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Links between occupant complaint handling and building performance

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Abstract

Building operations link the building, its performance, and end-users. When there is a mismatch between users' comfort provision expectations and operations processes, complaints can arise and building performance can suffer. Adopting optimized complaint handling processes can help diagnose performance problems, and thus support improved building performance. There is little discussion in academic literature about this path to improved performance. Using two US, Class A office buildings as cases, we describe the components that make up an enhanced complaint handling process, discuss the social dynamics of complaints in buildings and explain how the process potentially contributes to a type of "continuous commissioning."

Keywords: building operations, energy use, indoor environmental quality, occupant satisfaction

Background

Building operations processes link building performance and end-users (Aune, 2009). They join the building's system functioning to occupant comfort, energy use and occupant experience. This relationship is accepted in the building research and design communities, but is often applied to projects using assumptions that have not been validated by the eventual operators or users. Theories about how buildings work, simulation models, operations programming, or plans to integrate new technologies to reduce greenhouse gas (GHG) emissions and other standard industry practices often apply oversimplified or overly rational models of complaint handling that do not match current building operations practice.

When there is a mismatch between assumed and actual user needs or assumed and actual operators' practices, complaints can arise. These complaints might be viewed as part of the information gap between the incorrect or incomplete assumptions made during design and actual end-users needs and requirements. Additionally, their systematic study could offer solutions to building performance problems when this is the case. By better understanding complaints, how they are handled or might be handled, and the consequences of this handling, we can gain a more nuanced picture of opportunities for improving building performance in a way that attends to – rather than struggles against --occupant needs and expectations.

Dealing with complaints and the possibility of complaints is basic to the everyday work of building operators and facilities managers. Despite their ubiquity however, there is little academic literature on complaints in the building operations field. This is despite the apparent salience of occupant complaints in building management, and the occasional industry report about operators' experiences with occupant complaints (e.g., IFMA, 2009). This paper then furthers a much-needed discussion by examining the ways complaints can support improved

building performance. We do this using two US, Class A office buildings as case studies. The paper starts with a discussion of relevant concepts and literature, continues with a description of complaint prevalence, moves into building specific results, then concludes with a summary and discussion.

Defining occupant complaints

A complaint is simply a statement that a condition is unsatisfactory. A statement of dissatisfaction can either be volunteered or requested (e.g., via surveys). In commercial buildings, occupants volunteer complaints to building management through formal complaint handling processes or informal interactions with their managers or facilities staff. The reasons an occupant might volunteer a complaint (instead of waiting to be asked) surely vary, but presumably they do so because they think there is a benefit in doing so, like the possibility of physical changes, or even just the psychological value of airing a grievance. Something about the environment or building personnel is causing them discomfort, either physical and/or psychological discomfort (Vischer 2007).¹ Volunteered usually offer occupants the opportunity to share more context, complexity or emotions about the problem. Several expressive volunteered comments will be discussed in later sections of the paper.

In contrast, a requested complaint is more directly shaped by what the requestor asks. An example of a requested complaint might be a closed-ended survey question where the opportunity to respond is bounded in very specific ways. While very useful, this kind of complaint may be about building features or conditions that occupants care little or know nothing about, while missing issues occupants find noteworthy, annoying, or easy to fix (Moezzi and Goins, 2011).

Requested complaints and volunteered complaints may be different in many ways – e.g., what the occupant expects to get out of the complaint, or what motivates a vote of “dissatisfaction.” However, requested complaints are far easier to collect, and for the purposes of this paper, we group them. This paper presents requested complaints as gleaned from an occupant IEQ satisfaction survey, and volunteered complaints as revealed through narratives from operators and occupants. Next, we discuss approaches to handling complaints.

Complaint handling

One school of thought about complaint handling treats users as customers. In buildings then, if occupants are users, the job of the operator becomes occupant satisfaction (Barrett 2003; Cotts, 1998). This is a natural perspective for buildings that outsource all or part of their operations functions.² Where such a relationship exists, a customer service-oriented operations style might be motivated by benefits that this literature promotes. This literature sees complaints as potentially valuable input that can lead to improved products, services, and customer relationships (Solomon, 1985; Zeithaml, 1988). More specifically, requested complaints and feedback are often considered ways to improve customer satisfaction and support higher profits (Rust, 1992; TARP, 1986).

¹ At the same time, occupants may not complain at all if they see little or no benefit in it, do not think they can, do not know who to complain to, or suspect that complaining will be too socially damaging or effortful. These are topics to be more fully addressed in future papers.

² Both case buildings outsource a number of operations functions.

The theoretical benefits of complaints however, are often overshadowed by the reputation threat that complaints represent. Complaints may contain valuable information, but they also include information about someone's failings. Thus, while complaints are sometimes treated constructively, the basic human and organizational, reaction to complaints that are not too visible may be to downplay, avoid, or dismiss them.

The potential influence of “the customer” may affect the ease with which complaints are downplayed or dismissed. As an example, users of a mainstream consumer product may have more influence on a product’s design than occupants in commercial buildings may have on their buildings’ design. Still, even in the building context, the organizations may see complaints as embarrassing or threatening (Argyris, 1990) rather than as an opportunity to fix problems in the building. The affected operator especially may prefer to minimize complaints as a form of reputation management. In fact, this may be the norm rather than the exception.

Despite the potential importance of customer complaints in improving service, products, and customer relations, organizations often take a defensive position toward complaints: "see no evil, hear no evil, speak no evil" (Homburg and Furst, 2007). Homburg and Furst identify three modes of defensive organizational behavior with respect to complaints: (1) not actively seeking feedback from dissatisfied customers and not reacting well when complaints are received; (2) not efficiently transmitting complaints to the proper parts of the organization (see also Harris et al., 2010); and (3) not effectively using the information in complaints to improve service or offer redress to customers. Each of these modes impedes the discovery of information embedded in the complaint.

These defensive patterns are likely common in buildings as well. Based on interviews with facilities personnel and building energy researchers, it is clear that some facilities departments may be highly sensitive to complaints-- or at least complaints from certain people. These organizations may respond with a reactive/proactive style of complaint management that resolves individual problems but may also be more about making the complaint go away rather than the actual building performance issue. For example, a complainer can be handled by telling the occupant that the problem does not exist, or cannot be fixed.

Sensitivity to complaints may also lead to a conservative mode of operation in anticipation of possible complaints, for example, HVAC schedules that start much earlier or end much later than occupancy. This sensitivity may also undermine the importance of efforts to analyze complaints for diagnostic purposes. The result may be a smaller number of complaints, but not necessarily better --and maybe even worse-- building performance.

The two case study buildings are relatively high performing from the occupants' perspectives as they have higher satisfaction ratings than other buildings in the comparison set to be described shortly. We are interested in whether operators of these high performing buildings are able to capitalize on the information embedded in complaints. To what extent do they use them, or suppress (or even defer to) them? Given the prevalence of complaint suppression described in the customer service literature (Rust, 1996), some suppression is likely. 'How much?' is the question. How might threat of complaints hinder their collection and utilization in these high performing buildings? What kind of complaints and building issues are suppressed? How can complaints be analyzed to uncover this information? Additionally, when utilized, is information revealed about

system functioning, energy use and comfort provision? The results may have implications for other buildings with high IEQ and energy use. This approach does not prove causation. Rather, we suggest linkages that can be tested experimentally, or viewed as items of interest for similar buildings in operation.

Case Study Buildings

Two commercial buildings in operations are cases for this study. The first case is a 26,000 square foot, LEED-NC Platinum low-rise office building, completed in 2006 in the Midwest of the United States. It houses about 65 people. This building has only one tenant and is owner-occupied. It also includes a number of sustainability features such as super-insulated walls, ground source heat pumps, daylight and occupancy controls and light shelves.

The second case building is a thirteen-story, 500,000 square foot office tower in a hot-dry climate in the western United States, completed in 2009. It houses about 600 workers on a typical workday. The building has only one tenant, is owner-occupied and is both LEED-NC Gold and LEED -EBOM Platinum certified. It includes a number of features aimed at reducing energy use while promoting occupant comfort, including underfloor air distribution (UFAD) with adjustable diffusers, daylight optimization and heat pumps. In 2010, the building achieved an ENERGY STAR rating.

Both organizations utilize internal and external operations staff in highly similar ways. The internal staff field occupant complaints, handle procurement, and deal with administrative tasks. The outsourced operations staff runs systems, responds to work orders and interacts with occupants as needed. Building one has an internal operations staff of one person and an outsourced staff of three. Building two has an internal staff of four and an outsourced staff of four.

Occupants in both buildings are largely knowledge workers and have access to a number of comfort controls including task lights, airflow diffusers and window blinds. Occupants in both buildings may bring in personal fans if necessary, but personal heaters are prohibited. This is common and due to fire concerns.

The following data was collected for each case: closed-ended survey data from occupants, free text comments from occupants and narratives created during semi-structured interviews with operators. Data were analyzed separately, but complement each other.

The Center for the Built Environment's (CBE) web-based IEQ survey was used to gather data on occupant satisfaction and dissatisfaction. The survey asks about seven IEQ areas (Zagreus et al, 2004). When respondents indicate dissatisfaction in one of these areas, they are asked follow-up questions about the source of their dissatisfaction. They may also be given the opportunity to enter free text comments about each IEQ area if dissatisfied and can also offer text comments at the end of the survey. Both kinds of free-text comments are considered here.

We interpret this survey data about sources of dissatisfaction to be requested complaints. These complaints are constrained in that respondents can only respond about the conditions requested.³

³ Respondents could and did offer additional complaints about items beyond the survey in their free text comments.

Additionally, only dissatisfied respondents are presented with these specific sources of dissatisfaction. Requested complaints do not represent all potential complaints, or even all volunteered complaints. Still, we treat these requested complaints as legitimate expressions of dissatisfaction with building conditions, which provides useful feedback about building performance issues.

Operator narratives were gathered during 60-minute semi-structured, group interviews. An interview guide was used to facilitate discussion. Probes and follow-up questions were also used as needed. The interviews covered topics such as operators' sentiment towards energy, occupants and the building itself. These were compared to the data collected from occupants.

We take free text occupant comments entered in the IEQ survey and operator complaint narratives to be volunteered complaints.

Method

The goal of this paper is to provide a rich description of specific links between complaints, system functioning, energy use and comfort provision -- aspects of building performance--in the two case study buildings. These links, if any, will be based on the perspectives of study participants. More specifically, we are interested in the ways each site's complaint handling process hindered or supported the discovery of information and solutions related to building performance issues. Since this project itself included complaint gathering, we are also interested in how this study itself supported or hindered the discovery of useful information about performance. We do not attempt to quantify changes in system function, energy use or comfort. Instead, this method demonstrates whether a complaint handling process: (1) was able to identify or suppress information about building performance and (2) if study participants found the newly discovered or missing information useful in addressing or diagnosing a performance problem.⁴ This goal required breadth and depth of understanding. To that end, we used closed-ended requested complaints gathered from surveys for breadth and the volunteered complaints from interviews and open-ended survey questions for depth.

The closed-ended survey data (n=567 respondents) were used to characterize the kinds of issues occupants complained about in these buildings and the prevalence of these complaints in relation to the larger CBE database and other studies of complaints in commercial buildings. Again, we reinforce that requested complaints are constrained by the requestor. Still, a comparison of complaint patterns across sets of buildings helps put the case study buildings' performance and condition in the proper context. The results section presents findings from these data in relation to a larger population of buildings.

The four semi-structured interviews with operators and free-text comments from occupants (1,820 unique comments) were used to characterize the processes and outcomes related to

⁴ The method does not offer information about the number of buildings for which a complaint handling process might prove useful. Neither does it quantify changes in energy use, system performance or comfort. On the other hand, it suggests ways to diagnose problems that affect the aforementioned. More tools and methods to diagnose complex building performance problems can only help close the gap between predicted and actual performance. Complaints may represent a low-cost and accessible method for diagnosis.

complaints within the case study buildings.⁵ To what degree do volunteered complaints suggest reactive, potentially suppression-based approaches? Do the occupants and/or the building suffer or improve (from the narrator's perspective) as a result of the complaints? The results section presents exemplars of the volunteered complaints and their context for these two buildings.

Requested complaints

To put the upcoming discussion about requested complaints in context, this section begins by reporting the percentages of occupants who say that they are satisfied with their respective buildings overall (**Error! Reference source not found.**). Almost 90% of surveyed occupants in both of the case buildings say that they are satisfied with them. This is in contrast to the 66% of occupants in the larger database that are satisfied with their buildings. Thus, these two buildings are significantly better than average from their occupants' perspective, and among the higher scorers in the CBE database subset of 575 buildings in CBE's benchmark set.⁶ Occupants can certainly offer complaints while being satisfied with a building.

Table 1 -- percentage of occupant satisfied with their buildings overall.

| Building 1 | Building 2 | CBE database |
|------------|------------|--------------|
| 89% | 89% | 66% |
| n=57 | n=500 | n=16,892 |

Table 2 shows the percentage of occupants who say that they are dissatisfied with a particular IEQ element in their respective buildings. Of these requested complaint items, temperature, lighting and air quality may have direct energy consequences. All five areas likely have operational or IEQ

consequences.

Over 50% of those in the CBE database who say that they are dissatisfied with temperature in their buildings report sometimes being too cold in the summer. The same is true of the case study buildings. What is more, a 2009 survey of operators also showed that over 50% of their sample of about 400 buildings had cold complaints during summer as well (IFMA, 2009). This is clearly a persistent problem in operating buildings, which represents both an energy and occupant concern (Mendell, 2008).

While there are many complaints about being too cold in hot weather in Building 1, uneven temperatures across the floor plate are not a problem here. Occupants are overcooled evenly in this building. It is also worth noting that being too hot or cold in cold weather is more prevalent in this building than the database overall.

There are several other issues for occupants in Building 1. The thermostat being adjusted by other people is an extreme problem in relation to the database. There are also more complaints about people talking, echoing and dark interior conditions than in the database overall.

⁵ Although there are many complaints to choose from, the scope of this paper requires focusing on complaints related to energy use, system performance and IEQ. Issues like commuting, recycling, water, and others, are outside our scope.

⁶ Buildings may be included in the benchmark set if they have a sufficient response rate and the use the standardized version of the survey.

| | Building 1 | Building 2 | CBE database |
|---|--|------------|--------------|
| Temperature | too hot during hot weather | 50% | 53% |
| | too cold during hot weather | 63% | 56% |
| | too hot during cold weather | 63% | 37% |
| | too cold during cold weather | 56% | 70% |
| | Humidity too high (damp) | - | 6% |
| | Humidity too low (dry) | 16% | 5% |
| | Air movement too high | 21% | 11% |
| | Air movement too low | 11% | 23% |
| | Incoming sun | 11% | 18% |
| | Heat from office equipment | 0% | 3% |
| | Drafts from windows | 11% | 10% |
| | Drafts from vents | 11% | 19% |
| | My area is hotter/colder than other areas | 0% | 4% |
| | Thermostat is inaccessible | 21% | 23% |
| | Thermostat is adjusted by other people | 58% | 2% |
| Heating/cooling system responds slowly | 5% | 25% | |
| Air quality | Photocopiers | - | 8% |
| | Printers | - | 9% |
| | Food | - | 17% |
| | Carpet or furniture | - | 12% |
| | Other people | - | 8% |
| | Perfume | - | 17% |
| | Cleaning products | - | 13% |
| Outside sources (car exhaust, smog) | - | 12% | |
| Lighting | Too dark | 60% | 21% |
| | Too bright | 10% | 42% |
| | Not enough daylight | - | 17% |
| | Too much daylight | 10% | 35% |
| | Not enough electric lighting | 20% | 24% |
| | Too much electric lighting | - | 8% |
| | Electric lighting flickers | 10% | 1% |
| | No task lighting | - | 7% |
| | Reflections in the computer screen | 60% | 39% |
| | Shadows on the workspace | - | 8% |
| Acoustics | People talking on the phone | 70% | 49% |
| | People talking in neighboring areas | 76% | 80% |
| | People overhearing my private conversations | 58% | 78% |
| | Office equipment noise | 6% | 18% |
| | Office lighting noise | - | 1% |
| | Telephones ringing | 21% | 27% |
| | Mechanical noise | 6% | 1% |
| | Excessive echoing of voices or other sounds | 30% | 35% |
| | Outdoor traffic noise | 3% | 4% |
| Other outdoor noise | - | 6% | |
| Cleanliness | Surface dust on work surfaces close to you | 54% | 55% |
| | Surface dust on other surfaces you might touch | 38% | 45% |
| | Surface dust on surfaces difficult to reach | 23% | 37% |
| | Spills and debris | 31% | 28% |
| | Dirty floors | 77% | 68% |
| | Trash cans are not emptied overnight | - | 14% |
| Trash cans get too full during the day | - | 14% | |
| Trash cans are a significant source of odor | - | 7% | |

Table 2 --Percentages of requested complaints by IEQ factor. Only dissatisfied respondents were offered these questions.

Acoustics was identified as a particular problem in Building 2. Concern with excessive echoing and people talking is much higher in this building than in the database as a whole – echoing the contemporary problem of poorer acoustic environment as a frequent tradeoff for sustainable design elements (GSA 2012). Thermostat adjustment by others and daylight were also problematic for occupants. They also have complaints about thermal comfort -- including overcooling during summer-- although their number is lower than in Building 1 and the database overall. Cleanliness complaints were also low.

Several kinds of complaints occur in both buildings. Overcooling is a problem in both. Thermostat placement and adjustment are also problems here. Each of these complaints has a human and a technical component. They involve interaction with some building element in a way that causes discomfort. It is at this intersection in fact, that many complaints occur. Many of the exemplar volunteered complaints in Building 1 also support this idea.

Volunteered complaint themes in building 1

Building one was intended to be a demonstration project and a regional model for green building practice. In many ways, the project successfully fulfilled its role. Occupants were generally positive about the building's green intent and building operators, even if some aspects of the building were not perfect. Complaint management however, was not included in this forward thinking notion of 'greenness' as there was no formal complaint process in use here. Occupants simply made requests of in-house or outsourced operations staff, but most complaints in the comments and narratives were directed at outsourced staff.

The size of the building's population may have played a role in this decision. It may have been easier to handle complaints informally rather than with a formal process. This decision however, left some opportunities unexplored and some questions unanswered. For example, while the operators may have known how the building's green features worked and how they were to be used, it was likely the occupants (being non-building specialists) did not.

Additionally, the lack of a complaint management process left the escalation process unclear. What happens when problems are not fixed or cannot be fixed? The complaint narratives from occupants and operators suggest that this issue was a pivotal one for this building.

Exemplar comment:⁷

building management has decided to respond to individual staff complaints about temp and adjusts the system accordingly. however, the system is interconnected, and this causes others to be affected. this approach is inefficient in the extreme (from an energy standpoint) and inconvenient. if i had a window, i would open it to breath when it gets to 78 degrees, but cannot. policy should be one temp for all areas: 72F.

This comment is instructive since it has energy and IEQ implications and speaks to complaint dynamics. It suggests that operators went to extraordinary lengths to defer to occupant requests. There are several comments suggesting similar deferral. Nevertheless, this deference to one

⁷ To the extent possible, complaint narratives shown in this paper are presented as typed by occupants. Only identifying information and small clarifications have been made, all of which are marked in brackets.

complaint often left other occupants elsewhere in the building more uncomfortable than they were before. This occupant (and others) was also aware of energy efficiency; still they thought this largely deferential approach to be wasteful.

Related comments:

Some of my colleagues are always cold so [operations] raises the temperature for them and my office is usually very warm.

I'm very proud to work in a green building. The building's architecture is gorgeous. I love all the natural light. The pond makes us a little oasis in the desert of sprawl. [building management] work[s] very hard to make us comfortable here. I wish we could get the heating/cooling to work better; the temperature really varies throughout the building, without much rhyme or reason.

My issue is with the cleaning service. Since we no longer have an eating area within the building sometimes eating at your workspace can bring about crumbs/debris on the floor. The cleaning service never sweeps nor do they dust. And as I mentioned, the barn (not sure on other areas in the bldg) has a dust issue. Again, I've adapted by dusting my area myself 1-2x's a week & I'll ask [the operator] for a broom to sweep but he ends up sweeping my area for me. [He's] the Greatest!!!

The building management worked hard to keep occupants happy and responded to many of their concerns in a timely fashion. Still, as these comments bear out, this approach did not always solve problems for occupants, often created other problems and did not improve building performance or IEQ. Conversations with building management staff revealed a similar story. The operators were aware of these occupant complaints, but were at a loss about better ways to handle them.

The outsourced operations team that we interviewed was the second operations company employed at this building. The first company's contract was terminated when they were unable to provide sufficient comfort for occupants. This drove much of the current company's deference. They were afraid their contract would be terminated as well.

Interestingly, the outsourced operations company used the survey results from this effort to support operations actions that in-house operations initially resisted. In this way, this project's survey activities represented a kind of complaint acquisition process that the operator's might have benefitted from using at other times as well.

Reflecting on the Homburg and Furst's trio of defensive organizational behavior regarding complaints, complaint acquisition was the problem here. Once complaints were received, operators were eager to use the information they contained. In the absence of the ability or agency to gather these complaints however, reputation threat became too formidable of an issue for these operators, even in this high performing building. The complaint narratives make clear that both the operators and occupants were aware of the negative energy and comfort consequences of the current operations approach. They just needed an opportunity and a method to fix the problems they all knew existed.

Gathering complaints here both offered information about specific building performance problems and this information was useful from the operators' perspective. It served an organizational purpose, to help make the case that action was needed. It also helped alleviate reputation threat. Some building operators may fear that requested complaints increase reputation threat by identifying additional problems. In reality, the dissatisfaction exists and persists if occupants are not given the opportunity to express it. This can be more damaging than an aired problem that is subsequently addressed. Thus, identifying problems via robust complaint handling systems can alleviate reputation threat-- rather than increase it-- in some cases.

Requested complaints may also support moving from a simple, reactive mode of operations where each problem is handled separately. Understanding the scope of user-identified problems supports integrated solutions where all occupants can be happier, rather than increasing one occupant's satisfaction at the expense of another or otherwise responding with short-term fixes that may create longer-term inefficiencies in building systems. This shift in thinking about identifying problems may be uncomfortable for some staff. During the study's early stages, in-house staff expressed some concern about new complaints being identified. This concern largely disappeared however, as performance issues were addressed.

Volunteered complaint themes in Building 2

Occupants in Building two reported being quite satisfied with their building. They commented favorably on the building's location near a river, access to parking and building amenities like the gym and cafeteria. Building 2 was also a high energy performer and achieved an ENERGY STAR rating in 2011.

Unlike Building one, Building two had two complaint handling processes. Occupants could send a complaint to in-house operations staff who then forwarded it to the correct person. Occupants could also send an anonymous e-mail to a 'suggestion box' that was monitored by the CEO. The CEO could then select and forward items to facilities staff if necessary. Conversations with operations staff suggest that the items collected via the suggestion box were many and varied and not all of the e-mail traffic was related to complaints. Still, they were accounts of items related to IEQ being sent to this account. Occupants largely used these formal methods rather than more informal conversations with operations staff. According to in-house operations staff, the anonymity of the complaint process appeared to be particularly welcome to some users. It is also interesting to note that the building was designed so that outsourced operations staff did not have to interact with occupants regularly.

The interviews made clear that formally gathered complaints were gathered and sent to the correct person. How the complaint was utilized varied. Issues that were deemed addressable by in-house operations staff were largely resolved. For example, several occupants complained about foul smells near the elevator. Operations staff and occupant comments reported this problem having been addressed. There were also cold complaints in sections of the building. Operations staff was actively working on this issue during the study. Although not solved, action was clearly being taken to fix the problem.

In contrast, some issues seem to have been considered "unworthy" or otherwise inappropriate for further attention. The closed-ended requested survey responses in this building revealed many complaints about the ability to have a confidential conversation. Operations was explicit that this

issue would *not* be addressed, since the most requested solution was higher cubicle walls. The comments below suggest a similar issue: that of odors.

Exemplar comments:

There are way too many different perfumes and or colognes. I have allergies and Asthma, management is just barely now addressing it after years of "complaining" in other words, bringing it to [their] attention. Staff, including management is very reluctant to listen/understand and accommodate.

The odors of cologne/perfume were addressed to facilities by myself the year before we moved in (2008) due to this being a "green" building. I have had this issue every since 2003 working in this agency. If I had been in contact with the odors prior to accepting the positions, I would not have come to work here.(at others as well). I was thinking they really wanted to be green even with their air quality. I believed that maybe I wouldn't be sick most days, but I was thinking in error. The air quality affects my entire day, most days in this building and affects my quality and quantity of work. The wearing of perfumes/colognes is a very big issue. It is hard to hold your breath all the time in the elevator for 8 floors or dodge the vapor trails that are left. The fragrance issue has affected many people I know and more are starting to speak out. I have ever since the beginning and no one cared, I was only one person. I hope others speak out. This issue has been brought to the CEO through surveys and our Human Resources, plus management and nothing has been done. There are alot of staff with health issues with asthma, migraine, etc., that are highly impacted with the fragrance issue in this office and building. I would like to breath one day and not have to worry about having to postpone using common areas or walking to certain areas in different ways to avoid the fragrances or getting a headache as soon as I walk into the lobby in the mornings. The elevators need better circulation to evacuate the fragrance and cigarette smoke smells. Sometimes there might be a smell of diesel if there are vehicles sitting down in the pre-loading dock are with their engines idling for some time. I am very sensitive and can smell things like that. We have had some issues with sewer smells but those get addressed and handled by the building engineers right away.

I am surprised that this is a "green" building, yet this is not a fragrance-free facility, as some other state agencies are. Being one of many people employed here at [the building] that are sensitive to fragrance, it is very difficult to work sometimes being surrounded by people who bathe in perfume. It is a very real sensitivity that can make work unbearable. They have been asked to cut back on it or stop wearing it, they ignore the requests, acting bent out of shape or offended by the request. Management asks them to cut back, but they do not follow up on the request. We often have to go home sick, using OUR sick leave because they refuse to not wear fragrance. SOMETHING MUST BE DONE!!!! There is no reason why someone needs to wear fragrance, but there are MANY reasons why someone should NOT wear fragrance. HR AND THE POWERS THAT BE HAVE BEEN DRAGGING THERE FEET FOR YEARS ON THIS ISSUE. PLEASE MAKE THIS A TRUE GREEN BUILDING AND MAKE IT A FRAGRANCE FREE WORK ENVIRONMENT! Also, the soap in the bathrooms should be fragrance free - they currently are not and the smell is horrible. Thank you

These comments suggest behavioral coping mechanisms (Heerwagen and Diamond, 1991) like occupants 'holding their breath' or avoiding areas of the building. Some of the comments discuss absenteeism related to odors from fragrances or sick building syndrome-like symptoms. The

length of the comments, their style, capitalization and punctuation all express clear frustration with these conditions, but also with the perceived lack of response by building management.

Table 2 shows that 17% of those dissatisfied with air quality in this building cited perfumes as the problem. This is not as widespread a problem as speech privacy for example, but this problem still has negative consequences for occupants. We do not know if operations would have taken more steps, like banning the wearing of fragrances or removing scented items from restrooms, had more occupants been affected. Still, the pattern seen here was also seen with other issues that were deemed unworthy or unsolvable for some reason. Unsolvable problems here were deemed unworthy, and therefore the complaint was ignorable.

The organizational influence of Building two's operation team may have made it easier for them to ignore some complaints than it was for Building one's staff to ignore complaints. Some in house operations staff in Building 2 held executive level positions. Therefore, while operators mentioned reputation threat from complaints in passing here, it was certainly not the driver that it was in Building one.

Building two had a largely well functioning complaint handling system. In the end, Building two was largely successful at complaint acquisition and transmission. On occasion however, there were problems with utilization, the third step in the Homburg model. Their process did not always permit using the information in complaints to improve service or offer redress, even in cases of what seem to be severe discomfort. It is unlikely that any complaint handling process would fix all problems or alleviate all complaints. It is reasonable however, to think that successful complaint handling would at least solve more severe issues like those mentioned above.

The volunteered complaints may have played a role here as well. These more expressive and comments often suggest solutions. For example, one Building two occupant suggests fragrance-free soap as part of the solution to the fragrance and odor issues in the buildings. Analysis of these complaints or even gathering additional volunteered complaints could have identified additional solutions to these problems.

Summary

Building one did not have a formal complaint handling process. The practical implications of this lack of a formal system are that opportunities to educate or engage occupants were often missed, while unresolved problems often remained unresolved. In contrast, when complaints were requested via a survey, outsourced operations staff saw value in them and were eager to use these complaints to improve building conditions. These requested complaints served an organizational purpose, to help make the case that action was needed. They also helped alleviate reputation threat. This shift in thinking about soliciting problems may be uncomfortable for some staff, but this discomfort may disappear as performance problems are fixed.

Building two had a formal complaint handling process; and, complaints were both volunteered and requested. Reputation threat from complaints was not as significant a problem here as it was in Building one. Still, Building two's process did not always succeed at moving from complaint to solution; and certain classes of complaints remained unsolved. While complaints were

gathered and forwarded to the correct staff person, when problems were deemed unsolvable, complaints were ignored and problems lingered. Not all problems are fixable, however the process could still have allowed for alleviation of the severe occupant discomfort or assuage in other ways, if only through acknowledgement of the problem. Analysis of the volunteered complaints might have been helpful in these cases as occupants often offer potential solutions in them.

In talking to building operators and facilities managers, we were impressed by how central occupant complaints seemed to be for operator, occupant and management decisions. The importance, of course, depends on the building and conditions in that building. In Class A buildings, like those presented here, occupant complaints may have much influence on building operations, while in other cases they may have less. No matter whether occupant complaints in any building currently influence operations or not however, there is still likely much valuable information embedded in complaints.

Conclusion

The general complaint literature has done valuable work in describing the components of a complaint handling process in retail and service organizations. In this paper, we have shown that a similar complaint-handling process may provide useful information for improving building performance, potentially contributing to a type of “continuous commissioning.” The complaints analyzed here linked performance issues to building systems or elements, just as Aune et al. (2009) suggests. Both occupants and operators commented on building elements and properties like operable windows and thermal comfort or HVAC systems and air quality. They also provided information about prevalence, intensity and even solutions to problems.

The requested complaints analyzed revealed information related to IEQ, comfort and energy use. They provided information about the scope of the problem and supported solutions that are more integrated. Without this context, operators in one building responded to crises in a way that occupants viewed as pitting some occupants' comfort against others.

Volunteered complaints offered depth and richness of description. They may also be useful for identifying new solutions to problems, since occupants often freely offer such suggestions in their comments. They can also be especially useful for conveying the intensity of experience that individual occupants sometimes have related to a problem. Some problems may not be widespread but can be extremely important to those who experience them.

Identifying, evaluating and using the information conveyed in complaints however, requires analysis. Here, we have presented straightforward percentages of requested complaints and thematically arranged volunteered complaints to suggest the ease with which information can be gleaned. Yet while the analysis is simple, we feel that it is necessary to begin to call researcher, designer, and building management attention to the potential value of occupant complaints in better diagnosing what goes wrong in buildings, from the occupants' points of view, as well as a potential route to address these problems. Analysis is only possible however, if complaints are gathered, routed and if solutions are explored and implemented based on the information discovered. In short, complaint handling processes must include gathering, routing and utilization, as suggested by Homburg and Fürst (2007).

Complaint handling processes must also acknowledge the social context of complaints. As we saw in the two case buildings, the social dynamics within an organization sometimes derail the process and stop information discovery. In one example (Building 1), requested complaints helped alleviate reputation threats for building operators. When revealed problems were resolved, occupants had a sense that building operation was improving. Unresolved, lingering problems however, suggest the opposite. That is a promising result. The implementation of a process alone however, does not guarantee its success.

The case studies suggest that the organizational tendency for complaint suppression cited in related literature applies to the building realm as well. We also show that the simple act of implementing a complete complaint handling process helps reduce the tendency to suppress comments. Clearly, this is just a partial solution, but we find, from this initial look at complaints and consideration of the larger literature on complaint handling, that this is a potentially rich area for future study by practitioners and academics in the building realm.

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