on the floor 5-10 times a day.
Need larger area, too cramped. When sun is on our side in the morning, the sun does come between the interior cloth light shelves and wall or bottom windows that is blinding for short period of time.
Privacy
Furniture layout around the column. More storage for ongoing project files.
Gets a little warm on the west side in the afternoon & the shade doesn't always block the glare quite well enough.
No comment
The temperature -- too cold
Would like a contrasting wall color on 1 wall.
Acoustics, excess noise, glare on computers, work are aglare, foot traffic.
Access to white noise or some sort of noise barrier. Better temperature controls if possible.
Overall the building is very loud. Normal voice inflection can be heard throughout the floor. Conversations outside of my office are distracting. I frequently close my door to dampen the noise both when conversations are going on and when I make phone calls/ have meetings.
Need white noise technology w/ a PA system.

Temperature control
My office is very warm in the summer afternoons & can be much cooler than other offices in winter.
Higher walls, quiet work area, desk drawers for organization & storage.
Storage space for work documents and more work surface areas. Better lighting on cloudy days.
Storage space for files & publications
Office setup including outlets.
I need taller walls to block glare from the windows.
Height of work space, desk chairs are too big for chair space -- hard to move around in office.
Column in office is unpolished concrete, causes skin abrasions & damage to equipment. Cube walls are falling apart. Direct sunlight in winter. Too hot, especially early a.m., during summer. Loud HVAC fans..
nothing
I'm good
Air vent under desk -- too warm in winter.
I'm distracted by people frequently walking by. The noise level is extremely distracting. There is a terrible glare from the windows. Sounds such as phones ringing echo through my workspace.
Need an office library space where my books and magazines can be stored. Need higher cubicle walls.
Space -- I have NONE. Heat / cool -- can not control either -- even with the little vent on floor.
Lighting and noise control.
Need to outlaw radio playing except with headphones & tell people to SHUT UP!! Or we need much better acoustics. The distractions in this building are just terrible -- noisy and distracting. I'm just completely disgusted that management thinks this is a good work environment.
No privacy. Doesn't accommodate guests, too much noise.
Higher walls, no office should have a pillar in it taking up valuable space. Space for bookshelves for needed heavy manuals used on a daily basis.
temp. control, lighting, computer work area (keyboard, mouse, monitor), privacy, noise control.
The glare from the sunlight is too bright which causes eyestrain and headaches.
Ability to shade light.
Storage spaces, cabinets need room for files. Files are 3 floors away. Need to be closer.
Filing cabinet space.
Much reduced non-work related conversations near my workspace
Computer needs updating. Move monitor; lower desktop; air vent noise.
The keyboard & mouse holder need to be adjusted
Noise abatement & establish shared norms about speaking quietly.
storage room -- less noisy
Minor adjustments, keyboard pad moved & rearranging whenever Doug can find the time.
Cubicle material breaks & falls apart easily.
More space?
Heights of chairs, arm rests and work surface. Brighter lights when needed.
Filing space

The private office is to small. Although I can meet with one or two people, it is tight.
Noise & distractions.
Work surfaces are too high.
Add extensions to cubicle walls to control noise. Lighting, glare on computer.
Some days I'm too hot or too cold. When hot, I use a fan. When cold, my work may suffer (I need to bring in a sweater!) Chair seat not stable -- sometimes drops down when I sit on it.
More privacy for noise purposes.
There is plenty of natural light on sunny days, but glare and direct sunlight is a problem. I'd like the dry erase board and frame to be magnetic. Its cluttered - not enough flat surfaces. Printer too far away.
Space for storage and review plans
Sound control - storage space
I am rarely bothered by noise, however others are. I believe walls at the higher level would improve this problem. They could be tinted walls rather than solid to continue to allow natural light. I am running out of storage area.
More work surface, more file storage, privacy
NEED DRAWERS! There is a file cabinet used by the whole department that is stored in my cubicle and it is in my way and greatly reduces my work space. I've been told there is no room to store it elsewhere.
No floor covering, poor janitorial service
Ability to have telephone conversations without being overheard by everyone in the office.
I sit by the door, the traffic and the "click" of the Sonitrol swiper are very distracting. I am also by copy room and have distractions from that.
None
Possibly some higher partitions to allow for more privacy
Floor vent is sometimes troublesome.
Outside noise control from nearby cubicles.
air circulation
Privacy walls, noise level (concrete ceiling).

What works well in the building?

Figure 4. What works well in the building? (215 comments from 126 respondents)



Again, the most positive aspect of the building, in general, was the natural lighting, receiving almost 25% of the comments. Other sustainable issues (recycling, window features & ventilation) were the next most popular, each receiving around 8% of the comments.

Following are the verbatim responses.

What works well In the building? *(126 of 216 respondents replied, with 215 responses)*
Nice atrium, nice hardwood floors, plenty of open windows & natural daylight
Lighting, ventilation

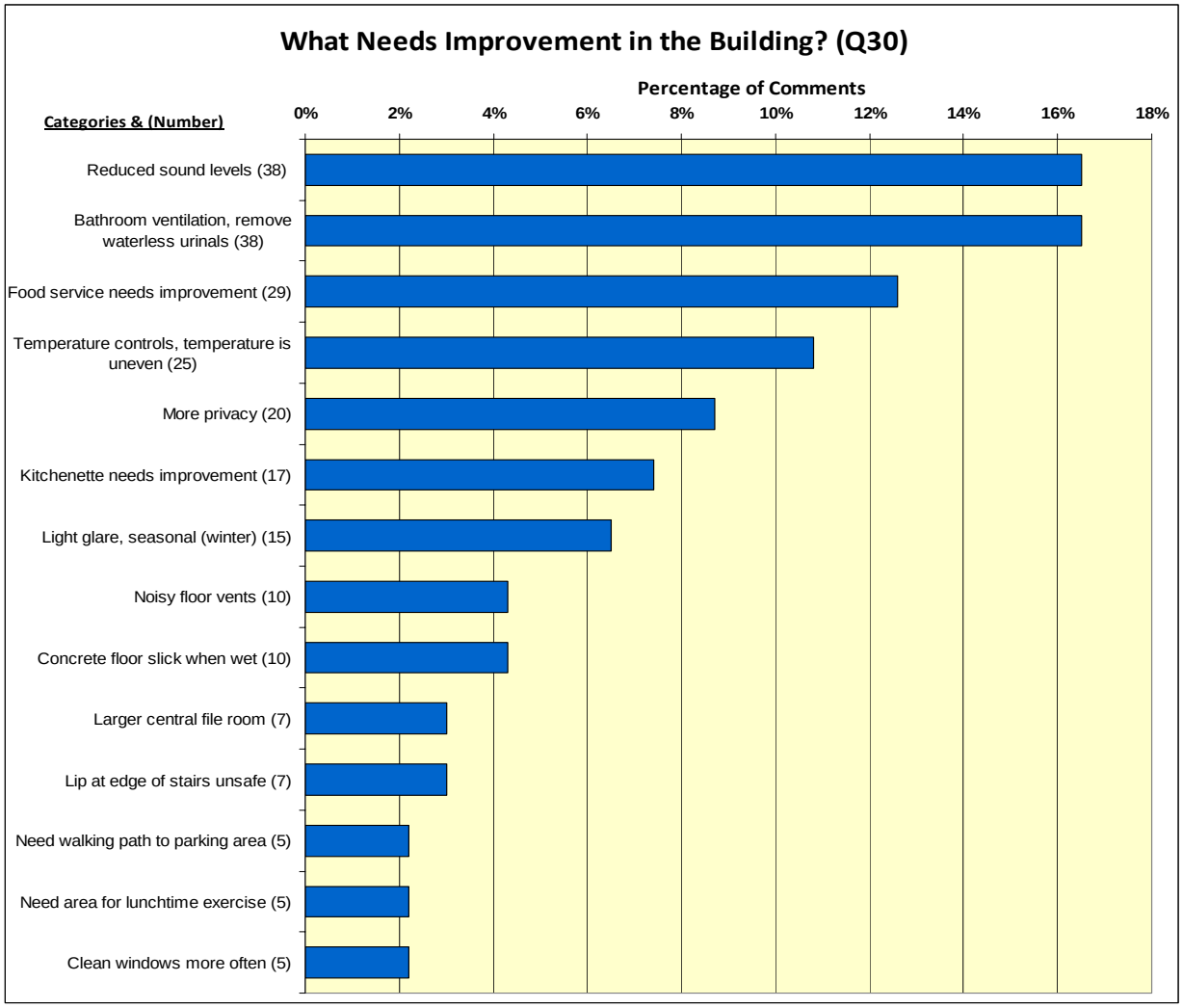
Recycled rain water for toilets. Last year there was a main break and while most of the town was out of water, we could still use the restrooms, although handwashing was questionable
The meeting rooms, bathrooms, dining areas are fine.
Catering, atrium, conference rooms.
Frequently use the locker room for lunchtime runs.
Location, overlooking the river
Openness, air quality (just my opinion -- I have no tech. knowledge of this but it smells fresher than my last two DNR office buildings), food, lighting, deliveries/ loading dock.
The exits
The recycling. Having everyone that I work with closely on the same floor.
The building has a pleasant atmosphere & is aesthetically pleasing if you didn't have to work here -- i.e., not conducive to doing office work -- would make a great museum or warehouse.
Interior lighting and daylighting (I am on 4th floor). I think the high ceiling helps buffer noise.
Waterless urinals; water conservation; elevators; dock; temperature; outside views on upper floors.
How it's laid out
Open spaces, restroom functions, meeting rooms. Meets my needs
The open windows are great; the low carpet helps with tripping factor, handicap doors work well.
Conference rooms
Waterless urinals
Like being by the south window with a view
Setup
I like the windows and lighting. I like the ceilings and the blue paint on the 4th floor. We didn't get finished ceilings.
Overall is good. Good outside lighting
The lighting.
Teaming rooms, interview rooms, meeting rooms. Recycling handy..
Lighting, air quality, temperature setting.
The natural light and brightness in the building.
Lighting, recycling, open lunch area, big meeting rooms downstairs.
The ATM & the vending area conveniences are nice to have. The kitchenettes work well, but can get congested.
The amount of natural light and the décor. The number of available conference & meeting rooms is good too.
Lighting.
The views, the key-card controlled doors, the lunch area, the meeting rooms.
Natural lighting, clean appearance, professional atmosphere.
Lighting -- ability for sound to carry everywhere-- good large meeting rooms
Open areas, good air quality, natural light
Daylight, recycling.
View, sunlight, windows.
The shower room. The conference reservation center, the reception area.
We have conference rooms
I like the building. The simplicity and design. The openness of the center of the building.
Most areas

lighting design
Stairs -- great job -- most folks avoid elevators.
the natural lighting
Elevators
The appearance and overall natural light is great. The building is tastefully decorated and designed.
Natural lighting, recycling
The lighting and other energy and water conservation measures.
Windows allow for natural lighting.
Love the locker room & lactation room -- great to have in any and all buildings. Nice to have a bike rack
natural light
the elevators
Can open windows to get fresh air. Recycle room is nice.
having ATM in building
most aspects
natural light
The new light shelves are a big improvement.
The view from the north windows is nice. As far as I know the roof doesn't leak.
Very little.
Light and light bouncing
light
Water conservation features; natural light.
layout of space & that all of dividion is finallly in one location
Computer station
The openness
The building is merely a shelter as would be expected of any warehouse.
Natural light
kitchens
The meeting rooms are very nice.
I like the natural light and abundant windows. Unfortunately we are looking at surplus property. The large teaming room centrally located on our floor (3rd) is nice.
At least there are (often) enough conference rooms for us to meet in; the locker/ changing room is appreciated.
Automatic lighting, recycling, chutes, vendors for lunch.
Meeting rooms & teaming rooms for get-togethers
Layout
Natural lighting, water conservation.
File room space is adequate; due to rolling files and multiple users, the lighting may not be.
Good question
Everything works fine.
Daylighting is good. Temps are good for the most part.
Atrium
The lighting.
Open, light atmosphere, nice ambience, great setting on river.
The lighting.
Like the building and its open features.
Natural lighting; the view is beautiful.

Open spaces, natural light, air quality.
most EVERYTHING!!! Daylighting, lighting & indirect lighting, temperatures -- lack of fluctuation throughout building & indoor air quality.
Openness
Lighting.
Nothing. I hate this building. If hatred were people, I would be China.
I appreciate the focus on energy conservation & efficiency.
Large conference rooms, many medium conference rooms.
everything except allergens
Low cube walls
The break rooms are spacious and have nice frig and microwave.
Sustainable design, meeting rooms & recycling areas. View of the river and capitol complex.
Auto lights
Security system, conference center, teaming areas, breakrooms, open areas, lighting storage space, recycling.
Nice view over the river, tin roof when it rains is nice to hear.
The showers on the first floor are a positive.
Computer alone, workspace lighting.
View of the river, climate light, access to other units, meeting rooms.
Most things.
nothing.
Daylighting, energy efficiency.
rainwater to flush toilets. Automatic toilets.
Toilets that automatically flush.
Natural light is wonderful! The building is bright and airy. Meeting rooms are good. Outdoor tables are nice for lunch.
Meeting rooms
Communication w/ other staff
Stairs.
The lighting in this building (natural light) improves people's overall outlook. I like the colors & use of natural materials, especially the wood floors.
View, tin roof when it rains.
Plenty of natural lighting. I like the wood ceilings. It cuts down on noise.
Toilets, atrium, elevators.
Conference rooms
Being close to co-workers.
view of outdoors
The natural sunlight in the building, and the ability to see outside from my workspace -- makes a huge difference in my mood at work!
Lighting, air quality
Food court
All
The catering set-up. The automatic lighting. Drinking fountains. Showers.
Meeting rooms (size and dimension) are good.
Environmental controls
conserving energy.
Common areas, teaming rooms, meeting rooms

What needs improvement in the building?

Figure 5. What needs improvement in the building? (231 comments from 160 respondents)



Two issues accounted for over a third of the comments. Problems with sound in the building (16+%), and problems with bathroom ventilation and urinals (16+%) were each the most commonly mentioned response. Food service issues made up a bit over 12% of the comments.

Following are the verbatim responses.

What needs improvement in the building?

(160 of 216 respondents replied, with 231 comments)
Closer restroom, more icemakers, restrooms should be designed so you don't have to use your just washed hands to pull on the handle to exit. Think about it! Why were handless faucets used in the restrooms?
Sound carries, no privacy for most staff.
Noise level
Get rid of flushless urinals. I'm tired of wet knees and stained pants!
Restrooms smell bad -- need ventilation. More meeting rooms -- difficult to set up, as they are booked up most of the time. More "work" rooms for small groups to gather and work/ meet.
Food court
An intercom for the building to notify of safety items -- tornado or other emergencies. A walking path to the parking lot. The quality of the hand soap in the bathrooms seems very thin and watery. How about using a conference room for lunch time exercise class!
The men's bathroom smells like pee all the time. How many times do we have to say this!!!!!
Visitors coming for meetings have a hard time finding the building. We sometimes have a hard time finding a room for meetings.
Distance btwn work space and restrooms. Noise level
Temp. controls. One part of the office is too warm, the other too cold
Restrooms on first floor are frequently overwhelmed (whenever there are large workshops or conferences). Far too much space is simply wasted. The central file room, for example, is much too small. The office equipment is cheap and flimsy compared to what we had in the previous building which was surplussed. Stupid, stupid planning, wasteful; hardly "green".
Restrooms are too far away
Temperature control. Building is always cold.
Safe area for storms
Temperature- too cold in summer, too much heat in winter
Clutter, sound, mail service, employee parking.
Lighting, heating, cooling
My division director
Noise/ sound
The heat/ air. Some parts of the building are cold and some are hot & the lighting on 2W seems to be dim most of the time.
Floor vents in hallway are noisy. Poor design -- placed right in middle of hallway -- can hear discussions from other work spaces several cubicles away.
None
Cubicles ("half height"). Security -- no need for security doors on every wing
Keeping windows closed so allergens don't come in
The lip at the edge of the steps is unsafe. I have tripped and have witnessed others tripping when walking up the steps.
The windows work well for the view, but let in a lot of glare. Concrete floor is very slick when wet; the smell from bathroom and cafeteria, the air vent noise is horrible, causes headache and is part of noise problem.
Noise level
Offices
When they built the bathrooms they should of included them on the end of the buildings also. Need to have better service for food -- limited vendors and too expensive. Area's not accommodating with printers and copiers -- clerical staff having to walk too far especially if

you have some disabilities.
Cafeteria
Everything. I hate the landscaping (or lack of any), the bathrooms are terrible, acoustics are bad, temperature is usually too hot or too cold for me.
Sun is a major issue during fall/ winter months. Sun is directly in my eyes for a number of hours each day.
In the winter I cannot wear sweaters because it seems too warm in the building. In the summer it is sometimes too cool. .
Keeping noise level down on our floor. The analysis that we do requires concentration, and that is difficult sometimes.
(1) Supervisors need an office with a door they can close!!! (2) Too far to walk to get to a drinking fountain/ bathroom. 88 steps from my cubicle entrance to the bathroom and 97 to the drinking fountain.
Cleaning the windows more often
Noise & visibility. Employee productivity hurt by distractions from uncontrolled noise & visibility.
Noise control.
bathroom, yk yk, smells
Clean bathrooms after hours -- not during day when you have to go to another floor.
The bathrooms stink! The doors to the office areas close hard and distract people nearby. The noise level is distracting. Files are located downstairs, so often staff make several trips/ day @ 10-20 minutes just retrieving files.
Same as above. Deaden the sounds…I can even hear conversations & sounds from the atrium at my desk sometimes ..
I would buy more lunch if the prices were more like $4 - $5. I get tired of taking my dishes so far away & going to the bathroom so far away -- especially if you are injured or not feeling well. Would like to see more of a cafeteria like the Jeff building.
Noise control, large workspaces when needed. File room,
The air vents in the floors are very noisy when they're stepped on. The lights go off too often. Sounds carries too well.
Stinky urinals.
More smaller private meeting rooms on each floor -- particularly 4E -- low flow plumbing has issues -- ventilation & sound & privacy issues are issues for many.
Odor in the bathrooms
Day to day cleaning.
PARKING, taller cube walls -- more meeting spaces -- ability to leave things out at a big project.
Must take at least 1/2 hour each time going to the central file room to retrieve files. Bathrooms stink.
bathrooms & kitchen are too remote, file room is so far a way it's not used. All offices along the halls should be given more privacy -- the vents in the north wall are spaced so that they are always underfoot & the mail cart rolls over them.
Most of the whole thing.
The smell of the 3rd floor ladies' restroom - perhaps ventilation -- acoustics need improvement.
Systems furniture is starting to fall apart
noise control

durability of system furniture
the lower sides of cubicles should be 7-8 inches higher for more privacy.
Urinals (men must stand in urine), toilets, concrete steps are dangerous when wet, safety from intruders, no protection from tornadoes, noise level, food service, lighting, odor control, file room location, kitchenette is non-functional, ice sanitation, guard rails
consistent temperatures -- air blower noise is too loud, distracting.
N/A
air flow
Bathrooms seem to exaggerate odors. Food Court is USELESS. Yes, it saves money not having a kitchen -- BUT, caterers have to drive to and from TWICE a day (& the selection is not good). Inside color is BLAND.
While my workspace offers plenty of privacy, I worry that others in cubicles are not as able to avoid interruptions and distractions.
Quality of materials, sound barriers, privacy, food service, intercom system, safety measures/ warning systems.
Sometimes the water in the toilet have a scent but not sure there is any feasible solution.
urinals smell sometimes, bathroom walls dirty elevators, network, no privacy, too many distractions
NOISE, food availability, exercise capabilities, waterless urinals
The smell in the bathroom is my biggest complaint, especially after a weekend. The whole wing smells sometimes after the weekend but is okay once air circulates through again. Also temp. control -- some rooms/ wings are not/ some are cold.
Cubicles are constituted of poor materials; cubicles are too small & too open; cubicles need taller walls (at a minimum)
Walls, access to bathroom where I don't have to have a card to get back to my desk, filing closer to workspace
Teaming rooms need doors at both ends
Lack of print shop, cafeteria and areas to take a break. Better system for getting seating arrangements in conference rooms set-up prior to meetings.
Parking.
The M-W-F food service guy is disgusting and his food isn't much better. I've been getting on them for a long time about clearing the bugs out of the lights, and supposedly they were working on it, but it's been a while since there was any movement. The waterless urinals are very rarely maintained for proper function, but there have been hints of improvement recently.
Nothing that DNR will agree to. If a tornado ever strikes the building there will be mass casualties as they gave no consideration to employee safety. The bathrooms smell, are unsanitary, and very likely constitute a health hazard. Many of us trip going up the steps due to the overhang.
Replace the waterless urinals (or hire competent cleaning staff that can properly clean & maintain them). Adequate space wasn't provided for supplies, printers, copiers, etc., so office cubicles had to be used for these functions. Need space in each program area for working files rather than running downstairs all day long.
food options/service
Noise distraction
Table space in the file room
nothing close by- location inconvenient
Bldg. needs an intercom system, freight elevator

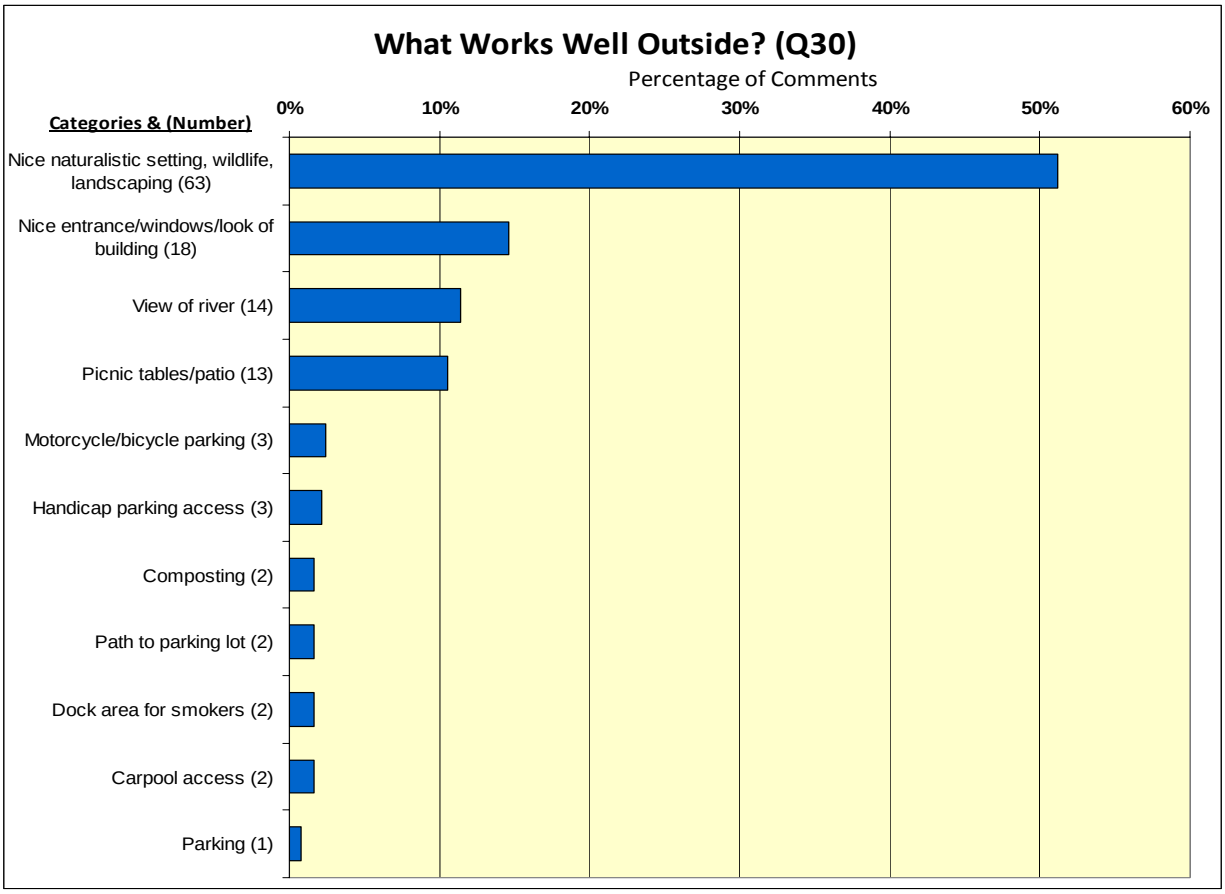
smelly urinals are obnoxious, toilet area could be cleaner. Cracked cement ceilings. Need sound clouds on 3 West to reduce noise.
temp & window glare on north side of bldgs.
Gesling Lake conference room can be stifling. Need drapes in "fishbowl" conference rooms.
Be sure to get quality window washers. The first crew did great -- the second poorly. With windows such an important part of the building -- they need to be appropriately maintained.
Cubicles need to be private and sound deadening added to help distractions from noise.
Steps inside are slick when it rains/snows. Small sinks in kitchen areas.
The main walkways along outside walls are too narrow. When meeting a co-worker walking the opposite direction you must alter your walking to pass without touching
Temperatures too cold; low water pressure; too small sinks in the kitchen; change "teaming room(s)" to common areas to go on breaks; slow elevators (are they all even working)? Stench in the bathrooms coming up through the drain. The fact that they had to retrofit shades for windows; change/ work with low-flow toilets -- these point to a lack of planning or preparation. Were any line staff on the building committee to bring in some of the working folks' perspective?
The bathrooms have a stench similar to porta potties. I think it has to do with the water.
Sound and privacy. There is a feeling of no privacy at all in this building.
Sinks in bath and kitchen
Temperature
Cubicles need GLASS panels installed for employee privacy. Considerable amount of interruptions to employees throughout the day.
The refrigerators are supposed to be energy efficient, yet you have to hold open the door for the cold water spigot. Placement of some floor vents -- if you are pushing a cart down the hall it makes quite a racket hitting each vent. The 3rd floor kitchen is disgusting and every attempt hold people accountable has been torpedoed.
Decrease the echo. It is way too NOISY here. You can't avoid eavesdropping. The large print jobs are annoying when you can't mask them with other sound.
Height of cubicle walls, acoustics, windows on the south, lunch options.
The doors to the office areas are not wheel chair accessible. They would close on me before I was halfway through them. The bathroom doors were the same way.
?
Office noise could be better. It's easy to hear conversations from two rows away. Not much choice for lunch. I've heard the windows get flown into by birds.
The biggest issues are noise and the lack of walled offices. In my particular area I have fairly quiet neighbors, but others are near astoundingly loud neighbors and I can't imagine how they deal w/ that. Noise is also an issue given the low walls, I feel like everyone in my row hears my phone calls, and I'm not particularly loud.
Privacy, sound buffers -- noise and conversations carry; waterless urinals smell and give the restrooms an outhouse feel. The towel dispensers' motion sensors are not good.
Odors in the bathroom. Bathroom locations -- they are more convenient for outside visitors than us.
Food service, low flow toilets that come out far enough from the wall that people don't pee on the floor.
1. The temperature -- too cold. 2. Floors are slick during wet weather.

Management should have the same parking as everyone else. Noise. Food service. Restrooms. The restrooms are a travesty. We have to stand in urine. This is tracked all over the building and is tracked to our homes. We have no storm shelter. During a tornado we are supposed to go to an interior hallway on the first floor. This hallway is not strong enough to protect anyone if there is a tornado. The top of the hallway is lined with hot water pipes. The posted evacuation signs say to go one way & we are told to go somewhere else. surrounding the building.
Noise barrier of some kind or white noise -- something to address the noise of coworkers. Without office with doors it is difficult to find a private place.
NOISE REDUCTION. Walking on floor air ducts (located in the middle of the hallway) creates a lot of noise.
Employee etiquette!! Some employees are way too loud & they don't care if their voice carries. Maybe film on N side windows.
Direct sunlight control
Sound deadening materials need to be applied. 3 West is too open. There is too much visual distraction for the professional staff. Taller cubicle walls would help immensely.
Cubicles because of noise
Food service facility -- inadequate equipment to keep food hot or cold or to rapidly reheat food. No variety. A food borne illness outbreak waiting to happen. Increase privacy and noise control. The interior looks like a parking garage.
Get rid of the waterless urinals
The acoustics of the work area inhibit productive work. In addition, the waterless urinals are unsanitary and odoriferous.
File storage space needs to be expanded and increased.
More places to sit & eat lunch. Different meals served would be nice. Eating same every week gets old. So I don't utilize caterers very much.
Need ventilation improvements in most of the small & medium conference rooms.
air quality -- allergies horribly. Temperature -- always cold.
Too many lights stay on too long -- staff don't turn them off when leaving a room. ****** Some rooms don't have switches). Monitors too sensitive to movement turn lights on that could staff working by set off. Need to use natural ventilation. More -- open more windows.
There are times the toilets won't flush. Some days there is a stench in 1W!!!
A better variety of food would be good. The same stuff is getting old.
Better opportunities to relax/take a break inside & outside (trails and nature areas -- e.g. MDC HA
Acoustics.
Ladies bathroom toilets -- excessive automatic flushing.
Better catering choices. Blinds on stairwell meeting rooms for privacy.
Noise control, not to have to use Sonitrol card to get in EVERY door, hard to locate people's work areas.
The bathrooms are very nasty. Always a bad smell.
File room area too far away from work area.
Restrooms need to be completely redone. Horrible!
Hand railings, food service, waterless urinal maintenance.
quiet around cubicles; availability of healthy balanced meals at a reasonable price.
A sink by the small kitchenette would be nice. More atmosphere/ design in Team area. The floor vents maybe should have more walking space around them.
A whole new location.

Noise abatement -- esp. microwave ovens & hard walls. Need to have staff respond to suggestions on operations -- e.g.: dry floor drains, air leaks in walls -- esp. bathrooms, using hot water to supply ice makers!!!
Control of the noise around the workspace to avoid distractions.
Bathroom counters always have water on them. Sinks need to be redesigned bc I waste lots of paper towels mopping up water. Water fountains in the wings would be nice.
Stairs are rough -- hard to climb.
Sonitrol to re-enter after breaks is not efficient.
Teaming areas are wasted space as currently configured. Staff uses these rooms as hallways. So if you try to have a meeting, you have constant interruptions. I suggest these spaces be closed in and reserved like other meeting rooms.
Noise
Floor vents are very difficult to open/close. It is ALWAYS TOO COLD!! Whether summer or winter. You should not have to work with a blanket on you.
Water to flush in all outlets of bathrooms, cubicles need extensions for noise. Need better food service options.
The cracked tiles in the elevators do not speak well for the building or the department. They got cracked when we first moved in 7 have not been repaired. They probably were installed with an air pocket underneath -- contractor should have fixed.
Noise level, not because of people just because our cubes are so open. Noise level when talking on the phone with people I have to get loud with people that cannot hear, and I worry I am disturbing someone else
Window shades from top to bottom are needed during certain times of the year to block direct sunlight. The toilets don't always work efficiently. Dishes are piled in the sink or on the counter. Would like to see more food vendors. Current vendors need more space & food warmers. Not enough outlets for printers & copiers.
Cracks following rebar in ceiling; core walls need to be increased.
Food choices. I rarely leave for lunches my time is used waiting for the bus and travel time to the lot.
acoustics, interior fit and finish -- excessive bare concrete surfaces, window cleaning.
I like the idea of the flushless urinals, but they often smell bad.
Noise, security features
Smell in restrooms
None
Open cabinet hits your head. Faucet to cabinet areas in the kitchen. Bigger kitchen sinks where you have enough room to wash a large plate.
Waterless urinals are smelly much of the time.
Sound reduction from air ducts.
Smell in bathrooms
rest rooms, urinals

What works well outside the building?

Figure 6. What works well outside? (123 comments from 104 respondents)



Clearly the natural setting and the wildlife are very strongly appreciated. Over 50% of the comments addressed these aspects. The views, the building exterior, and the provision of picnic tables were next most mentioned; with each receiving at least 10% of the comments.

Following are the verbatim comments.

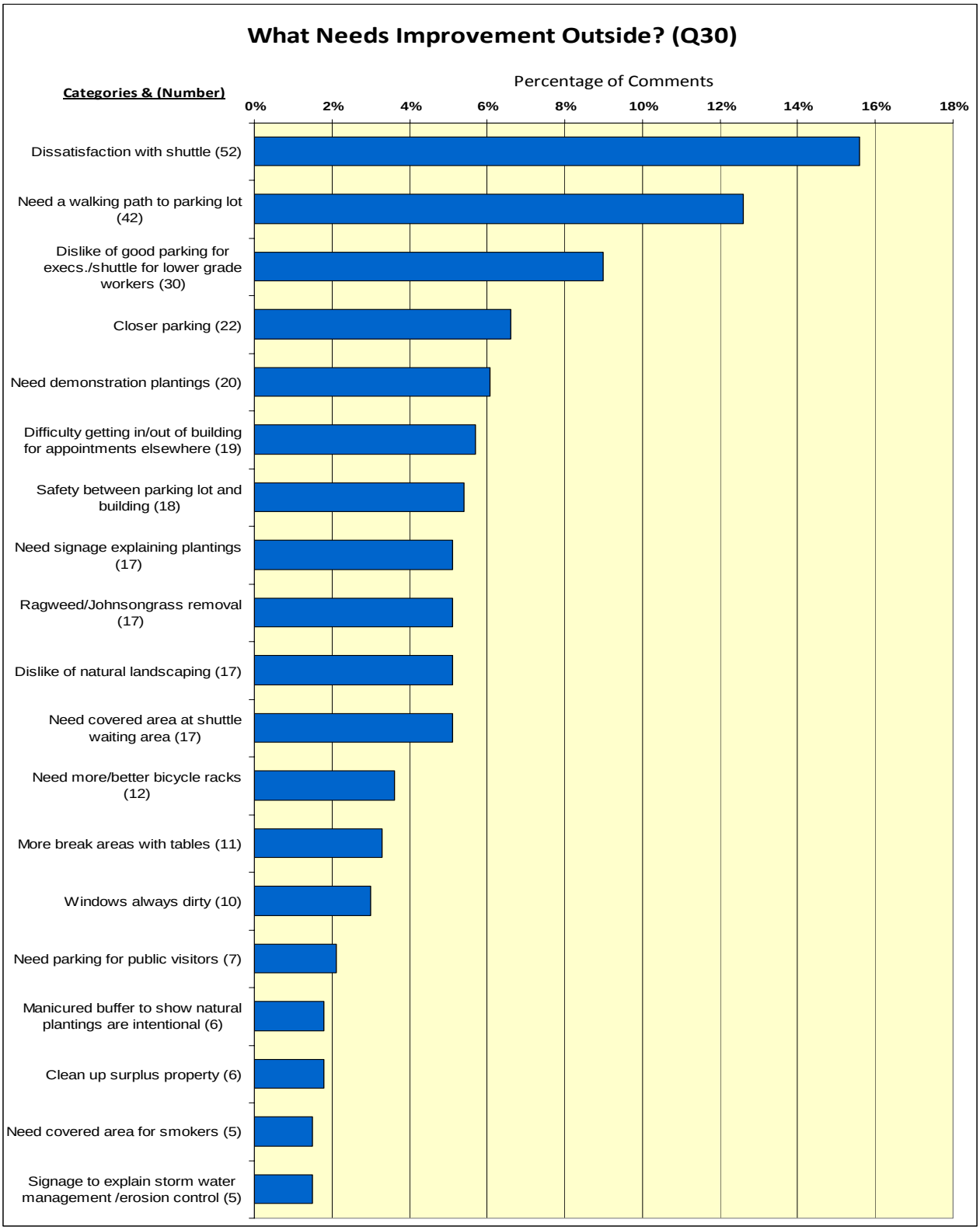
What works well outside? *(104 of 216 respondents replied, with 123 comments)*
Nice hardscape, landscape needs help, pretty building.
Natural setting
Nothing
Composting
None
I really like the natural vegetation
Parking
butterflies
The view, the room. Some of the landscaping, signage.
The spring wildflowers
Picnic tables, path to parking lot
I love the natural plantings
View
Views
Natural landscaping. Wild life viewing.
The flowers when blooming and looking like flowers, not a weedy mess. The wildlife is a bonus, view of river
Nothing
Walk path to river we find mushrooms in spring
Patio and dock areas are great. Dock is where the smokers go. To see the wild animals come up on the back sides of Rue (?) buildings
Sidewalk, lights
Nothing
Nothing
The lighting
Love the view and native flowers.
Motorcycle parking
Plenty of area for breaks and lunch.
Nice entrance, windows, seeing wildlife
The picnic tables are nice on spring/ fall days.
I really like the quiet patio in the back. A nice "get away" to relax on a break or have lunch.
Seeing the animals is nice from time to time.
The landscaping is nice.
The natural landscaping is desirable, but often looks unkempt.
View of river.
Attractive architecture, wild flowers
I like the sidewalk & rail lighting.
I like the natural grass and wildflowers
design & look of bldg
everything except shuttle
Picnic tables
The natural landscape is both environmentally friendly but also visually pleasing
Outside color is appropriately bland, but inside is throwback to late 60's
The landscaping reflects well on the department's mission.

Entry way & outdoor eating area.
Back patio is nice.
Shuttle in morning and evening
setting, landscaping
Having the outdoor seating area to eat is nice.
The rain gardens seem to work. (From Judy: once again ….)
walking area
Natural vegetation is beautiful at times during the year.
Like the variety of wild plants.
The view on the north side.
The native plants -- neat to watch the seasons change.
Noise with exception of the restricted parking area for those in management who are too good to ride the shuttle bus.
Areas to walk
The outside picnic tables.
I had to think hard to find something that works well …. I can say that the parking lot drainage works well i.e., curbless median, brick walkway.
Landscape is great -- flowers all spring.
parking for handicapped.
I don't mind the landscaping; not too allergic, and like wildflowers.
Shuttle service.
Native vegetation (weeks) -- excellent. (I combat my allergies with prescription drugs.)
Landscaping
Native plantings, setting on river.
The location of building
Front entrance.
Natural vegetation is nice.
Indigenous plantings, external light shelves, walkway to bldg., location next to river, location of the building w/ in Jeff City, privacy of locale, wildlife.
Entrance
Nothing
Carpool parking
Building access is good.
Picnic area nice although I can’t use because of allergies.
I can't think of anything
Building looks good.
Location on the river is nice -- great views and good bird-watching.
Carpool parking
Picnic tables to sit at, at the back of building.
View of the Missouri River and Capitol Complex. Sustainable location.
Prairie grass in front
Building location nice -- wooded, private & near river.
Not much -- designated smoking areas.
Lift at the dock
Natural setting.
Species diversity in the prairie landscape.
The view & natural landscape
Nothing.
Natural vegetation.

N/A
Taking walks during lunch break.
Natural landscaping is excellent. Tables in rear are good for lunch.
None
Front doors.
I like the natural plantings. The longer we're here the better they look. Smoking area away from front door is good.
We have plenty of space for small conferences & workshops, but everyonein the building needs to be informed due to parking. Visitors like the native grasses. I'm allergic to them so I avoid them.
N/A
It is an attractive building.
Exterior finishes, natural view
Location
The lift on the dock. Bicycle racks.
Appearance of building is aesthetically pleasing.
Natural low maintenance landscaping.
Shuttle service.
patio

What needs improvement outside the building?

Figure 7. What needs improvement outside? (333 comments from 177 respondents)



The most commonly mentioned issues had to do with various parking issues. Unhappiness with the shuttle service accounted for 15% of the comments; other parking related issues

accounted for another 15% of the comments. And the desire to have a path to the parking lot accounted for another 12% of the comments.

Numerous other comments addressed aspects of the landscaping and vegetation. Note: the fact that at least 15% of the comments recommended improved signage, manicured buffers, or demonstration plantings (to explain the vegetation and sustainable issues), when taken with the complaints about the natural vegetation (10%) suggests that such features might be useful, educationally….certainly for visitors, and perhaps for some of the employees.

Following are the specific verbatim comments.

What improvements to the outside are needed? *(177 of 216 respondents replied, with 333 comments)*
Windows are constantly dirty (outside), need a place to walk besides the driveway dodging cars & busses, vehicle lot with walkways from workplace to lot.
No parking for most staff.
The shuttle service is extremely wasteful and not environmentally friendly. It makes no sense to have parking off site that necessitates the use of a shuttle service. Reportedly, it costs over $100,000 to run those buses all day long every day. If we are concerned about reality vs perception- anyone would conclude the same. Turn the off site parking into a ragweed patch and have on-site parking. This building received a 'platinum award' for environmental excellence- yet kills songbirds by the dozens. It's amazing that an 'environmentally friendly' building would be designed and built that is such a killer of songbirds! The information is out there- design and construction could have avoided this ongoing issue. Again- perception vs. reality. The landscaping is potentially a good idea-however it needs maintenance to keep the undesirable ragweed, Johnson grass, etc., from out competing the desirable native flora. Just letting what comes up grow gives the appearance of New Orleans after Katrina! There was 5 ft Johnson grass growing in FRONT of solar panels. For this to work and look attractive- maintenance (and lots of it) will be required!
The landscaping! It is an eye sore and lends nothing to the building aspect. It certainly adds nothing to my level of pride in being associated with building. If the intent was to provide examples of native prairie growth, the space available is too limited. Given space limitation, it would be better to construct raised bed plantations with examples of plant species. The front of the building is nothing but a typical weedpatch that gives the impression that someone is too lazy to mow. Makes a great home for groundhogs. The back area is a prime example of an abandoned lot where chemical waste was dumped and nothing grows.
As an allergy sufferer it can be sheer hell walking in from the lot during allergy season. Used bus sparingly -- but isn't that being hypocritical using that much fuel and the emissions from it.
Grounds - Parking
A walking path to the parking lot. Johnson grass removal
Need parking. Green is not green either. A bus has to run and pollute the air and take up too much of our own time. Need parking. The bus cost us our time and cost the state to run it all the time. If the State had to pay us to wait for the bus, things would change real quick.
I HATE having to take the shuttle from the parking lot. Let the people who made that decision ride the shuttle every day. It wastes a lot of time and money. There is not even a sheltered place to stand and wait. If we have a meeting downtown we have to allow at least 45 minutes to get there.
Outside activity area -- walking breaks seem dangerous on narrow street. Access to parking -- path to parking lot.

If a safer path could be opened so that we can walk to the prison lot for our cars, it would be very useful
Parking spaces needed for all employees. An all-weather path should be provided from the prison lot (at a minimum). Eliminate the shuttle buses. Create graded paths from patio area to scenic overlooks and install signs indicating the views of various landmarks across the river. There's nothing "green" about constantly running shuttle buses, in my opinion.
Weeds should be gone. Plans or flowers spaced around would seem more inviting. Building is hard to find for people that have never been here. Somewhere close to go out and have lunch, that is within walking distance.
Roadway leading up to building and parking lot. The road and curve of the road make the area accident prone, especially when the shuttle bus and a personal vehicle meet.
Landscaping. Surely something colorful "native" can be found to plant in some areas. Sidewalks for walking.
Would like a safer walking/ running route out of LCSOB. Roadway is not safe for pedestrians.
? (sic)
Path to shuttle parking lot
"Backyard" needs a plan; landscaping, (water garden, beer garden, something. Looks unfinished and unplanned to our visitors. The grounds need a "game plan", and some clearer efforts toward illustrating/ explaining sustainability. Planting native weeds and improving runoff ought to be no-brainers for us. We need a higher goal or two.
Landscaping and parking
PARKING and access to the facility
We need a path to the parking lot, or a parking lot close to the building. The shuttle takes time out from your lunch and getting to and from work. At least 5 min. every time you come or go -- for me that is 4 times a day, which means I spend at least 20 min. a day waiting on the bus.
Need employee parking near the building -- the parking shuttle system is inconvenient and wastes valuable work time -- also can't be very energy efficient.
Sidewalk so you can walk up the street on muddy/snowy days. Picnic tables in the sun.
It looks like a weedpatch too often. At MDC they have mowed grass along the edges of parking etc., and then the wild flower area is fenced and looks neater. Maybe have a sign in the retention basin out front (& other places) explaining its purpose/ function
Distance from Parking to building; visitor parking
Parking- staff respect for rules and management is appalling. It is non-existent. They should be happy that shuttle takes them from care to office and they don't have to walk in the weather. With parking close they'll have no shuttle and have to walk to get there.
Need walking trails for shuttle parking area, need trails, access to woods, river bank. Need closer auto parking for employees. No shuttle.
Parking, landscaping, overall building access, road leading in is too narrow.
The ramp is very slick, smoking section allows smoke to get in building through open windows and vents; parking; path; walking trail.
Natural vegetation, parking
Shuttle service or more parking
More parking by the building -- like have a parking lot for all staff not just elite and handicapped. Shuttle buses are not convenient enough, especially if you need to leave in a hurry or have appointments -- too much waste of time. Need to get rid of the native grass and put something in to make the grounds look beautiful -- not dead and make everyone sick -- that's a loss of production.
the landscaping, PARKING

PARKING/ landscape (looks like an abandoned building)
The natural landscape is terrible. It looks like weeds and deters from any beauty the building has. My in-laws from St. Louis were in town and when we brought them by the building they couldn't understand why we had weeds everywhere. All other state buildings have nice landscape -- ours looks like a field of weeds.
The "weeds" look shabby
I don't like the weeds. Would like more flowers. Also would like parking in front of the building or closer for the employees. Also would like a walking path from the parking lot to the building. Also would like a walking trail.
Path to parking area. Or parking lot or garage closer to building. Shuttle makes it difficult to get to appointments and meetings outside our building.
(1) Need better weeding of lawn. (2) WE NEED A SIGN at the intersection of Riveria and Riverside Streets. (3) We desperately need more parking close to the building. If not for staff, for the citizens that routinely come here for meetings, information, etc. It's HORRIBLE. These poor people have to drive through local neighborhoods looking for parking! It's thoughtless and poorly planned. Only the highup staff are allowed to park close by.
Add a path (trail) from parking lot (prison) to building. Replace prairie grass with turf. Eliminate the remains of the water tower & replace it w/ a shelter & flower beds or water fountain
The natural growth gets too high. Sometimes I get bug bites waiting for the bus.
The plant life outside needs to look more eye appealing. It looks wild & unkempt
Parking- make a parking garage, save money like 120,000 to the city a year!!!
PARKING -- PARKING -- PARKING --!!! The natural grasses (weeds). The public is always asking about why they let the weeds grow up around such a nice building. "Did they run out of money for landscaping?" Hard on employees' allergies!!
There is a feeling of being trapped here during the day. It is almost impossible to run errands or go out to exercise or eat because of the parking situation & wait for the shuttle. There is nothing nearby -- food/ shops etc. The native vegetation is just ugly. It makes the building look neglected and overgrown. I've seen much better examples of native displays - so it's not the concept, but the execution.
Put in some grass! Sorry …"native flora" is weeds to everyone else. If my yard looked like this I would get a citation from the city!
I love to walk, but I don't feel safe going from the shuttle parking lot to the building & vice versa. Too many areas for people to hide to attack others. I don't like the landscape of the building; the natural vegetation during the year. It looks trashy. Would like to see more parking lots closer to the building.
We need a proper foot path to the parking lot. I'm also surprised at the 1 access dead end road access
I should be able to walk to my car.
Perhaps a small (<20 feet), more manicured buffer around the building would convey a more "kept" approach.
Controlling prairie grasses & natural landscapes vs. harmful weeds & perception of uncontrollable lawn to public -- visitors often do not understand the concept. Added paths to parking & additional break areas w/ tables.
WE NEED CLOSER PARKING
Control of the rag weed and Johnson grass. Parking.
PARKING, a path to parking. Cut down the allergens -- please!!
Weeds growing as lawn. Looks bad. Looks like an abandoned building. A citizen of the city would receive a huge fine for letting their yard look like this. Poor access to other businesses from this building.

the front lot should be marked for visitors only if it is for visitors only -- rather than have so much arguing about it. There should be a safe path from the building to Riverside Drive for pedestrians. There should be a sign for the building on Riverside Drive.
You name it! Terrible fiasco. It looks like hell or a Johnson grass breeding program w/ goldenrod thrown in.
Less weeds - more organized wild flowers. More parking close to the building.
Path/ sidewalk to and from my vehicle. More people would walk if this were fixed.
parking for employees & visitors, landscaping.
Shuttle - Parking. Shuttle is not a savings. Most folks drive as far with or without. And we run an extra vehicle non-stop all day. It is a waste and it is not convenient. Management does not ride shuttle. Ridiculous mistake.
parking -- build parking garage between L&CSOB and shuttle lot. With a sidewalk to walk to and from.
PARKING, Walking, safety, road access, remove weeds, shuttle bus is ridiculous, emergency access to your vehicle only; covered area outside for breaks is reserved for smokers; eliminate all reserved parking spaces that lead to class envy; building needs to be maintained; snow removal.
Walking path to parking lot -- sharp corner coming into building is dangerous
N/A
walkway to parking lot
If NO (close) parking available, why NO sidewalks? I don't want to ride shuttle, but I don't want to get run over by it either.
Parking for employees.
area to relax, lawn care, parking, transportation service, need trail system, common area protected from elements & smokers.
I don't mind the concept of trying to have a natural landscape, but some experts are needed to establish & maintain the landscape. The north side is just terrible -- with some patches of nearly bare ground. *We need some trails -- partially from the parking lot to the building.
parking, food access
Parking, appearance
The trail for walking would be a big plus.
Better landscaping is needed; the grounds should look as good as our state parks; need higher quality landscaping & maintenance w/ walking trails, educational trail (for natural resources).
parking where shuttle is not needed, smooth path to parking. For appointments during work hours I have to take an extra half hour leave to ensure I can get to my car. I have waited 30 min. for shuttle during off times (9-3).
local transportation needs many improvements -- decent path to lot, change in shuttle was impediment to using shuttle vs. driving downtown, parking on surrounding streets irritates neighbors, etc.
Parking
More parking and walking trails. Route to get away from building to take a walk in residential area is dangerous because just one narrow street leads out (Riverside).
Noxious weeds
There really isn't anyplace to walk from the building. There aren't any paths through the grounds. We're not supposed to walk down to the lot and it's not always safe or clean, and there's no sidewalk on the street, and it's not very safe either. I could deal with parking a little ways away if walking were attractive, convenient and safe.

Get rid of the "prairie"! The rank and file employees have been forced to use the shuttle system while upper management and their secretaries enjoy reserved parking. Then Mr. Childers has the gall to congratulate us on making the shuttle a success.
PARKING. Not enough parking for staff that arrive prior to 7:00 a.m. when the shuttles start. The landscaping -- do away with the "prairie" concept or at least have it in select areas with well groomed areas out front and around other public use areas. Greater selection of food or adequate parking at the building so staff can go out for lunch.
street leading to build; parking lot
mow the surrounding area to reduce allergens; parking
Parking & general grooming of vegetation.
Parking, vegetation is poorly managed.
parking
Walking path to and from the shuttle lot, more parking close to the building, field outside north side of bldg. doesn't seem to be able to "grow" Anything.
It would be better if area around entrance & immediate front of building could be landscaped more traditional with lawn grass & regular moving to provide neater building appearance.
Parking, shuttle, trail (walking) to parking lot.
Foot paths around building and to shuttle & lot. CLEAN UP SURPLUS PROPERTY.
The parking. The shuttle times don't fit our needs. People have said (outside the dept.) they don't want to come to LCSOB because it's too hard to park. Get rid of surplus junk (AKA Surplus Property) and make better use of the property.
the landscape plants
Storm water management & erosion issues have been totally ignored. Really sets a bad example to visitors who are even remotely familiar with sustainable landscapes and storm water management.
Cut the grass -- hate the natural look. Always asked by visitors if lawnmower is broken. Cover over walkway to building would be nice. More places needed to eat lunch, visit during lunch/ breaks
Get rid of the weeds & replace them with native grass & organized native flower beds.
The landscaping is horrible. MOC does a much better job of landscaping with native plants. Parking lots. We need them for employees!
Additional parking, lighting that works. Natural vegetation instead of noxious weeks (Johnson grass), walking trails.
Lack of parking for visitors, ugly/ weedy lot (embarrassing -- it could be planned much better & still be natural/ low maintenance; any other lot in town would have been fined by now.) The shuttle service should be better (more regular, quicker),or get a walking path put in now; bike racks would be nice. The building is physically unattractive. Although I understand the need, the assigned parking lot for upper management causes deep resentment. It seems extremely hypocritical for these folks to be able to get to their vehicles mid-morning/ mid-afternoon without waiting up to 20 minutes (is that charged to my leave?). The picnic tables look out over a "wasteland" in the back-- not a pleasant place to eat lunch or take a break.
I hate the parking situation. I could be at work 10-15 minutes earlier each day if I didn't have to wait on the shuttle. Also, there's a group of the same employees who park in the front lot EVERY DAY and no one says anything. Many of them are from my own program.
Parking
lawn
Parking & shuttle service
PARKING, LANDSCAPING.
Parking availability. Proximity to eating establishments.

Landscaping, adequate public parking; adequate and efficient employee parking.
Parking for the masses. Savings from efficiency are spent on shuttle. The 'snot lot' name is not good advertising. Some people have asked what idiot planned a building without parking.
PARKING!!!
Bare ground in back yard.
A parking area close enough to the building for employees to walk. Ragweed & Johnson grass need to be removed. A walking trail would be nice.
Soil erosion on site is an embarrassment -- it is better, but still poor.
Grass & weeds get too tall. Allergens. Need more parking close to building.
The one other thing that I wanted to add about the shuttle is that it is impossible to keep one's lunch hour down to an hour because of the shuttle. It is also extremely difficult to stay w/ in an hour if just running errands, unless they're very quick ones. Official hours are 8-5; to get to my desk by 8, I need to be at the shuttle lot by 7:45. So what I'm getting at is that the parking situation wreaks havoc w/ people's work hours This isn't the fault of the bus drivers & there have been improvements made (increased trips between the building & the lot during early morning, lunch & the end of the day), but it simply doesn't work & is a regular source of frustration for employees. At least unless you're in the Director's office, where pretty much anyone w/ an ID badge gets a reserved parking option. Note: it varies also whether it's OK to get to the lot at 8 or be at your desk by 8 depending on supervisor, creating more confusion/ inconsistency.
Parking; more areas to sit away from building; entrance to parking lot is a blind curve
Parking, keeping the weeds (native grasses/ plants) trimmed away from curbs.
Shuttle schedule, interpretation improved about why the grass, flowers, etc. is allowed to grow wild.
Parking
Parking should be improved. The favoritism for the limited parking has promoted class warfare & class envy. Parking, access to the area, landscaping. Having a natural area is fine but we have a weed patch and allergens completely
There needs to be a walking path to the car lot and a safer path to walk on the road. There is a sharp turn in the drive in front of the building and very unsafe for pedestrians. Current shuttle schedules should be made available to all staff. More parking closer to the building. Building is not close to anything so better access to other places and flexibility in arrival times due to shuttle schedules would be nice.
Lack of natural vegetation.
Get rid of state surplus property & more fully implement MSP redevelopment. Employee satisfaction overall would improve if parking was closer. OA could spend a bit more time caring for indigenous plantings, adding seed to the grounds, etc., walking paths, including to the shuttle lot.
Ground cover
The natural vegetation does not present a professional image. Also, the allergens produced appear to be a problem for many staff.
Parking. Please plant grass. The tall weeds really don't do anything for our image. Parking cont'd: let us park close to the building & cancel the 2 shuttles. We will save lots of money and time.
Landscaping, walkways to parking lots, removal of the O/A quonset building which causes a driving hazard at the building driveway. A path along the river bluff would be nice. Get rid of the O/A junk yard.
Parking -- more space allocated for parking or a paved path from the shuttle lot to the building.

Get rid of obnoxious weeds.
Parking
The landscape could use improvement.
I have a lot of allergies. So the plants do not work for me at all.
Build more parking @ building. Use pervious paving, put spaces in front and in the vacant lot out back.
Create a parking lot & get rid of the ragweed & allergens that were planted.
Ground to north of building needs ground cover to stop erosion.
There needs to be fewer weeds and more parking spaces available to all staff.
Parking. The shuttle wastes fuel. How does that support sustainability? Leaving for lunch or such is a pain.
The bus system, parking.
I understand about wild stuff -- but please mow the grass a little more. Some people have allergies -- window washing a little more -- those darn things can get pretty nasty looking.
Parking lot and shuttle service. With correct design a "green" parking structure that includes a green roof could be built next to LCSOB. Location just west of building & set into hillside is ideal w/o compromising green aspect.
Grass in back yard, parking
Parking is inconvenient for most staff. I park near L&CSOB in lot 2 on West side of building & it needs more lighting, dusk to dawn. Walking trails needed.
Parking, landscaping more appealing and less affecting to people with allergies.
Parking, landscaping
Parking; there should be paths or sidewalks more accessible to be able to walk for exercise during breaks or so we can walk to and from the parking lot.
Natural landscape.
Need much more parking -- visitors don't like it as well as employees.
JOHNSON GRASS CONTROL!!!! Walking access from commuter lot, speed of shuttle drivers.
Access to walking to and from the parking lot.
A parking lot - - but keeping the trees and natural environment.
Everything.
Access to parking via sidewalks. No sidewalk is a MAJOR safety risk for walkers. Need to plant/ revegetate areas on N. side of building -- soil erosion!!
Cutting the grass/ better parking.
More parking, less weeds.
Natural grasses are ugly & cause me to sneeze & have itchy eyes.
Riding the shuttle. We waste so much time waiting on the shuttle that I feel like part of our day is wasting away.
Parking
OA needs to move surplus property and resolve parking issue. OA security needs to enforce parking at building, staff make their own parking space and nothing is done about it.
More shade trees on south side.
Provide nearby parking lots!
Remove the weeds … ahem, Prairie grass, and install sod. Would help extremely w/ professional appearance of a State Office Building as well as relieve many staff of extended allergy attacks and staff missing work due to allergy illness.
Need to Roundup all areas around building to kill Johnson grass completely. Then start over with wildflowers.
Parking -- employees in front (visitors') lot should not be tolerated.

The parking close to the building for everyone. Keeping the weeds cut.
The native vegetation could be better managed. The back of the building is wasted space. Parking is still a problem because people don't want to walk or ride the shuttle. This could be resolved by supervisor involvement.
CUT THE WEEDS DOWN!!! It is an allergy nightmare; why not replace the weeds with parking, so people can stop complaining?
Parking, landscaping
Get rid of the weeds that cause so many of us allergy problems. They are pretty for about 2 weeks when the flowers are blooming. Then it simply looks unkept.
Break areas, landscaping, parking
Landscaping, parking
Parking.
lawn care -- it is embarrassing to bring visitors here when "grass" has not been cut.
Improve parking. Replace weeds with grass and shrubs (flowers).
The landscaping. I've explained to people that we attempt to promote an environmental theme with the flora, and their response is that it looks like crap, flora or no flora. Stated better, it is a great looking building, but the weeds are an eyesore which detracts from the great looking building. If it were a building under city laws, we would have citations to mow the weeds.
Native veg for these soils is not native prairie. Shuttle service is not "family friendly".
More parking near building. Have motor pool cars closer to building.
needs better parking to eliminate use of shuttle
parking

Additional comments about your work environment

Any additional comments about your work environment?

(82 of 216 replied)

These 'additional comments' were not included in the above figures. They are listed below, just as the respondents provided them.
Not a bad place to work, but there is just too much noise & distraction to concentrate effectively. Just filling out this questionnaire took the space of 2 days with probably 25 interruptions.
Dr. Sue Weidemann -- Reduce, reuse, recycle! No excuse for having this survey sent hard copy -- let lone single sided. Must be a fat contract to not be concerned about waste.
Couldn't this be printed double-sided to promote sustainability? This is the umpteenth survey. Aren't they getting the desired results?
1 You should have printed this survey on 2 sides of the page so we could have a little better forest sustainability.
I wish we had some place nice to go outside of the building. It would be nice to sit on a lawn and watch the river or play washers outside at lunch time. It would be nice to have some restaurants nearby to walk to at lunchtime. If we use the shuttle we will be late. I feel like a prisoner in this building.
Again the noise levels are a problem but otherwise I'm happy with the work environment.
Would like to see the noise levels in & around the building to improve. Conversations- are heard all around the office, even if doors are closed.
The open plan is a good idea, but the sound is a problem & if we had (meaning managers) some rules or direction on keeping things neat, we would work on it with our staff. This isn't a complaint. Just looks a little messy, I would think, to our visitors who come into work areas.
Anonymous? I don't think so. You ask us what we do, where we sit, gender, age, and make us write. Every secretary in the building could figure this out.
We need a better display on why we have a "green bldg". We need dedicated visitor parking.
Need more interview rooms since supervisors can't have workspaces with walls and a door -- need employee parking near the building.
I love working in an eco-friendly bldg. Maybe utilize solar/wind power. Healthier lunch options- more options to move around & get exercise
Would love to have path from LCSOB to Riverside Park
Question 27-d. Question needs improvement. Having shuttle bus is useful only because we must park so far away and there is no decent walkway from parking to building.
At my 1st floor worksite cool air collects as A/C kicks in on upper floors. In winter the space is slow to heat. Raised floors allow cold air to seep into workspaces, under desks.
A bigger parking lot.
Do not like Surplus Property junk to look at. Need to get them moved!! Heard complaints from people trying to locate this building -- difficult time trying to find. Good comment. Even though we need to take the shuttle it is a very good service. The majority -- the drivers are excellent. I have prior use of the shuttle from Industrial Drive to Jeff Building.
I'm always either freezing cold, cold, cool, or too warm. Never comfortable.
I need privacy. I need walls to drown out all other conversations & be able to have private conversations w/ candidates or programs. I need workspace and real filing cabinets.
The teaming rooms on the 3rd and 4th floors have doors on the west side, but not on the east. It gets VERY noisy from the team room. Is there anything that can be added to the ceiling to trap some of the noise from conversations?
File room very dark. File room needs more air vents

The total yearly cost of shuttle completely wipes out savings from building efficiency! Building designers were paid high dollars -- and they FORGOT PARKING for the employees. We need our money back.
Overall I enjoy my job. I would like to see more improvements to: walking trails from the lot to the building; a variety of food; we can usually order food cheaper than eating downstairs; more privacy in our workspace to concentrate & communicate with others better; better control of temperature like fans or heating elements; and more areas for our own personal stuff
See attached sheet. *(Note from transcriber: there was no attached sheet).*
I really enjoy LCSOB. It would be nice to have a maintained trail or path to the prison parking lot.
The concept is great -- but extreme lack of integration planning w/ environment & staff has led to lack of appreciation among staff. Employee satisfaction should be more key to success vs. environmental efficiency. Employees that communicate positive and/ or negative messages should be more a consideration.
The shuttle system is an absurd waste of money and time as well as being incredibly uncomfortable. WE NEED CLOSER PARKING.
Looking back over this survey, it appears that I don't like the building, but I do -- the air quality is much better than any previous work envt. However, the noise & distraction & CONSTANT interruptions lead me to be less productive than I could be --that is the most frustrating thing about the building. Not just people "stopping by" my cube, but the constant "visits" to my neighbors and all of the socializing.
Bldg. is a real "step-down" from wholesome work environment. It is noisy & totally devoid of privacy. The light is too much in many areas -- wipes out computer screens & makes work less than comfortable. The yard "prairie" looks horrible. No parking. waterless urinals that splatter on one & stink. Lights in some areas go off w/o warning. Windows kill birds, the entryway is a hazard w/ the big curve. Hell, I'm out of room!
Overall the work environment is comfortable, safe and climate controlled. There is a lot of "gray" noise. The acoustics could be improved with higher walls, more sound absorption.
overall -- it is good
Please keep the native grasses trimmed to a decent level -- not just once a year.
I would like to reaffirm my main issues: 1. parking, 2. urinals, 3. noise, 4. class-based reserved parking, 5. Food service and finally, 6. Running 2 diesel buses all day long and spewing diesel fumes into the atmosphere eliminates any claim we can make to being an environmentally friendly building.
I feel privileged to work for a department that is doing great things for the state of Missouri. I think DNR is a fantastic place for employment!
The shuttle is ridiculous. Its expense shrouds "low impact" status and mission of LCSOB. PLUS, how much staff time (cumulative per week) is spent waiting for shuttle. The state has plenty of space for parking/ sidewalks, but it thinks the junkyard/ surplus lot is more valuable I guess. (Did I see U.S. Army equipment down there? My car would fit there!). I am honored and proud to work in this building. I think of it as an experimental project in sustainability. I am upset that this building's merits/ advantages are overshadowed by external factors ($$$ spent on shuttle, for example) that make "good" headllines. When energy prices are double (or triple their current rate (how far off is that???), think the building & its concept will be vindicated. KUDOS to MO for trying!
May have energy efficient building but the department could have also controlled nonpoint source pollution by implementing practices that control runoff e.g., pervious pavement, rain gardens, vegetative swales, etc. which could then could be used as examples or sites for others to learn about & how they function. Governor encourages state employees to be fit.

But the building does not provide this opportunity to get out easily to do so.
Generally I really like this building. As with any bldg., you have to make personal adjustments b/c planners and maintenance staff cannot please everyone.
The surplus property is the biggest problem with parking. Do you understand what criticism the public has with this place?
It is stupid not to have parking w/ a reasonable walking distance of the building. The shuttle bus wastes so much more energy than is saved by the building.
Trapped in building. Takes too long to shuttle to eat out or do personal business over lunch, building hard for public to find and hard to give directions to.
A lot of the things we took for granted in the Jefferson Building are not there (print shop, parking, access to businesses & Capitol food service & library). It is almost impossible to do anything on your lunch hour & getting to doctor appts. etc. has become a real hassle. A lot of our stuff is stored off-site that we need to do our job with the public is inaccessible.
My work environment has improved significantly now that the loudmouths are gone.
This building was designed with one purpose in mind -- to get the platinum LEED rating. The comfort of the employees was not a consideration. DNR does not care about the concerns of the employees. They want to flaunt the platinum rating which is why they are wasting our time and the taxpayers' money on surveys like this. The previous survey didn't give them what they wanted so they declared it "inconclusive" and hired you. If you don't give them what they want, they will discredit your efforts too.
The designers of the LCSOB were too focused on earning the Platinum LEED certification instead of providing a building that meets the functional needs of the department and the employees. If this had been a private building, the city would never have approved it due to the lack of parking, narrow entry street (w/ blind corner), etc. Why wasn't the survey form duplexed to save paper?
Although the cubicle is a good size, the lack of walls and arrangement of the furniture limits my actual work space to about a 5x 5 space. It is a horrible layout
I experience a very hostile work environment when it comes to enforcing environmental law and regulations at DNR facilities, and facilities owned and operated by other state agencies. At the very best, staff of regulatory programs are treated as the proverbial red-haired stepchildren. The "Gold Medal" awards display for Parks is inappropriate due to the gross violations of environmental law that occurred at these facilities during the years it got the "Finalist" awards.
I really do not like the cubicle size or lack of ability to block out motion or noise. The State could have saved a lot of money by leasing an abandoned warehouse and turning the water off to the urinals.
The parking situation is horrible! The employees must have a reasonable place to park so that we can walk to the office without relying on a bus. The bus schedule is very unpredictable. Employees really can't leave for lunch because there is no time after waiting to catch a bus. It is also very hard to be on time if you must leave for Dr. appts., meetings, emergencies, etc.

Working in the "Green Building" is OK. However, the State encourages us to get to and from work using city bus, carpool, bicycles, etc. Fact, they don't even provide parking near the building. The problem is when we travel for work, they assign a state car to drive; however it is over 1.5 miles away. City bus, shuttle bus does not go there! HOW DO WE GET THERE? Even if we did drive our own car, they don't compensate us. If we were to drive our personal car to the State car, and be involved in an accident, we would be liable and not receive "Workers' Compensation".
I don't feel it would take a ton of effort and money to make some improvements, rather an openness to believing folks will work harder if they feel more appreciated and their needs (at least) listened to, if not addressed. Thanks for compiling this info.
Because people can see & hear everything that goes on even several rows from their cubes, the open atmosphere is counterproductive to work. The light and open feeling are nice for atmosphere. Also the open format encourages visiting because it is difficult to hide out to get work done when people continually walk through.
Supervisory personnel should not work out of open cubicles.
In general this building seems to be someone's pet project, not as a useful place for people to be productive & happy. We can't go downtown for lunch because it will take too long whether you drive or take the bus. We are stuck out here. Talking a walk break can be an adventure too w/ the occasional stray unrestrained dog in the neighborhood. With my experience in this building, there is no way I would recommend any company or agency to build one. It may be energy efficient, but worker productivity is extremely low. It's not only the noise & the general disrespect of co-workers creating more noise, but if you are a smoker or a coffee drinker, you waste another portion of your day either going to the kitchenette or loading dock. It all adds up to the public's belief in government waste and honestly I can't argue that with this building. I much prefer the Jefferson Building over this place.
Job satisfaction is not based on the work environment as much as satisfaction is based on hiring opportunities for age/ gender combinations; even degree holders face the bias favoring experienced (technical) non stay-at-home persons though changed circumstance like divorce create the need for re-employment. Why I'm still working!
I just want to say that I am very disappointed about the wheelchair accessibility in this building. Because I was not able to get in and out at the wings and my cubicle easily, I wasn't able to do my work as well. Luckily, I was only in the chair for four weeks. If I was permanently in a wheel chair, it would have been more of an inconvenience to work here.
See enclosed for explanation to responses.
Noise from the teaming room can become a major distraction for long periods of time -- a door could fix this. Some kind of sound absorption in the ceilings to stop noise -- even normal conversation -- from carrying.
The unsanitary men's restrooms are a health hazard. They are even a hazard to my family because of what I track home. Parking -- some employee & management are given reserved spots while the rest of us suffer. Carpooling spots should be discontinued. I live 4 miles away & yet people who live 25-30 miles away are rewarded with a carpool spot just because 2 or 3 of them ride together. They are not saving energy, I am saving energy. Many days only one person gets out of a supposed carpool vehicle. And then many of the "carpoolers" leave the premises and drive to lunch offsite. The rest of us cannot get to our vehicles & cannot eat offsite. Most of the employees consider the building a boondoggle & a waste of taxpayers' money. We run 2 shuttle buses all day long & then say we are saving energy and cutting pollution. We did not move our main computer servers to the building

nor do we have a cafeteria just so we can say the building uses less energy. In summation, the unsanitary restrooms, overgrown exterior, and the shocking lack of any storm protection put our health & lives at constant risk. This building receives an F-. We run 2 shuttle buses all day long & spew pollution constantly.
Wonderful building overall, just wish employees would be happier here -- or just leave and work someplace else. Employees are spoiled and inconvenienced and have a "warped sense of perception".
Have parking closer -- build a garage or park where OA is letting several of their items rust. Build a walkway from the prison lot. Minimize the need for the shuttle service -- it is in direct conflict with DNR's mission. (The public is aware of this contradiction.)
This building has destroyed productivity. The parking set-up inconveniences visitors & delays meetings. Enormous amounts of time are wasted waiting for & riding the shuttle bus. The noise & distractions are work killers. This building is a glittering jewel of colossal ignorance and stupidity.
25(f) Sound deadening material is needed on ceiling and pillars. 25(n) The furniture is of poor quality. Shuttle bus -- when I have used it, the time waiting is a problem. Get rid of the Office of Administration's 'JUNK YARD'! It is an eyesore.
Overall I can deal w/ the building & working in it but the parking is just awful -- we need more close parking very badly.
While it is understandably on the reason to conduct this survey, the department as a whole should really focus more on retaining valuable staff. By either mere promotions, step increase raises etc. There is also a big need for technical experts promotions that coincide, via pay grade, to supervisors.
Even quiet conversations carry a long way on 4th floor.
My workspace decreases my productivity. I tend to feel as if I'm being spied upon. I I've never experienced this type of paranoia before. It's very unsettling!!!
I'm still not understanding about shuttle service. Don't ride now but have before and some of the drivers are crazy drivers. Why wouldn't it be cheaper to build a parking garage closer to the building.
Much better air quality than Jefferson Building or Elm Street complex. Good anchor for DNR campus in JC.
An intelligent architect could have incorporated 70-80% of the green features & still provided good workspaces. This building is a perfect example of the mindless pursuit of a silly award at the expense of functionality. We do very complex technical work, and it's like trying to work in the middle of a basketball game. No parking in this town without much mass transit? Whose stupid idea was that? Note: I did not fill out the personal info. The previous, much touted surveys were thrown out as "inconclusive". The current thought among many staff is that the previous surveys did not give management the answers they wanted. I know many people who are unhappy with this building who are not completing this survey because they do not want to be identified as malcontents or troublemakers. Since I'm not saying what management wants to hear I don't want to be identified either.

The weeds are disgusting all around the building! It makes me miserable on a daily basis! I've never had allergy problems before working in this building. I've had severe problems this past week. The shuttle bus is a joke! You not only have to wait longer than you like, but the bus jerks and bumps you around. If you didn't have prior back problems before, you will after riding that bus back and forth.
First of all we were misled regarding this building in what we were up against. Not too many staff have anything positive to say about this building, including myself.
Management not responsive to requests for improvements. Noise is a major problem. Need to establish procedure to advise co-workers about disruptive voices, w/o making the offended party the "odd-man out". Lack of safe access by foot is directly at odds w/ being a "sustainable" building. Building features need to be interpreted. Upper management not in touch with line staff due to exclusive parking lot.
Ambient noise control would be helpful.
The noise and chattering is non-stop from inconsiderate co-workers. There is too much partying over the place. Partying must be confined in designated places ONLY.
Development of walking trail in adjacent wooded area would be big improvement. Employees who walk must walk in street -- no sidewalks. Neighborhood too scary for women to walk alone to west to Capitol Avenue. With parking allowed on both sides of street (Capital Ave.) near International shoe Building, now becoming dangerous to drive this area -- must share single driving land with shuttle buses! OA should ask City for 1 block parking restriction.
We need a parking lot very close to the building for everyone. Not just visitors and high paying people.
The center staircase is difficult to walk up & down because of the pitch. They are also slick when set.
It's not hard to figure out who did which surveys. If you want my honest opinion of this building, this is it. I know no matter where you work, you are always going to encounter complaints. But the lack of parking and landscape maintenance provides a giant target for even the most laid back. In my workplace, it is constantly noisy and distracting. I know having higher cube walls won't completely solve the problem. But it should help considerably. I would also like not constantly taking surveys on this building.
The LCSOB was designed, built and promoted as a sustainable symbol. However, the reality lies in its discomfort to those that occupy and work within the facility. Designers did not take the true needs of the occupants in mind when designed; only the variables/ issues to achieve the highest LEED rating possible. My personal productivity has declined due to the inherent shortfalls in the building's design and usefulness.
It would be very helpful to have a parking lot closer to the building or at least have a well-maintained walking path between the lot and the buildings. I think the native vegetation/ natural landscaping outside is a huge plus, but I think the management of this landscaping needs improvement. There are bare spots and erosion on the north side of the building and I was dismayed to see it all mowed last week. I don't understand what's going on and it appears to be mismanaged.
First impressions, be it people or a building, mean a great deal to those making them. Driving up to this building and seeing the shoddy look of the weeds sends a bad first impression. Sort of an environmentalism over practicality. The advances on the inside of this building are illustrative of a commitment to being "green", and are something other buildings should strive for. The weeds in front make a "sow's ear" out of a "silk purse".
I think the dept. should offer tours of the building for school children visiting JC

APPENDIX B

Indices for Outcome Analyses in Section 5

What are indices?

An index is a single variable which is created by averaging the responses of whatever items are used to create an index. These items are ones which are conceptually similar to each other, or ones which can be thought of as specific examples of a more general concept.

Why create indices for analyses?

Often a survey has many items, as does this Lewis & Clark Employee Survey. For certain analyses, it is more appropriate to condense those many items into a smaller set of indices (which each contain items of similar content). These indices were created for the important analyses of 'Section 5. The Impact of the Work Environment on Important Outcomes'. They are used to more easily summarize what features of the work environment are most strongly linked to satisfaction and performance.

How the indices were developed

The process for identifying these groups of similar items is briefly described here: All relevant scaled workplace items were subjected to Principal Components Analysis, using a Varimax rotation. This provided information about what items empirically grouped together, in a conceptually meaningful way. (For example, many specific items, relating to lighting features of the building, grouped together analytically.) Note: not all items 'fit' with others; these were retained as individual items for the later analyses. Then the groups of similar items were then tested for their reliability, by determining their alpha reliability level. If the alpha levels were acceptable, then an index (a single measure for each set of similar items) was statistically created from this set of items. Thus, for example, the index of "Evaluation of Building Light Features" was based on responses to 8 items measuring different specific aspects of the building's light features. All of the indices, the items that composed them, and other statistical information (including the Alpha reliability for each index) are shown below.

What the following tables show
Each index label is shown in bold type; specific survey items that comprise that index are shown below each label.

Statistics shown for each item, located to the right of the item, are:

- The item mean (average score on each item, for the full sample of respondents). Generally, the higher the score, the more positive the response.
- Item standard deviation (shows the amount of response variability for that item)
- Number of respondents (the number of employees who responded to that item)
- The Alpha Reliability of the whole scale (a measure of how well these items relate to the concept being measured by the scale; a score of 1 would be perfect reliability, which is not typically attained). Reliabilities in the range of .85 and higher are good; from around .70 and up are generally acceptable.

Part 1: Work Environment Indices

Work Environment Indices:	**Item Mean Score**	**Standard Deviation**	**Number Respondents per Item**	**Alpha Reliability of Scale**
WORKSPACE ACOUSTICS GOOD & DISTRACTIONS FEW				
Q24h People generally considerate of others' need to concentrate	2.8	1.07	214	**0.84**
Q24fRV I'm not often distracted by other's nearby conversations	2.1	1.14	214	
Q24c Overhearing other work conversations helps me stay informed	2.5	1.09	214	
Q24b Able to do extended undistracted work in my wrkspc	2.5	1.19	214	
Q24e Most interruptions are matters I NEED to address	3.3	1.04	214	
Q24g Satisfied with control of acoustic levels in my wrkspc	2.2	1.29	214	
Q24i Satisfied with height of walls in my workspace	2.5	1.41	214	
Q24dRV I'm not often interrupted by others when working in my wrkspc	2.5	0.95	214	
Scale Statistics	2.5	0.79		
WORKSPACE DESIGN: Storage, Furniture, Space				
Q24j Enough space in my workspace for me to do my work	3.3	1.28	216	**0.91**
Q24k My work surfaces are large enough for my work	3.3	1.22	216	
Q24l Can store all the work materials I need	3.2	1.28	216	
Q24m The furniture in my workspace suits my needs well	3.2	1.14	216	
Q24n My wrkspc easily accomodates the technology I need	3.6	0.97	216	
Scale Statistics	3.3	1.01		
WORKSPACE COLORS & MATERIALS PLEASING				
Q24o The colors used in my workspace are pleasing	3.1	1.05	216	**0.86**
Q24p The material finishes in my workspace are pleasing	3.2	0.99	216	
Scale Statistics	3.2	0.96		
Work Environment Indices:	**Item Mean Score**	**Standard Deviation**	**Number Respondents per Item**	**Alpha Reliability of Scale**
WORKSPACE TEMPERATURE, AIR CONTROL &				

QUALITY				
Q24aa I'm satisfied with the temperature levels in my workspace	2.9	1.11	209	**0.84**
Q24z I'm satisfied with control I have over temperature levels in my wrkspc	2.5	1.07	209	
Q24x I seldom have problems with drafts in my wrkspc	3.3	1.08	209	
Q24yRV Don't often experience uncomfortable temperature fluctuations in my wrkspc	3.0	1.14	209	
Q24v I'm satisfied w/ air quality in/near my wrkspc	3.4	1.07	209	
Q24w I'm satisfied w/ control over air quality in my wrkspc	2.9	1.11	209	
Scale Statistics	3.0	0.83		
WORKSPACE LIGHT: Electric, Natural, & Control	**Item Mean Score**	**Standard Deviation**	**Number Respondents per Item**	**Alpha Reliability of Scale**
Q24u I'm satisfied w/ control over lighting in my wrkspc	3.2	1.17	214	**0.77**
Q24t I have appropriate natural daylight in my wrkspc	3.5	1.01	214	
Q24s I have appropriate electrical lighting in my wrkspc	3.7	0.86	214	
Scale Statistics	3.5	0.85		
SUPPORT FOR WORKSPACE MEETINGS & PHONE USE				
Q12 b Helps phone: Wrkspc	2.4	1.37	204	**0.85**
Q12c Helps meeting w/ 1 other: Wrkspc	2.7	1.27	204	
Q12d Helps meeting w/ 2 or more: Wrkspc	2.3	1.25	204	
Scale Statistics	2.5	1.13		
PERCEIVED SAFETY FROM ACCIDENTS/OTHERS				
Q26q I feel safe from accidents in this building	3.3	0.94	211	**0.72**
Q26r I feel safe from harmful people when I'm in this building	3.4	0.96	211	
Scale Statistics	3.4	0.84		
EMPLOYEE SUPPORT FOR SUSTAINABILITY				
Q27l I am proud of working in a sustainable building	3.4	1.13	213	**0.74**
Q27m I feel that it is very important to support sustainability	3.9	0.86	213	
Q27n Working in the L&C building has increased my environmental awareness	3.0	1.18	213	
Scale Statistics	3.4	0.86		
Work Environment Indices, cont.:	**Item Mean Score**	**Standard Deviation**	**Number Respondents per Item**	**Alpha Reliability of Scale**

INTERPRETATION OF L&C BUILDING TO PUBLIC				
Q27a Public space in/around L&C, represent the organization & accomplishments well	2.8	1.15	213	**0.76**
Q27b The building/site do a good job of interpreting sustainability to the public	2.9	1.16	213	
Q27c There is adequate education info about the building, in public areas	3.4	0.91	213	
Scale Statistics	3.0	0.89		
EVALUATION OF BUILDING LIGHT FEATURES				
Q25e The interior cloth light shelves	3.2	1.07	113	**0.90**
Q25c The window shades on the south side	3.3	1.10	113	
Q25d The exterior light shelves	3.2	1.04	113	
Q25a The automatic daylight controls	3.6	0.94	113	
Q25b Motions sensors for lighting	3.7	0.96	113	
Q25h The light switches	3.5	0.79	113	
Q25f The exposed open ceilings	3.1	1.20	113	
Q25g The indirect lighting	3.5	0.93	113	
Scale Statistics	3.4	0.82		
BUILDING FURNITURE, COLORS, MATERIAL FINISHES	**Item Mean Score**	**Standard Deviation**	**Number Respondents per Item**	**Alpha Reliability of Scale**
Q25n The systems furniture	3.2	1.10	191	**0.75**
Q26m The colors used throughout the building are pleasing	3.3	0.94	191	
Q26n The material finishes used in the building are pleasing	3.3	0.91	191	
Scale Statistics	3.3	0.85		
WALKING ON RAISED FLOORING NO PROBLEM				
Q26oRV I'm not bothered by others walking near me on the raised access flooring	3.2	0.94	205	**0.82**
Q26pRV I'm not bothered by walking on the raised access flooring	3.5	0.90	205	
Scale Statistics	3.3	0.86		
Work Environment Indices, cont.:	**Item Mean Score**	**Standard Deviation**	**Number Respondents per Item**	**Alpha Reliability of Scale**

ACCESS TO OUTDOOR VIEWS & DAYLIGHT				
Q26c During my workday, I have enough access to daylight	3.9	0.87	214	**0.88**
Q26d During my workday, I have enough access to outdoor views	3.8	0.96	214	
Scale Statistics	3.9	0.87		
FEW DRAFTS/TEMP FLUCTUATIONS IN MEETING ROOMS				
Q26kRV Not often uncomfortable temperature fluctuations in meeting rooms	2.8	1.01	214	**0.69**
Q26lRV Not often uncomfortable drafts in meeting rooms	3.1	0.91	214	
Scale Statistics	2.9	0.85		
SUPPORT FOR WATER SAVING FEATURES				
Q26h The water saving features in this building are important to have	3.8	0.93	214	**0.83**
Q26i The water saving features don't cause me any inconvenience	3.6	1.18	214	
Scale Statistics	3.7	0.98		
EVALUATION OF LOW FLOW FAUCETS & TOILETS				
Q25j Low flow faucets	3.7	0.83	208	**0.68**
Q25l Low flow toilets	3.4	1.06	208	
Scale Statistics	3.6	0.83		
SUPPORT FOR GROUP MEETINGS OUTSIDE WORKSPACE				
Q12h Helps in scheduled mtgs NOT in any wrksp	3.6	1.15	191	**0.91**
Q15a Helps: Small (2-4) grp mtgs OUTSIDE your workspace	3.4	1.25	194	
Q15b Helps: Medium (5-10) grp mtgs	3.6	1.22	194	
Q15c Helps: Large (11 plus) grp mtgs	3.5	1.24	194	
Q15d Helps: Working together, undistracted collaborative wrk	3.0	1.26	194	
Scale Statistics	3.4	1.04		
Work Environment Indices, cont.:	**Item Mean**	**Standard Deviation**	**Number Respondents**	**Alpha Reliability**

	Score		per Item	of Scale
SUPPORT FOR WORKING WITH OTHERS				
Q17d Building provides good places for groups to work together	3.3	1.16	194	**0.71**
Q15e Helps: Group space for work 'left out' for week or so	2.1	1.14	194	
Q15f Helps: Working side by side with someone	2.6	1.15	194	
Scale Statistics	2.7	0.91		
INTERACTIONS & INFORMAL LEARNING				
Q17c I learn a lot through INFORMAL interactions	3.9	0.85	203	**0.70**
Q17f Sat. w/ opportunities to interact with people in my PRIMARY wrk group	3.5	1.07	203	
Q17g Sat. w/ opportunities to interact with people in OTHER programs/depts	3.2	1.02	203	
Q17h I sit near most of the people I need to work with	3.6	1.11	203	
Q12g Helps impromptu mtgs NOT in any wrksp	2.9	1.13	203	
Scale Statistics	3.4	0.70		
SHARED SPACES: Atrium, Food Court, Breaks, Teaming & Interview Rooms				
Q26f Shared equipment (e.g., fax, etc.) are conveniently located for my use	3.5	1.10	153	**0.86**
Q25r The food service court	3.2	1.10	153	
Q26u We have good places IN the building to take a break, relax, 'unwind'	2.8	1.24	153	
Q26e There are good places to review documents with a group	3.4	1.00	153	
Q26v We have good places OUTSIDE the building to take a break, relax	3.0	1.25	153	
Q25o The atrium	3.7	0.88	153	
Q25p The teaming rooms	3.5	1.04	153	
Q25q The interview rooms	3.6	0.90	153	
Scale Statistics	3.3	0.75		
NATURAL VEGETATION & LANDSCAPING AROUND BUILDING				
Q25t The landscaping around the building	2.1	1.30	210	**0.91**
Q27j I like the appearance of the natural vegetation around the building	2.4	1.36	210	
Q27h The natural vegetation around the building is a good demonstration of sustainability	2.5	1.28	210	
Scale Statistics	2.3	1.22		

Work Environment Indices, cont.:	**Item Mean Score**	**Standard Deviation**	**Number Respondents per Item**	**Alpha Reliability of Scale**
SHUTTLE SERVICES				
Q25s Parking shuttle service	2.3	1.15	195	**0.80**
Q27d Having the shuttle bus is very useful	2.6	1.40	195	
Q27eRV I don't usually have to wait too long for the shuttle bus	2.5	1.04	195	
Scale Statistics	2.5	1.02		
WALKING PREFERENCES: Building-Parking Lot				
Q27f I'd prefer to be able to walk between the shuttle parking lot and the bulding	3.9	1.08	210	**0.85**
Q27g I would be likely to use the path in good weather	4.1	1.05	210	
Scale Statistics	4.0	0.99		

Part 2: Outcome Indices

Primary Outcomes				
OWN PERFORMANCE	**Item Mean Score**	**Standard Deviation**	**Number Respondents per Item**	**Alpha Reliability of Scale**
Q29a Amount of work accomplished	4.7	1.34	211	**0.92**

Q29b Quality of work accomplished	5.0	1.27	211	
Q29c Communicating with others	4.6	1.31	211	
Q29d My overall performance	4.9	1.31	211	
Scale Statistics	4.8	1.18		
JOB SATISFACTION				
Q30f Overall, taking into account the work, the people, & the organization, my job is a good one	4.1	0.79	211	**0.91**
Q30g I am satisfied with my job, in general	3.9	0.91	211	
Scale Statistics	4.0	0.82		
TEAM PERFORMANCE (Not presented in the report)				
Q18a Team: Amount of work accomplished	4.8	1.53	209	**0.91**
Q18b Team: Quality of work accomplished	5.0	1.43	209	
Q18c Team: Communications among team members	4.2	1.72	209	
Q18d Team: Group's overall performance	4.9	1.50	209	
Scale Statistics	4.7	1.38		
Intermediate Outcomes				
SATISFACTION WITH WORKSPACE				
Q28lHRV Feeling satisfied with your workspace, here in L&C building	3.1	1.07	210	**0.86**
Q30c Overall, my own workspace satisfies my needs	3.2	1.13	210	
Q24cc My workspace is well designed	2.9	1.10	210	
Scale Statistics	3.1	0.97		
SATISFACTION WITH THE BUILDING				
Q28mHRV Feeling satisfied with the L&C building	3.2	1.15	211	**0.86**
Q30d Overall, this whole building satisfies my needs	3.1	1.14	211	
Scale Statistics	3.1	1.07		
Intermediate Outcomes, cont.				
SATISFACTION WITH ACCOMPLISHING WORK	**Item Mean Score**	**Standard Deviation**	**Number Respondents per Item**	**Alpha Reliability of Scale**
Q30b I'm satisfied with my ability to get things done in the office	3.3	1.08	214	**0.84**
Q30a I'm satisfied with my ability to concentrate on my work in the office	2.7	1.21	214	

Scale Statistics	3.0	1.06		
Health Outcomes				
MUSCLE SORENESS, HERE IN L&C				
Q28iH Soreness in lower back, neck, or shoulders in your workspace, here in L&C building	3.4	1.01	210	**0.78**
Q28hH Soreness in arms, wrists, or hands, here in L&C building	3.8	1.03	210	
Scale Statistics	3.6	0.92		
RESPIRATORY/EYESTRAIN/HEADACHES, IN L&C				
Q28dH Throat irritation, here in L&C building	3.9	1.01	205	**0.87**
Q28fH Nasal congestion, throat irritation, here in L&C building	3.5	1.07	205	
Q28gH Respiratory problems, here in L&C building	4.1	0.97	205	
Q28cH Headaches, here in L&C building	3.5	0.99	205	
Q28eH Eye strain or burning eyes, here in L&C building	3.4	1.06	205	
Scale Statistics	3.7	0.83		