Michelle Murphy

**Sick Building Syndrome and the Problem of Uncertainty: Environmental Politics, Technoscience, and Women Workers**


Molecules, bodies, belief systems, the built environment, social and material manifestations of race, class, gender, and disability: where does one domain end and the others begin? Similar to complex systems and living ecologies, interdisciplinary scholarship is built on interconnectivity, permeability, and a multiplicity of perspectives, which together open up the meanings and configurations of power during particular historical moments. Few interdisciplinary scholars, however, tackle the dense layering of their subjects with as much breadth, rigor, and theoretical transparency as Michelle Murphy does in her analysis of the recent phenomenon called Sick Building Syndrome. Even fewer crisscross the terrains of the history of science, medicine, and technology, the history of business and labor in society, critical theory, and the history of architecture, design, and urbanism (in approximately this order of emphases).

_Sick Building Syndrome and the Problem of Uncertainty_ will be of significant interest to interdisciplinary historians of architecture and design who want to understand how the twentieth-century corporate built environment reflected and inflected social hierarchies of race, class, and gender, as tied to perceptions of disease. The book is also useful to those who seek a more holistic understanding of the relation of contemporary architecture to sustainability (the chemical toxicity of building materials and accessories) and to systems complexity (relevant to the architectural design of complex, information-based spaces).

Originating in 1984, Sick Building Syndrome (SBS) quickly became a widespread diagnosis for buildings whose occupants complained of diverse minor illnesses—headaches, rashes, dizziness, difficulty breathing—that they attributed to their work environment; yet, when experts tested the building for chemical toxicity above industry safety standards, they failed to find unsafe conditions. If toxicity levels above the threshold limits were in fact measured, and a direct cause-effect relationship between the chemical and occupants’ illnesses were determined, a building would not be diagnosed with SBS. Rather, SBS by definition referred to buildings with undetectable toxicity levels in combination with widespread occupant symptoms. Hence, as the title of the book stresses, the diagnosis hinged on _uncertainty_, a fact that leads Murphy to label it a “postmodern” condition.

This type of diagnosis and its inherent notions of disease in relation to architecture are highly unusual and interesting. It was not the occupants but rather the buildings that were diagnosed as sick. Buildings were therefore “organisms,” an idea with a long legacy in architectural history. The classification of particular types of design as “diseased” or “degenerate” has traditionally originated from architects, designers, and critics as part of an internal debate over the validity of certain stylistic traits (ornamentation, for example). The idea of a “sick building” in the 1980s, however, was proposed by toxicologists, scientific researchers, and “healthy building” specialists. It was a diagnosis that marked their difficulties unraveling the complex knot of chemistry, biology, and individual and collective experiences, as intertwined with the specific spatial domains of late twentieth-century corporate architecture.

Because the sources of illness were undetectable according to standardized methods and levels of toxicity, interpretation of the cause of workers’ symptoms was highly flexible. This made it amenable to biases of gender, race, and class, since mostly middle-class women experienced symptoms and mostly educated white males conducted the investigations denying toxicity. The experts often claimed that women’s illnesses were psychosomatic, perhaps manifestations of emotional hysteria rooted in menstruation, instead of deriving from an exterior physical cause. This move delegitimized women’s claims for workers’ compensation in the eyes of insurance company officials and judges. Women workers then protested that experts were invalidating their testimonies based on an incomplete understanding of disease as constructed by Western medicine and science. Some of these women had participated in consciousness-raising sessions in the 1970s that affirmed their collective experiences of discrimination and validated their experiential knowledge of their own bodies, a fact that deepened the rift between these parties.
Murphy deconstructs this debate through reference to historical examples of gender discrimination, resistance, and particularly constructions of feminine illness. More originally, she tackles this area of uncertainty as a prime opportunity to critique the methodology by which “the comfort zone” for air-conditioning and the standard “threshold limit values” for so-called safe exposure to toxic chemicals were created in the first place. If the definition of SBS entailed toxicity levels below the standards, but still people felt sick, perhaps this discrepancy resided in faulty assumptions of a consistent response by all bodies to defined levels, or alternately, perhaps some people became sick at lower doses over longer exposures than those that were used to create the standards.

Murphy begins her narrative with the sealed “ventilation chambers” at Harvard and Yale in the 1920s, into which young, white, male college students were placed to perform menial tasks that effectively mimicked light-weight office work. Into this chamber were piped a variety of different substances. For air-conditioning studies, differing levels of humidity, temperature, and airflow were input, and based on the average responses of seemingly “average Americans,” the universal “comfort zone” was derived for use in ventilation systems everywhere. For toxicology studies, which began in the 1920s and continued for decades, different chemical compounds (carbon monoxide, benzene, radium, and lead, among others) infiltrated the chamber at slowly rising levels. Researchers recorded the responses of the subjects within (either people or rabbits—Murphy is not clear on this). Threshold limit values were determined by average adverse effects at measurable levels, and against these limits, sick buildings were diagnosed.

Murphy’s main point is this: these ranges for comfort and toxicity were built on assumptions of a universal, “average” response in controlled environments with a limited number of variables. This approach reflects a strongly modernist viewpoint, one that assumed a young white male was “the average American,” that the average response of these subjects accurately indicated the universal human reaction, that all buildings and ventilation systems could be created the same, and that all people in this type of environment would be comfortable. Other examples from design history of the 1950s, although not discussed by Murphy, corroborate her analysis of the fundamental role of modernist assumptions of a “universal” as the basis for design. Take, for example, Le Corbusier’s Modular figures, which he created to model an ideal system of human proportions for the purpose of adapting architecture to its scale. Or consider “Joe” and “Josephine,” statistical anthropometric “partners” that the design firm of Henry Dreyfuss Associates used as the measure for their ergonomic designs. Such universalist assumptions, while highly pragmatic from an architect’s, designer’s, or ventilation engineer’s standpoint, serve both to reaffirm systems of power and privilege and simultaneously fail to account for the actual diversity of human bodies and lived experience. Furthermore, they effectively create domains of perceptibility and imperceptibility, the difference being constituted by toxicity levels or human experiences of illness that fall within acceptable “normal” ranges and therefore are legitimate, and those that are outside the standard and may therefore be discounted.

The complexity of a sick building makes these shortcomings even more apparent, for the number of variables in the “teeming ecology” (131) of an air-conditioned office building (countless chemical vapors, mites, bacteria, sewage, mildew, insects, sweat) differ exponentially from those in a hygienic, sealed ventilation chamber at a university laboratory. Similarly, the energy-sucking, building-wide ventilation systems and closed windows of mid- to late-twentieth-century office structures have given way to “green” buildings with operable windows and multiple variable climate-control zones, even on single floors. From reductive universals to diverse networked systems, from the modernist perspective to postmodern perspectives, from then to now, Murphy traces the shifting linked conceptions of identity, wellness, and space. Her chapter organization reflects her theoretical construct that history is an assemblage of overlapping narratives, some of which are more powerful than others, but whose connecting nodes lead every participant to create narratives of her own. She succeeds in her stated goal to treat her chosen narratives from different sides of the debate about SBS with equal seriousness, and her commitment to respecting individual perception, need, and suffering is emphasized in her empathetic concluding chapter, which examines how people with multiple chemical sensitivities have managed to cope with their disability by making safe spaces for themselves.

Despite this general shift toward a postmodern acceptance of diversity, complexity, and uncertainty, Murphy marks a strong continuity in the locus of social, medical, economic, and juridical power, vested in corporate interests allied to federal government protections. Strategies of control and suppression enacted by those in power during the 1980s are the explicit focus of two of Murphy’s later chapters. One of these examines the tobacco industry’s sponsorship of SBS research and propaganda as a diversion from concerns about second-hand smoke. The other is a case study of an episode involving SBS and “environmental racism” at the headquarters of the Environmental Protection Agency in Washington, D.C. These two examples prove that power resides in the control of numerous issues, including the definitions of “legitimate” disease and the threshold limit values for toxicity, the ways that tests are conducted in sick buildings that determine whether toxic levels are in fact measurable, the validity of workers’ compensation claims for occupational illness, and the amounts allotted to successful claimants. Murphy thus ends her book with a critique of broad-based power, followed by a call to action.

CHRISTINA COGDELL
Santa Fe, New Mexico