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ARCHITECTURE AND THE NON-VISUAL SENSES

Editorial

"... deafness would be no handicap to an architectural critic or historian.” — MICHAEL BENEDICT

THE IDEA FOR THIS ISSUE’S FEATURE started to percolate about three years ago, when an essay appeared in the Harvard Design Magazine, entitled “Coming to Our Senses: Architecture and the Non-Visual” (Spring/Summer, 2007). In the essay, author-professor Michael Benedikt examined what he and others have called the “visual bias” of architecture. Acknowledging that architects have “at least some artistic control over appearances in their original vividness: real surfaces at real distances, real sounds, and real smells, which have in them a kind of electricity, a presence, salience, materiality, and openness,” (p. 91), Benedikt wondered: What can architects do?

It seems pretty obvious that architecture is visual. Nearly every aspect of concept, design, critique, marketing and communicating employs our vision to the virtual exclusion of every other sense. Didn’t le Corbusier himself describe architecture as: “le jeu savant, correct et magnifique des volumes assemblés dans la lumière.” (Vers Une Architecture, 1923) Masses brought together in light: how visual can you get?

Magazines, hard-copy and digital, exist in a purely visual world. But at Perspectives, it goes beyond that. It’s not just that we publish readable text alongside two-dimensional visual representations, we are also participants in the annual OAA judging, which is conducted using purely visual images. And, through the various themes that we have explored, we described virtually every aspect of architecture using, to a dismaying degree, the sense of sight.

Benedikt proposes that architecture’s visual bias, perpetuated through magazines, photography and studio education (with its emphasis on drawings and models) may also be the result of its tenuous position in the world of “fine art.” To maintain this status, he suggests, architecture must be visual. The “feel must come from the look.” Otherwise, it runs the risk of becoming a mere “entertainment.” (Benedikt, P. 83)

The difficulties that some of our writers encountered in dealing with our feature topic offers some insight into another reason that the non-visual senses are frequently overlooked. The other senses are just too hard to deal with and impossible to demonstrate or discuss by conventional means (in our case, the visually-oriented pages of a magazine) And, no, 3D technology won’t help. Neither will the hot topic of this morning’s newspaper: smell-o-vision. (“A movie that shakes, splashes ... and smells”, Dave McGinn, Shameless, Globe and Mail, July 7, 2010) Don’t hold your breath on that one.

To explore our profession’s dependence on the visual, we are devoting our magazine to the exploration of how the other human senses could be, should be, or are being, considered in the design of our environment.

In this Issue

07
PRESIDENT’S MESSAGE
OAA President Gerri Doyle laments the passing of summer, but welcomes the opportunities of autumn.

09
RESPONSE
Daphne Harris is awarded an Honorary Membership in the OAA. Graham Crawford and architect Anthony Butler, OAA, RAIC mount an exhibition of Hamilton’s Modern heritage.

23
INTERNATIONAL
On a quiet street in London, England, a 400-year-old house continues to provide a home for its many residents — living and dead — through the exploration of all six human senses.

25
THE PROFESSION
Stig Harvor reflects on the complexities of architecture.

30
ONTARIO PLACES
Bill Birdsell writes about the 4,000-pound pride of Guelph, Ontario, appropriately called “Big George.” When the air is still and moist, you can hear him from the other side of town.
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As I write this, it is summer. No matter how busy life gets, the warmer, longer days present us with an opportunity (if ever so brief) to consider the months ahead and embark on some creative thinking before the busy fall schedule is upon us. This fall will include my final months as President and so it encourages a contemplative review of what has been accomplished and what remains to be accomplished.

One of the ideas that I want to bring forward to Council is a proposal to shift the OAA’s focus to client service. Member feedback I have received during the past couple of years, and continue to receive, combined with the research from the OAA Communications Framework, reinforces my belief that there are aspects of the Association that could benefit from a change in the level of service provided to our members. I will be proposing a plan, at the September Council meeting, to shift the OAA’s focus from a regulatory control over our membership to one that treats our members more as our clients. I will be proposing a plan that specifically addresses this issue with the hope to get it implemented/adopted throughout the Association by the end of this year. This initiative will also tie in to the launch of our new OAA website, which will better serve our clients’ (members’) requirements. The new website promises to be dynamic, interactive and provide an opportunity for members to showcase their work, opinions and ideas. This new website is long overdue.

We have continued to make progress on one of our key initiatives: the Architectural Services Procurement Package. This comprehensive package has been developed to integrate model RFQ and RFP documents, Quality-Based Selection guidelines and templates, standard agreements, and the RAIC’s A Guide to Determining the Appropriate Fees for the Services of an Architect. The package will be introduced at the Association of Municipalities of Ontario (AMO) in August with a view to educating their procurement officers and implementing the package as “best practices” for procuring architectural services. As I mentioned previously, this project is aimed at securing the proper process in the beginning to ensure that “good design is good business.” With a responsible scope of services and the applicable fee schedule agreed to, the end product will be better buildings.

For more updates on the OAA’s progress with this and other initiatives, be sure to make a point to attend one of my Society Visits. I look forward to speaking with architects and intern architects throughout the province. It’s vital to hear your concerns and hopes and I strongly believe that these face-to-face discussions directly impact our direction as a Council. Please be sure to check e-bulletins and the OAA website for upcoming dates of the Society meetings — and mark your calendar!

Societies play an integral role in the Association. I would encourage everyone to get involved at this level; attend a meeting to find out what your Society is currently undertaking and how you too can participate. There is a lot happening within the OAA, the profession and the global business of architecture. It’s more important than ever to be “linked in,” as information changes quickly and local Societies are a direct link to the OAA.

The crisp and rejuvenating autumn season (this is the sensory issue, after all) also brings OAA elections. I cannot stress how important member involvement and representation are to the success of OAA Council. I realize the volunteer time required can be a deterrent, but if you want to effect change you need to get involved. This year there are seven upcoming vacancies on Council for the three-year term 2011 to 2013. I will be encouraging our local societies to propose candidates for the election this fall. Please consider running for Council, or you may wish to do your part by encouraging and/or supporting someone else to volunteer. It’s both a very rewarding and an educational experience, and you are on the leading edge of what is happening in your profession. I highly recommend it.

Sincerely,

Gerrie Doyle, OAA, MRAIC
President
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DAPHNE HARRIS, OAA HONORARY MEMBER

AWARDED AT THE CELEBRATION OF Excellence, 2010, in recognition of a forty-four year commitment to the architectural profession, in particular the development of the business of architecture through sound office administration practices: also known as “saving architects from themselves.”

In 1966 and the next year, Daphne started working in Ron Thom's office as his secretary. In 1973 she began training herself as an architectural bookkeeper-cum-administrator, a hitherto unknown career path. She then took a part-time job as bookkeeper/accountant with the partnership of Diamond and Myers, dividing her time between the Thom office while donating her “spare time” to helping a number of smaller practices to set up and then flourish.

The OAA, recognizing her unique skills, retained her to give a mandatory admissions course entitled “Office Cost Control: Office Records” from 1982 to 1994.

Daphne also recognized that nobody was being trained to have the unique skill set required to administer an architectural office: not the practice of architecture but the business of architecture. In 1996 Daphne was a founding member of the Society of Design Administrators, SDA Canada, to “to promote the exchange of ideas and to educate its members in the related disciplines of design firm administration.”

From 1987 to 2009 Daphne's major client was KPMB, which she had helped to form from Barton Myers Associates, and assisted in its becoming one of Canada's leading architectural firms. Daphne retired from KPMB in 2009 and has since migrated back to her roots in setting up and advising smaller practices. Most recently, Daphne volunteered her time to assist the OAA in recommending changes in the Architect's Act that will make it easier for architects to conduct the business of architecture.

Daphne has given her entire working life to the administration of the business of architecture. It is usual for the art of architecture to be celebrated and the business of architecture to be kept in the background. By bestowing this Honorary Membership upon Daphne, the OAA recognizes her contributions, but also recognizes that without sound administration of the practice of architecture there would be no architecture.

SLEEK HAMILTON

Retired Architect Anthony Butler OAA, FRAIC has been busy over the summer, re-visiting the mid-century Modern heritage of his beloved Hamilton. He and Graham Crawford, owner of Hamilton HIStory + HERitage at 165 James Street North, are preparing a multi-media exhibition called SLEEK: Hamilton's Modernist Residential Architecture (1955-1975) which opens on November 12. For more information, please visit www.historyandheritage.ca.
Architecture is a visual art. There can be no argument about that. Not only do we experience and appreciate buildings using our eyes, we also design them, draw them, photograph them, discuss them, publish them, advertise them, and judge them using our visual sense almost exclusively. Pallasmaa’s concern may not seem urgent, but as our profession becomes increasingly computerized, and as our environment becomes increasingly de-senseitized, there is a real danger that the visual realm will completely dominate our experiences. Because our sense of vision tends to distance us from the things we observe, to objectify and intellectualize our environment, our emotional world would be impoverished. (Franck, pp. 126-7)

We architects are masters of the built environment, with vast resources at our disposal to create experiences that delight the whole range of human senses. Our retreat into the visual realm means that we are surrendering many of our most valuable tools.

Think about entering a large old cathedral. Philosopher Alain de Botton describes his own experience this way: “Drawn by rain and curiosity, I entered a cavernous hall in tarry sunken darkness, against which a thousand votive candles stood out. … There were smells of incense and sounds of murmured prayer.” (de Botton, p. 111) To these sensations might be added: the soft glow of filtered light from clerestory windows, the echo of footsteps on the polished stone floor, the cool rough feel of the limestone columns, the aroma of polished wood. The impact of entering a cathedral can be overpowering, but the visual clues are often general and peripheral — unfocused and indescribable. Other sensations are gathered by our ears, nose and skin, and none of these elements can be represented in a photo, drawing or computer model.

Hearing shares some characteristics with seeing. Sound clues can give information about the location and distance of an object, through reverberation they can help to describe a space and, like vision, hearing can be focused, unfocused or peripheral.

Many of the essays in this feature deal with the subject of acoustics. It is becoming a more and more popular topic due in part to the many important advances in acoustic design with the consequent appearance of many beautiful (~looking and ~sounding) performance spaces and to the continuing presence of music in our lives.

But the link between architecture and music is not new. In Experiencing Architecture, Steen Eiler Rasmussen describes the close connection between the history of architecture and the history of music. This dual history begins with St. Peter’s Basilica (precursor of today’s St. Peter’s), whose large volumes and long reverberation times encouraged the development of the rhythmic chanting of the Latin service and the Gregorian chants, continued through the baroque and rocco periods and finally fizzled out in the Classical and Gothic revivals of the 18th and 19th centuries, where spatial acoustics were overshadowed by visual qualities of...
form, or ignored completely. (Rasmussen, pp. 226-35) Philosopher Suzanne Langer refers to a later, perhaps extreme example, in “[Frank Lloyd] Wright’s declaration that a piano in a room should be ‘built in,’ letting only the ‘necessary’ parts — the keyboard, music rack and pedals — break a nice wall space.” Langer is offended, just as she imagines any music-lover would be. (Langer, Note, p. 100) It’s hard to imagine how religious architecture and music might have developed if the cathedral builders had felt this way about pipe organs.

But acoustic design doesn’t just apply to performance and assembly spaces. Every architectural space benefits from a careful consideration of the way sound should be treated within it (talking and walking, for example) and to the ways that sound might be generated or modified to enhance the experience (doors opening and closing, white noise, water, rustling vegetation, etc.)

TOUCH
Not as hot a topic as sound, but still often discussed in relation to architecture, touch is often handed off to interior designers and landscape architects, whose work is considered more likely to be walked on, sat on, rubbed or perhaps climbed over. This is not to say that material texture is overlooked, but when architectural tactility is discussed, it almost always reverts to the way a texture looks, rather than feels.

At times, the sense of touch has been considered an important part of architectural design and education. Under Walter Gropius, the Staatliches Bauhaus, introduced courses to “liberate the creative capacity of its students. … Emphasis was laid not only on the appearance of surfaces but particularly on the feel of them. The tactile sense was trained in experiments with textures systematically arranged according to degree of coarseness. By running their fingers over the materials again and again, the students were finally able to sense a sort of musical scale of textural values.” (Rasmussen p. 177)

More recently, at the University of Pennsylvania, professor Nadia Alhasani “has students walk up and down different kinds of stairs barefoot, paying attention to the sensations in their feet and their whole body” (Franck, p. 21)

If you spend any time with small children, you will know that the sense of touch is one of the earliest ways that we humans acquaint ourselves with the environment — built and unbuilt. “Don’t touch that!” and “Put that down!” are phrases that are constantly in use by child-minders. It’s not that children are intentionally uncooperative (generally speaking); they are just curious. And their tactile curiosity will form lasting memories so that when they are adults, they will instinctively know what polished wood and rough stone feel like, without having to touch them.

But even for adults, some touching is unavoidable. Floors and stairs must be walked on. Door handles must be pulled, pushed and turned. Handrails must be grasped. And, unavoidably, window ledges will be sat on and walls will be leaned on or brushed against. If touching were not an important part of our experience, the people that make “Do Not Touch” signs would be out of business.

SMELL
If you really want to appreciate how important the sense of smell can be, you owe it to yourself to read, Patrick Süskind’s Perfume: the story of a murder. In this story, an unsympathetic hyperosmic (a person with an acute sense of smell) defines his entire world through his olfactory (smell) experiences. It’s an odd but intriguing story that will force you to confront your own sensations and smell-memories.

Along those lines, I started to think about some of the aromas that represent architecture for me. Are you old enough to remember diazo machines or the ozone odour from an ancient copy machine? How about the smell of a typewriter ribbon? A wooden pencil-pointer? A new roll of tracing paper? Rubber cement? The now-forbidden, volatile Magic Markers? Do any of those remembered aromas take you back to early experiences in an architectural office? Now think about the smell of freshly-excavated earth, wet concrete, fir ply newly cut on a circular saw, or the strong oily aroma of structural steel. These are the intoxicants of our profession. If you close your eyes and imagine these scents, you may find yourself transported to another place and another time.

Such is the power of aroma memory that among the many thousands that are lodged in your memory banks, the mention of any one is capable of stirring up
other memories — visual, aural and tactile — that will coalesce into a fragment of a complete experience. Wouldn’t it be nice if we architects, creative individuals that we are, could make use of the aromatic spectrum in our design work?

TASTE

Taste is the orphan sense. Like sight and hearing, the sense of taste relies on receptors that are specially-adapted from the sense of touch. But unlike our other senses, the unique experiences that our taste buds are capable of discerning amount to only five: sweet, sour, bitter, salty and umami. (For this last taste, a recent addition to the list, see: www.umaminfo.com)

Clearly, our sense of taste, in its literal meaning at least, has very little to do with architectural experience (although many infants and toddlers, whose early experiences with the material world are often oral — “No no, bunnykins, take that out of your mouth” — would disagree). And yet, examples have been put forward of similar behaviour on the part of adults. In a description of Tomasz, the “concrete specialist,” Christopher Bariciak wrote in Perspectives, Fall, 2005:

To inspect the consistency he would dip his hand to the wrist into the [concrete] mixture and keep it in there for minutes. … He would then, quite suddenly, raise his grey-gloved, weighted hand to his nose and sniff its aroma. Apparently this wasn’t enough to appraise the quality of his mix, as his tongue darted out, licked his finger and then promptly spat, clicking his tongue as on a vineyard tour.

— “CONCRETE SOUL” BY CHRISTOPHER BARICIAK.

In The Comfort Zone,”Beyond Appearance: Architecture and the Senses,” host Alan Saunders quotes Juhani Pallasmaa:

“[C]ertain qualities of stone, … certain metals, detailing of wood can be so subtle that you feel it in your mouth, and I’m myself, in my own work, conscious of that possibility. … Maybe 20 years ago in California [I] was just about to enter a grey, rough stone building by the Green Brothers and when I opened the door, I saw the shining white marble threshold and that whiteness of marble juxtaposed with the rough stone almost made me automatically kneel and taste the surface with my tongue.”

This describes an extreme position, both physically and philosophically, but it does give some indication of the possibilities that even the sense of taste can offer to architects.

MORE SENSES

In addition to the five traditional senses, many other “senses” are frequently described. The sense of taste, for example, is more often used to refer to personal preferences — a metaphorical “sense” in which taste has everything to with architecture. “Sense” is most often used to identify a quality that cannot be quantified and may be difficult to describe. A “sense” of decency, balance, humour, fair play, direction, timing and awareness, for example can be distinguished from the “appearance” of the same things. One is just a feeling, while the other is staring you right in the face.

Some writers have suggested other senses that might be better used to describe architectural experience. Melbourne writer and former teacher R. Maxwell, suggests: “pressure, balance, rhythm, movement, life, warmth and self. These are all senses, an awareness of which would help a sightless person to negotiate and appreciate physical space.” (Saunders) Professor Michael Benedikt proposes: hearing, touch, smell, kinesthesia, balance and the feeling of temperature. (Benedikt, p. 83) The feeling of temperature is maybe tied up in the sense of touch, but not considered often enough. Kinesthesia (movement) and balance are really good suggestions. In Sensory Design (Minneapolis U. Press, 2004), Joy Nicole Molnar and Frank Vodvarka recommend: Basic Orienting, Auditory, Haptic (touch), Taste-Smell, Visual. (Benedikt, pp. 87-8) Basic orienting is a good one, along the lines of “sense of direction,” but with a clear application to architectural planning.

CONCLUSION

The odd thing about our senses is that, using them, and only them, we acquaint ourselves with the universe. It is solely with the aid of our five traditional senses that we can know anything at all. And so we naturally assume that everything there is to know can be sensed and recorded. How disappointing it is to discover that, in relative terms, our senses render us virtually deaf, blind and numb. From the spectrum of electro-magnetic waves that pass around us and through us constantly, our eyes can distinguish those that fall between 1/12,000 cm. and 1/24,000 cm. Our heat-sensors operate within a similarly limited range. The entire electro-magnetic range, meanwhile, extends from waves that are...
13

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DOES ARCHITECTURE SMELL?

“The persuasive power of an odour cannot be fended off, it enters into us like breath into our lungs, it fills us up, imbues us totally. There is no remedy for it.”

— PATRICK SÜSSKIND, PERFUME: THE STORY OF A MURDER.

“Perhaps because for most of us events in the daily round are registered by what we see and what we hear, smell is less dominant in our introspective life than either vision or hearing. Nevertheless, a smell can trigger off a memory just as vividly as a snatch of tune or a glimpse of a once familiar scene.”

— C. M. WYBURN ET AL, HUMAN SENSES AND PERCEPTION.

maybe you read about this. A billboard in Mooresville, North Carolina “emits the smell of black pepper and charcoal to promote a new line of beef available at the Bloom grocery chain. . . . A giant fork rises from the ground to the billboard, where it pierces a piece of meat.” (Winston-Salem Journal)

You may have been thinking that billboards already provide enough visual pollution, without having to explore other sensory realms as well. Is smell, perhaps, the final marketing frontier? The sense of smell has certainly been neglected in the past, and not just by marketing managers. We are all guilty, and architects are no exception.

Our sense of smell was once critical to existence. It helped us to find food, to avoid danger and, most important of all, to locate a suitable mate at a suitable time to perpetuate our species. But we domesticated our food, formed protective communities and became monogamous. As a result, the number of smell sensors in the human body decreased. Today, we have a mere 10,000,000 smell receptors, while our family dog has 200,000,000. Despite this limitation, an average human being can detect between 10,000 and 40,000 different smells. A trained nose can discern up to 100,000. Surprisingly, “It is said that a man can easily detect the smell of perspiration on a sheet of paper over which a person wearing shoes has walked at normal speed.” (Wyburn, 132)

Because the sense of smell is chemically connected directly to our brains through our olfactory receptors, where the other four senses must deal with clumsy interfaces (cornea, taste buds, skin and ear drum), we are able to retrieve smell memories amazingly quickly and the effects produced by such recalled memories are sometimes astounding. In terms of architectural memory, think for a moment what your school smelled like. Do Dustbane and chalk dust come (literally) to mind? What did your childhood home smell like? It may be hard to conjure, but if you were to experience that smell again, memories would come flooding back. I recently drove past the house where my grandparents used to live. Not only did the sight recall the smell of the house (mostly stale beer and fireplace ash, I’m sorry to say), but I also recollected the corner drugstore (now a convenience store — vanilla ice cream in the form of Mello-rolls). This got me to thinking about my other grandparents’ house, and there it was: roast beef and cigars, along with moist wool and geraniums.

These descriptions may sound a little underwhelming, but in fact, smells are multi-layered and cannot be described with pin-point accuracy as easily as they can be recognized. One of the most ubiquitous aromas these days would seem to be coffee. And, as an architect, if you want to know why construction of coffee shops

millimicrons in length to those that are kilometres long. In fact:

“If the range of wave-lengths known to the scientists were represented by a line from the top to the bottom of this page, then the part of that range that our sense organs detect — namely light-waves and heat waves — would be represented by a section of that line too small to see except with a magnifying glass.” (Sinclair, p. 649)

With the ability to detect such a small sampling of reality, we really are impoverished creatures. In the sensory realm, dogs, bats, dolphins, even some insects, are far better equipped. And yet, we survive — even enjoy full, rich lives — by making the very best of the sensory organs that we have. Or do we?

If we rely on our eyes alone, as we architects so often tend to do — and, through our work, encourage others to do also — we may be missing a lot. The humble goal of this feature, then, is to encourage you to take a moment; close your eyes, open your ears, take a deep breath and reach out with your hands. Think of something that you can’t see. Now start designing.

“We seem divided between an urge to override our senses and numb ourselves to our settings and a contradictory impulse to acknowledge the extent to which our identities are indelibly connected to, and will shift along with, our locations” (de Botton, p. 12).

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These descriptions may sound a little underwhelming, but in fact, smells are multi-layered and cannot be described with pin-point accuracy as easily as they can be recognized. One of the most ubiquitous aromas these days would seem to be coffee. And, as an architect, if you want to know why construction of coffee shops...
As architects, we probably don’t often think about the way our work will smell. Our environments are mostly sanitized and deodorized; otherwise, someone is bound to complain. The idea that a space could be experienced and navigated by smell alone, the way a bloodhound does, is preposterous. Yet Helen Keller is reported to have described a countryside through which she travelled, using information gained entirely through her sense of smell. In *Perfume*, lead character Grenouille compiles a detailed mental map of Paris, based on its odours: “He had soon so thoroughly smelled out the quarter between Saint-Eustache and the Hôtel de Ville that he could find his way around in it by pitch-dark night.” (Süsskind, 37)

In the work that we architects create, there can be a profound and lasting sense memory that vision alone is unable to establish. A few years ago, I was visiting Pasadena with a group of illustrators and enjoying various tours through local architectural gems, including the Green and Green houses. Surprisingly, the aroma of cedar and redwood within these houses was still discernible after a century of wear. But the most memorable of all was the Batchelder House. In my diary entry for Tuesday October 2, 2003, I have noted:

“The Batchelder House had tiles everywhere. The delightful owner, our host, architectural historian Dr. Robert Winter, was an ideal occupant. The house was gently lived in — not a museum like the Gamble [Residence]. The aroma of cedar that filled the house (after almost 100 years) was intoxicating.”

Reading this account, after seven years, I had completely forgotten about the tiles and most other aspects of the house, but I remember that aroma. It was a sort of a strong charred-wood smell, but more sweet than bitter. When I try to smell out a room’s past, I often focus on those materials that evoke strong memories. I am reminded of a now-demolished house, but I remember that aroma. It was a sort of a strong charred-wood smell, but more sweet than bitter. When I try to smell out a room’s past, I often focus on those materials that evoke strong memories.

Whether the result of complex technology, or happy accident, our sound experiences are sensory experiences. The act of connecting places and sounds often involves memory and narrative. If you think back to a truly memorable space you occupied in the past, you usually remember it as an emotional experience, although you may recall only bits and pieces of it. You may have a similar emotional experience when you remember a sound that has a personal importance to you: a railway whistle, the sound of waves on a shore, or a song that your grandmother used to sing. These melodies represent the soundscape of your world and your understanding of it.
describe it, it starts to fade. To conjure it up again, I have to stop thinking about it. It's not a word-memory or a sight-memory and yet it is as strong, and as ethereal, as the aroma itself.

In his story “Views from the Capitals of the World,” architect/writer Orhan Pamuk describes a curious incident that he experienced while visiting New York City. Having purchased some cinnamon rolls from a local bakeshop, he complained to his friends that the rolls appeared to have lost their flavour. The friends, amused by the apparent naïveté of the Nobel-prize-winning novelist, patiently explained to him “that the heavenly cinnamon smell that made you long for the sweet rolls the moment you walked into the bakery was actually an artificial fragrance they pumped into the store. Conned by that aroma, customers longed to touch these buns, when in fact there wasn’t even an oven in the back.” Pamuk suggests that this might best be called a “lost illusion.”

Whether illusory or real, the surprising ability of smells to fix experiences in our minds is too often overlooked. Olfactory events are left to chance or ignored completely and, unless cooking (or marketing) is involved, the 10,000,000 tiny receptors that live in each of us are left under-stimulated. Architecture can unlock a whole world of aromatic experience: building materials (red cedar, natural stone, wool carpeting, milled steel, preservatives); natural materials (plants and water); and normal human activities (cooking, cleaning, exercising, or simply existing). Perhaps the time has come to acknowledge that odour is not always a bad thing. And when a critic tells you that your building really smells, you should learn to say: “Thank you.”

Gordon S. Grice is Editor of Perspectives.

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While today we might consider ourselves a visual society, many years ago we were an aural society. Before moveable type was invented and literacy was not remotely universal, most people communicated by talking to each other. Stories and myths that were passed on from older generations were eventually written down, but started as the oral telling of a story. The Industrial Revolution changed things drastically. Large, loud steam engines were equipped with ear piercing steam whistles. Loud rotating and pounding mechanized components made conversation on factory floors extremely difficult. Before the creation of large industrial urban areas, most people lived in rural communities, where there were few disturbing noises and sounds had specific meanings.

One important sound was the chime of the clock tower. This punctual loud announcement regulated the community: (Shafer, 56) it was the ringing bells that told the villagers when to congregate, when work was finished for the day, and when there was trouble. Work in the period before the industrial revolution also had its own sounds: “[W]ork was often wedded to song, for the rhythms of labor were synchronized with the human breath cycle.” (Shafer, 63) and people whistled while they worked. Farmers were connected to the rhythms of their animals, each one having its own distinct call. As the machines of a new age got faster and more dangerous, workers could no longer keep up. The sounds of a new industrial era were leaving them behind.

The new mechanized world was faster and louder. The sounds of clock towers and farms were slipping away and being replaced by the noises of automobiles and factories. Sounds were escalating beyond human scale. As a result, we lost our connection to sound. Before the automobile, carriages were pulled by horses, and we could hear the horse clip-clopping along; we could also hear the wheels rotating and bumping along the uneven dirt roads. (Shafer, 62) Passengers were aware of their environment because they could associate the noises they heard with what was happening during their travels. Now we all travel behind internal combustion engines, enclosed by car bodies. The pistons inside the car’s engine move at such a high rate of speed we cannot hear the movements as separate sounds. Instead, we hear a steady rumbling, blocked out by sound insulation, the roar of the air conditioner and the ruckus of the car stereo. We lose the joy of the journey — the connection to the space we are passing through and an understanding of the machine that is carrying us.

It is easy to understand why we perceive sounds from cars, planes and factories as noise: we are no longer connected to the sources of the sound or the space in which it has been created. So we attempt to cover up these sounds. We soundproof our homes and workplaces. We shut our environments out because they are too noisy. Many contemporary residential areas have by-laws that restrict loud sounds at certain times of day to respect people’s sound privacy. When we travel or work, we have started to block out the urban sounds around us with our own personal music. First it was the Walkman and now it is the iPod — personal music devices are everywhere these days. They allow us to enter our own private world and ignore the environments we all share. This iPod isolation isn’t just de-socializing; it can even be dangerous. In the spring of 2008 a student from British Columbia was killed when an out-of-control helicopter crushed him. It was reported that he was wearing headphones at the time and didn’t hear the danger approaching. (Anthony) While the relationship...
between environmental awareness and the loudness of an iPod has yet to be scientifically established, it is obvious that people listening to personal music rather than the auditory world around them are less knowledgeable about the world and the space immediately around them.

Our city of Toronto has had its share of tribulations because of sound. In 1973, Toronto’s first Noise Control Program was initiated. The program’s main objectives were to deal with citizen complaints, set noise guidelines for the city, and generally consider all matters having to do with sound. In the year 2000, the program was disbanded and noise control was assigned to Emergency Services and Public Health. There is currently no supervising body dedicated to the regulation of sound in the city of Toronto. Toronto also has two large sound barriers (pieces of infrastructure that cut through the city): the Gardiner Expressway and the CN railroad corridor. These large adjacent elements make nearby casual conversation nearly impossible and many people cover their ears when they walk by them. Is it because the noise is too loud and too frequent? That probably has something to do with it, but it is also because we have no connection to the environment where the noises are created.

Until the industrial revolution, societies used sounds as markers and tools, (Schafer, 10) which is why they embraced sound. It was not until mechanical sounds got louder that we began to block out or reduce sounds. In order for our society to embrace sound again we, like societies before us, we have to re-learn how to enjoy sound. While it may be unrealistic to try to use sound in the same way our ancestors did, perhaps a more pleasurable way is possible. We should embrace the music of the city as an entire orchestra.

**STIMULATING THE THERMAL SENSE**

BARBARA M. ROSS, B.E.S., M.ARCH., OAA, MRAIC

At high noon on the outskirts of Phoenix, I did feel like my brain was fried – so I’d slip from one shadow to the next, seeking cool protection from the punishing sunshine. I may not be at my rational best when the weather outside is over 38 °C (100 °F). In contrast, I am extremely alert, when skating homeward in the weak light of a February afternoon, and I feel like I can (and must) be as accurate and careful as I can.

Having a thermal sense, we are able to survive. Our experiences of extremes — like an afternoon walk along a desert path or a morning dive into a cold northern lake — become firmly lodged in our memory. Meaning is created there, so that we protect ourselves from harm the next time we encounter similar conditions, or so that we may repeat a pleasureable experience once again. Thermally comfortable places, like Italian piazze and front porch swings, become social gathering spots, for which people develop affection.

Our sense of thermal comfort (or stimulation, or over-stimulation) is also strongly connected to our overall state-of-mind. A place that is the same temperature all day, every day, is as boring as one that is painted entirely beige. It seems that we need to stimulate our thermal sense, in order to function at our peak. After a period of cultural amnesia, architects and engineers are beginning to appreciate — or rediscover — this.

The thermal sense, like the other senses, is connected to memory. The experience of entering a meaningful place — one that is defined architecturally and used ritually, whether humble or grand — often involves a noticeable thermal shift. While the tangible experience is attractive, the effort required in creating a special, thermal place increases the cultural value of that place. This can be seen in many cultures, throughout history. For instance, the warmth of the *thermae* in ancient Rome provided a share in the bounty of the empire; the coolness of the stone temple in southern India created a place not only to worship, but also to rest or to conduct business. Around the world, there are regions where the traditional village was centred on a great shade tree under which town councillors met, children were educated, and deep philosophical questions were debated. Even in North American homes today, thermal places — the swimming pool and the hot tub — serve as functional focal points and as symbols of success. By appealing to the thermal sense, the experience of each place is enriched on more than one level (Heschong).

For critic and educator Luis Fernandez-Galiano, architecture has a material, visible dimension plus an “energetic, invisible one.” From a “thermodynamic” perspective, he urges designers to escape the “tyranny of the visual,” and argues that any arrangement of material elements — that is, any architecture — may be animated by a flow of energy, or degraded if the energy flow stops. He provides a strong argument for the use of the thermal sense in architecture, using examples from the twentieth century to illustrate different approaches (Fernandez-Galiano).

In the arid climates, from where Islam originated, “arriving home” is to pass over a threshold from a hot and hostile world to the shade and to cool running water, which are both protected within a walled garden. The Sufi associate a cool breeze with the breath of God and consider rain to be a symbol of divine mercy. In the north, where it snows and the cold winds blow, “arriving home” is to approach the fire in the hearth, which was, until the twentieth century, the symbolic and practical centre of traditional family life. Vitruvius called fire a civilizing force (Heschong). Gaston Bachelard describes at length the importance of sitting by the fireside to achieving a mental state of reverie. Taking its
— open our ears to it, not plug them up. Admittedly, we do have to keep sounds to a certain decibel level, but are we losing too much of our connection to life and our environment by trying so hard to be nice neighbours, or to exist in our own small worlds? Perhaps we need a little more noise. After all, life is noisy; death is silent. Take a walk down Spadina Avenue and listen to all the different languages or rent a boat and drift along the waterfront and try to listen for the cargo ship with the midnight sugar delivery. The city is alive with sounds, so go out and listen to what it is telling you.

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longstanding cultural associations into account, Alexander et. al. conclude that for comfort, for survival, and for purely cultural reasons, “There is no substitute for fire.” (Alexander)

The thermal sense also has a reciprocal relationship with our state of mind. On one hand, being thermally comfortable makes one better able to go about one’s work. On the other hand, our perception of whether we are thermally comfortable is, in part, a product of our state of mind. If a primary purpose of architecture is to lighten the stress of life (Fitch), we then arrive at the question of whether people require thermal variety. So far, most sources that I’ve consulted suggest the answer is a resounding “yes!”

Objective standards for thermal comfort, like ASHRAE 55, grew up around the notion of a “thermal optimum” — the range in which the fewest people are likely to be uncomfortable. These standards assume that the best temperature is the one you don’t notice (a lovely beige) and that “good enough” is all that a human worker needs. But what about the human soul — is it stirred by the thermal sense? When Glen Gould opined that the human being thinks better at cold temperatures, he wasn’t asking to adjust the engineer’s standard set point. Rather, he was hinting that a sense of the cold “outside” — in contrast to the very warm “inside” that he insisted upon in his practice studio — was an important stimulus for his creative process.

Current research examines how quantifiable stimuli relate to perceptions registered by the thermal sense. The response of a group of people varies with where they are: at home, greater variations in temperature are tolerated than inside public buildings. The response also depends on gender: men are particularly sensitive to relative humidity, while women are more sensitive to temperature (Karjalainen). Perceived comfort is partly a product of cultural expectations and partly one of past climatic experiences. Perceptions may have a lot to do with what one eats for breakfast, but individuals appear to be remarkably consistent in their particular sensitivities (Heschong).

We have a fuller experience of a place, when more senses are involved. We can’t switch the thermal sense to the “off” position, so why not use it, consciously and explicitly, to enhance a design? There can be a life-affirming satisfaction in just using this sense — to explore, to learn, or simply to take pleasure in noticing the here and now. (Heschong).

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Acoustics is a key part of what makes a great building great. Each building has its own unique acoustical personality made up of a combination of such elements as physical volume, sound reflection, absorption, reverberation, background sound from mechanical systems and outdoor traffic, and noise from occupant activity.

If you close your eyes as you stand inside a building, your ears will receive the sounds of the building, but what you hear depends a great deal on how you listen. Good acoustics are not just dependent on physical characteristics. Rather, they depend primarily on the activities for which the space is designed and the expectations of the listener — this makes the challenge of achieving “perfect acoustics” a very difficult one. Perfect acoustics in a concert hall are very different from perfect acoustics in a library. In one, you want to be able to hear a pin drop, but certainly not in the other. Perfect acoustics in a concert hall are also very different from perfect acoustics in a lecture room, and for good reason. Speech is very different from music — and there are as many variations of music spaces as there are types of music. How can we manage these challenges to create spaces with superior acoustics?

Aesthetic opinions and qualitative factors figure strongly into the success of music halls, giving acoustics the reputation of being like the quest for the elusive Holy Grail. This unfairly lends a sense of unreality or chance to a person’s perception of acoustical design. Incomplete paradoxes (if a tree falls in the forest…) just add to the confusion.

In fact, Acoustics is a well-defined science. The field of acoustical engineering has developed reliable quantitative criteria, calculation methodologies, and design rules for most acoustical situations. The field continues to advance rapidly through both physical and psychoacoustic research. All our spaces deserve acoustical consideration or they can become cold, unfriendly, or unwelcoming. You know those places without closing your eyes!

As technologies advance and building performance expectations change, acoustical engineers are constantly faced with new challenges. In many cases, these challenges are the result of advancement in the efficiency and sustainability of new buildings.

Challenges of Acoustics in LEED Design
LEED sets out a design process with goals of energy efficiency and sustainability. This rating system encourages a team approach, awarding points for meeting LEED goals in the finished design. Since most elements of design and construction are open to interpretation, there can be great LEED designs with good acoustics, and great LEED designs with poor acoustics. The difference lies with how acoustics are considered in the design process. Scoring LEED points without considering the acoustical implications can result in some fairly significant acoustical challenges. For example:

Light Penetration
Allowing natural light to penetrate deep within a building suggests the use of light wells, atria, openings in partitions, or large areas of glazing. But in addition to light penetration, openings also allow the propagation of occupant sound from place to place, which can be particularly problematic for mixed client groups or those who need high levels of privacy or confidentiality. The size of glazed areas can also be a problem. Large glazing areas can result in excessive reverberation and occupant noise if not addressed through the creative use of sound absorbing acoustical treatments. The challenge can be compounded if the design includes hard panels or areas of exposed concrete for thermal mass or radiant heating/cooling. Hard surfaces mean sound reflection, not absorption, resulting in more reverberation, poor acoustics, poor privacy, and workplace distraction.

Acoustical Consequences of Energy-Efficient HVAC Systems
Passive heating and cooling or the use of radiant surfaces reduces the need for variable volume, fan-driven systems to control temperature. These systems supply the basic ventilation needs with a more constant volume and with higher energy efficiency, with the result that HVAC systems are significantly quieter than those designed in the past with the level of background noise reduced to below sound masking levels. But energy-efficient HVAC systems can also create poor privacy in the office environment, particularly if ceilings are hard surfaced, office partitions are low and floors are tiled. To minimize this effect, radiant perimeter panels, which are generally installed before the interior partitions,
may be carefully co-ordinated to ensure privacy is maintained.

In residential applications the use of a central heat recovery ventilation or energy recovery ventilation (HRV, ERV) system means that washroom exhausts return to a common heat or enthalpy wheel in the AHU/heat exchange system. This may result in common exhaust ducts, which provide an acoustic conduit between suites and hence compromised privacy requiring cross-talk noise control. Note that there are also versions of the concept where the equipment is dedicated to the suite, so that there are no common ducts.

**Sound Masking Systems**

Consider the similarities of an open office and a library. Are libraries quiet? It’s a question of terminology. When acousticians say that a library is quiet, we are really saying that patrons can enjoy the space free from distraction. A reasonable level of “good sounding” background noise offers freedom from distraction. In a library, you really don’t want to hear every page turn, just as, in an office, you don’t really want to hear what everyone is saying. Another consequence of the growing prevalence of open office environments is that most people must learn to adopt an “office polite” speech level, and understand that speakerphones are not acceptable unless used behind closed doors.

As a result, sound masking systems are becoming an integral part of office design. In fact, recent research conducted by the National Research Council recommends that sound masking systems be considered as one of the essential elements of open plan offices. At this point in the ongoing development of LEED, sound masking systems are not credited with a point score except in health care facilities.

**Regional and Renewable Materials or Materials with Recycled Content**

The trend toward including lightweight building materials in design projects (condominium buildings in particular) can result in less sound reduction and more noise intrusions. This may apply to the building envelope, with large areas of curtain wall, as well as to interior wall partitions and floor/ceiling assemblies. Outdoor noise from trains, aircraft, buses, and other vehicles can cause audible intrusions, while indoor noise from home theatres and audio systems can be particularly problematic. Bass sounds are the hardest to control, as there is no real substitute for mass. The sound transmission class (STC) rating of a masonry and a drywall construct may be the same, but the low frequency sound transmission through drywall is greater, a factor building codes do not address. Similarly, impact isolation (footfall or impact noise) is not directly addressed in building codes or LEED guidelines. It is worth remembering that even in well-built condominium units, which meet all code requirements, good neighbours are quiet neighbours.

Be careful of manufacturers’ claims that seem too good to be true. There is no such product as acoustical paint. Claims of acoustical performance should be supported with test results from an accredited acoustical laboratory like the National Research Council in Ottawa or several in the USA. Sound Transmission Class (STC), Impact Isolation Class (IIC), and Noise Reduction Coefficient (NRC) data are reliable if tested using ANSI Standard test methods. If the product does not come with supporting acoustical data, you should ask for it.

**Over-Reliance on Sound Reinforcement or Audio Visual Systems**

Most auditoria, lecture theatres, or other spaces where speech must be audible at a distance are provided with sound systems for A/V purposes and designed with the potential to provide some voice lift. It is important to be careful that good natural acoustics are not overlooked because of an over-reliance on such electronic supports. The natural acoustics of the space should not be forgotten during the design process because sound systems are designed to complement existing room acoustics rather than fix acoustical problems.

There are at least two possible negative outcomes from an over-reliance on these systems. First, if a room is too reverberant, a sound system will not function well. It will add to the reverberation and effectively make matters worse. Second, if a lecture room or classroom is designed with too much absorption and not enough suitably-placed reflective surfaces or appropriately low levels of background sound, the teacher’s voice won’t be heard. This results in sound system reliance with a number of shortcomings. If the class can’t hear the teacher without a sound system, the teacher can’t hear questions from the class. Many persons are intimidated or technically challenged by using microphones and adjusting their volume, etc. Sound systems are designed for people with normal hearing and do not compensate for hearing loss, which affects perhaps ten per cent of the population. In many jurisdictions, building codes require Hearing Assistive Listening systems for public buildings with large occupancies.

This essay has addressed a few of the factors that affect the acoustical character of a building and the acoustical challenges we face as architects and engineers. The LEED rating system, like several others, provides a framework within which the design process can proceed in a manner that respects Green and Sustainable principles. By including an acoustical engineer on the design team some pitfalls may be avoided along the way, leading to more consistent and satisfactory outcomes, and possibly an innovation credit.

Bill Gastmeier is an acoustical engineer with HGC Engineering. He is a regular advertiser in Perspectives, but this is his Editorial debut.
TACTILE ARCHITECTURE

CHRISTOPHER MOISE OAA

When I close my eyes and imagine my favourite buildings, a host of images comes deftly to mind. But, as I reel these images through my mind, I realize at once that most of these buildings I’ve never met in person; my memories of them are completely two-dimensional — adopted from photographs, drawings and film. It really is no wonder that, in architecture, the visual over-powers the others; it is, after all, a three-dimensional art, not an edible, auditory or aromatic one, but I wonder: are we missing something?

As architects we have been trained to research, envision and execute modifications to our built environment with a keen eye to the visual. We describe and present buildings using drawings and we rely on photos to illustrate and document the final product. Does this focus on the visual end up impairing our ability to consider the other elements of an architectural experience? We rarely have to consider what to do if our audience is unable to see our design or the structures we build.

In an effort to focus on the non-visual aspects of architecture I asked myself: how does a blind person see a building and, in turn, how effective are we, as designers, in enhancing that experience? We’ve all heard that the front door is a building’s handshake, but what about the design of the experience leading up to that door? What about the building in its context, its materials and their relationships to massing and form. How do we describe the textures created by the changing angles of the sun and the controlled lighting of the exterior? And after entering, how can a sense of space be perceived? Are we not less inclined to touch a building’s many rich surfaces because we prefer to experience this richness only with our eyes? For the visually impaired, what are the qualities that give a full architectural experience?

In his short story “Cathedral” Raymond Carver offers a partial answer to some of these questions. During the course of an intriguing tale of paranoid human relationships, the protagonist is faced with the challenge of describing a cathedral to a blind dinner guest. The guest suggests that they “feel” the form of a cathedral by creating a drawing together, hand in hand, on heavy parchment with a dull lead pencil. Despite the host’s lack of drawing skill, the two map out the form of the building with its tall pointed spires, ornate entrance, and flying buttresses. The experience seems to...

AURALSCAPES

THOMAS LEUNG

New York is a city where sounds bombard you — the grind of engines, constantly honking taxi horns, sirens whining every 10 minutes. The visual landscape exists mainly to guide your path. It provides information while you walk, to keep you headed towards your destination. Forty-second Street? Left. Sixteenth Avenue? Turn right. Coffee shop? Next block. Bryant Park? Across the street. Is there free wireless there? Yes.

Now installed with a welcome sense of repose in one of the many slatted chairs dotting the park, my senses have time to reset, but again it’s not the visuals that float to the top. In its continued fall from pre-eminence, my hearing prevails, (with a welcome relief for my feet) as a new set of sounds filters through the noise of the streets.

As the pin drops in the GPS App of my iPhone, I realize the little human icon in the grid of concrete canyons is subjected to a salad of sensory input, where the visual and aural compete for primacy. If not for an over-reliance on the visual, or the cranking of my neck upwards for a brief dose of negative vertigo, the aural would be my primary input right now.

My head is clear and receptive in the vacuum of the park. I’m quickly surrounded by nomadic classes of six-to-seven-year-olds from a charter school. The chorus of yelps is soon replaced by lunch, with the crackle of chip bags and “Carla that’s foolish!” “Luke, you’re talking with you mouth full; chew, and then talk!” — solid grooming for tomorrow’s CEOs. It’s strange that human speech is raised to a new plateau here in the park: on the sidewalk, its strained and stripped-down presence is just a component of the competing street sounds.

Though only 100 feet away, those street noises feel surprisingly far from this equally busy urban park, where a fresh and foreign collection of sounds opens a new kind of space to the mind: the chirps of birds, the rustling of towering maples, the gush of a fountain and the occasional footsteps of the shiny black shoes of banker types. But the aurals soon return.

I close my eyes and imagine a world where sounds are the only information available to me. The restorative effects of the park are disadvantaged without the visuals, disengaged and out of context, but focused in their isolation. It’s easier now to understand the impact of such a place 100 years ago, when horses and carriages provided the loudest competition for the birds. Perhaps we have become better at editing today.

I wonder for a moment what it would be like to make a spatial representation or aural map of the city, with decibel values rising up in three dimensions as bars above a planar ground zero. On such a...
map, the streets would make high walls of sound, creating spikes of high intensity at intersections and perhaps bus stops. The centres of blocks would be low, quiet valleys, sanctuaries save for the anomalies of loud neighbours. A great mountain of sound would rise up from the freeway and slope gently down to the foothills of urban life, a kilometre on both sides of its peak. The distant hum is enough to signal the stark contrast between the freeway and the occupants of buildings and streets that line it.

Strangely, a more pronounced wall of sound might come about from the highway as its context changes from urban soundscape to countryside. During the commuting hours, trucks and rural dwellers pump a ribbon of noise above the surrounding flatland of forest and farms. The number of possible aural maps is as great as the number of sounds one encounters. And certain sounds vary according to context. For example, people speak louder on the street than in Central Park, and louder on Madison Avenue than in the middle of the block on 48th Street. The sound of my tapping on a keyboard would be negligible on a busy street, eclipsed by street noise. In the park, the same sound is pleasantly audible. Early on a Saturday morning in bed, the sound is unsettlingly loud. Perhaps my neighbours wonder what I might be doing up at this hour?

A restaurant that I frequent at lunchtimes has a fountain by its entrance and I sometimes think about how the sound of this moving water provides a meditative blanket of background noise for relaxed restaurant clientele. While the fountain outside gurgles in the background, I reflect on the aural map of water fountains. The map of a fountain is flat, about as flat as the sound of a 3000 BTU air conditioner window unit. The two sounds generate a similar profile, but one is a rest for the soul, while the other annoys it. Both basal planes, set against a murmur of other sounds in a room, have very different effects on the digestive system.

A fancy 3D equalizer could probably graph flat auralscapes in such a way that it would be easier to understand why some sounds are more soothing than others. But really, it all boils down to a matter of taste. For some people, a fountain provides a pleasant, refreshing sound. For others, such as those who have to spend their day working next to it, it may provide a faint din of white noise grating on the nerves.

Perhaps good aural architecture is the same as good ‘anything else’. Either you hate it or love it. As always, it’s in the ear of the behearer.

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SUBMITTED AROUND 1740, AT THE end of a long summer day, Thomas Grey sat down in a country churchyard and began to write one of the most cherished poems in the English language. “Grey’s Elegy” is a sensory description that transports the reader back to the sounds, the sights, the smells and the textures of eighteenth-century England.

About 20 years before this, a house was constructed at 18 Folgate Street, in a part of England that was the complete antithesis of Grey’s Buckinghamshire churchyard. Spitalfields was a raucous and unruly part of London, the haunt of beggars and thieves.

Subsequent years did little to improve its reputation and it was inevitable that Jack the Ripper would find it a productive hunting ground.

During the latter part of the twentieth century, Californian expatriate Dennis Severs bought the dilapidated Folgate Street house and painstakingly restored it to well beyond its original condition, to its eighteenth-century lived-in condition, complete in every detail including inhabitants. Dennis, himself, occupied the house during and after the restoration, living as its 18th-century residents would have lived — chamber pots, candles and kitchen fire in the basement. And now, 10 years after Dennis’s death, his surviving friends keep his spirit alive, as well as the spirits of all those who have lived in the house, including the fictitious Gervais (Jervis) family of Huguenot silk-weavers, whose presence can be felt in every room.

For visitors, finding the house is no small task. London has grown up around Folgate Street, adding dual carriageways, zebra crossings, tall buildings and squares to the already confusing maze of lanes and courts. Once you find the street, there is almost nothing to indicate the presence of the Severs House, save for the two gas lamps and a small plaque beside the front door. The door itself is undistinguished, with a small mechanical bell-pull to one side. A single tug and Mick Pedroli squeezes out the door, greets you, gives you a brief introduction and leads you inside, where twenty-first-century London slips quietly away.

“A rare thing to experience first hand; the warm smoky lights, captured by the Old Masters, the creak — within wooden acoustics of footsteps, whispers and opening doors, arresting reflections, mixtures, textures and smells; the ticking and chiming of clocks, a cat with a canary.”

— DENNIS SEVERS, 18 FOLGATE STREET: THE TALE OF A HOUSE IN SPITALFIELDS
The house has four levels plus a cellar. And it is down the creaky cellar stairs with their cold steel handrail that your visit begins. Churchbells can be heard in the distance. In the cellar, you find the kitchen. The uneven floor consists of worn wood boards and rough stone. The ceiling height is barely six feet. Vegetables are being prepared on a rough wooden table. The aroma is a mixture of ancient dust and wood smoke.

Moving up through the levels of the house, you begin to sense that you have interrupted the Jervis family during their daily routine. On the dining room table, there is evidence of an interrupted meal. Upstairs, on the first floor, a dark-walled reception room smells faintly of tea, fruit and spices, while in the back smoking room, the smell of smoke takes over. A canary’s singing can be heard as well as the ticking of a clock and, in the distance, the clapping of horses’ hooves. In a light-filled third-floor bedroom, there is the aroma of rosewater. The top floor is musty, decomposing and unkempt, with one room smelling strongly of pipe tobacco.

The experience is not merely one of seeing. It is one of sensing — employing all of your senses, including that underappreciated sixth sense. As a visitor in the house, you move silently and freely through the house, among the furniture, past the unmade bed and recently-filled chamber pot. There are no wayfinding signs and no chenille ropes to restrict you. You are in a chapter of living history and a subtle work of art. You are a guest in a spirit world.

When Carl Jung speaks of archetypes — memories buried deeply in the collective unconscious that cannot be known directly by the conscious mind, he refers, in part, to things that we remember but have never actually experienced. These are memories of dreams, perhaps, but of dreams that are not ours alone — dreams drawn from a hidden well of cultural experience that is part of our heredity, passed on to us silently and secretly, to be resurrected and periodically refreshed and altered but never suppressed. Sometimes, we may find ourselves in an environment that is familiar and predictable but that we have never before experienced.

The best architectural restorations can sometimes hint at this experience, at least visually: a sense of form and space that is comfortable because it is vaguely familiar. In the very best examples, more frequently found in the “old world,” other senses are engaged — the smell of old wood, the sound of creaking floor boards, the texture of worn stone beneath the feet, the taste of ancient dust — making us feel like visitors to the past. Eighteen Folgate Street is unique in its ability to transport us into a realm that is neither past nor present, but somehow removed from the passage of time completely — literally anachronistic.

Now fades the glimm’ring landscape on the sight,
And all the air a solemn stillness holds,

At the end of my visit to the Dennis Severs House, I took the train back to my daughter’s house in Surrey, not all that far from Thomas Grey’s churchyard. Woking isn’t exactly the country hamlet that it must have been in the eighteenth century, but it is quiet enough. It was about nine in the evening, on the longest day of the year. There was no churchbell to toll the knell of parting day, nor lowing cattle winding slowly o’er the lea, but the soft dusk light lasted through the 20 minutes it took to get to the house. The slowly fading evening light darkened the outline of ancient oaks and elms. The smells were of summer lawns, fresh earth, the aroma of un-nameable flowers, and the sweet fragrance of honeysuckle. In the stillness of the evening air, it was possible to imagine, and even sense, that Thomas Grey, Dennis Severs and all the generations in between are with us still.

For information, or to make a booking to visit the Dennis Severs House, email info@dennissevershouse.co.uk or visit the website http://www.dennissevershouse.co.uk.
The Complexity of Architecture

STIG HARVOR, MRAIC

THE ROMAN ARCHITECT AND TEACHER Vitrivius summed it all up as early as 25 BC when he said that good architecture has three conditions: Firmitas, utilitas, venustas. The later British author and diplomat, Sir Henry Wotton, (1568-1639) brought them forward as FIRMNESS, COMMODITY, DELIGHT. These conditions cover a multitude of complex factors. Under the first condition of FIRMNESS fall a vast number of complex technical issues. The first complexity is Nature and its laws. Buildings have to withstand the entire gamut of the forces of nature. Their structure has to resist gravity, earthquakes and wind. Their exterior skin has to be rain- and airtight. The skin, like our human skin, has to mediate between two often very different climatic conditions, the exterior and the interior. Different temperatures and humidities must be accommodated. While the exterior conditions can vary widely, the interior condition must remain stable. Many exterior materials expand and contract when hot or cold. Their movement and joints must resist large swings in temperature, sometimes over short periods as in northern climates. They must also resist the destructive effects of sun, wind, rain, snow and hail.

Another technical complexity of buildings is that they never sit on identical sites. They must be adapted to the particular conditions and environment of each location. This includes the soil of the site. Soils can vary greatly. Ships, whether large or small, always float on uniform water. Buildings are also built outside in all sorts of unpredictable weather. This creates special problems, like scheduling and coordination of work. Industrial products like cars or airplanes have the advantage of being manufactured under controlled, interior conditions. Production starts only after models have been thoroughly tested. Despite this, they occasionally have to be recalled for corrections. Small wonder, then, that buildings upon completion require corrections of deficiencies of construction and, sometimes, of design.

Yet another technical complexity of buildings is today’s growing concern with the sustainability of buildings over their lifetime. A new awareness is developing of the limits of available natural resources on our small and wonderful planet, particularly the nature of energy. This has introduced another complicating factor in the basic design of our built environment. The effect of human activity on our environment is also of concern. Much new thought and sensible innovation, accommodation and adaptability need increasingly to be brought forward to meet this challenge in our buildings.

The second condition of COMMODITY introduces the complexity of satisfying a variety of human needs. The most basic need is to fulfill the function of the activities within the building. These activities have to be analyzed and discussed with users in detail and arranged in functional relationships within usually strict financial constraints.

But not all needs are physical. Humans also strive for a sense of enjoyment of their environment. This brings forth the third condition of DELIGHT. It is a many-faceted and tricky one. The form and appearance of a building depends on many considerations. It depends on the nature and availability of materials for construction. It depends on the technical resources and sophistication of the construction industry, including skilled labour. We can only marvel at the incredible achievements of early builders. In Western history this goes back to the Egyptians, the Greeks, and the Romans and forward to the Middle Ages and the Renaissance.

The DELIGHT factor is subject to human sensibilities and judgment. It varies greatly over time and in different cultures. With today’s quickly-changing technologies and materials, architectural style can change almost as rapidly as fashion in clothing. Some people claim beauty is in the eye of the beholder. Yet there appears to be some enduring aspects to design such as spatial relationships, overall balance, proportion, cohesion, colour, texture, the play of light and shade. Gifted architects of all times and periods are able to impart the factor of delight in their buildings. While buildings are experienced visually through our eyes, the stimulation can stir our spiritual senses by evoking profound emotional feelings like reverence and awe, often in religious buildings.

Architects are renaissance persons. They are experts in none of the many intricate and detailed aspects of creating the built environment for humankind. Their expertise is in choosing, coordinating, and integrating the means to create a physical environment which satisfies the complex needs of the material and spiritual life of human beings. It is a role not much recognized in a highly materialistic world full of experts who know more and more about less and less until they know everything about nothing. The architect’s role is much needed in today’s world.

Stig Harvor is a retired architect and active writer living in Toronto. He is a Regular Contributor to Perspectives.
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EXTERIOR STONE DESIGN
Stone Selex Inc. ............... Outside Back Cover

FLOORING
Tandus Canada ...................... 6

GENERAL CONTRACTORS
Design Build ....................... 29

GLASS BLOCK & GLASS FLOOR SYSTEMS
Thames Valley Brick & Tile .......... 29

HVAC
Tek-Mor Incorporated ............... 4

INTERIOR MIRROR & GLASS
Mirror Interiors Inc. ............... 27

LIFTS
Savaria Concord Lifts Inc. ........... 29

MOULDINGS & MILLWORK PRODUCTS
Alexandria Moulding ............... 27
Moulding and Millwork -
Toronto Door Division ............. 26

NATURAL STONE PRODUCTS
Beaver Valley Stone Ltd. .......... 22

NEW CONSTRUCTION FINANCIAL INCENTIVES
Enbridge Gas Distribution Inc. ....... 3

NOISE & VIBRATION CONTROL
Valcoustics Canada Ltd. ............ 28

NOISE ABATEMENT & SOFT WALL CURTAINS
Shaver Industries ................... 22

SOFTWARE - BUILDING INFORMATION MODEL
CAD Microsolutions ............... Inside Front Cover
GSCNE Inc. ......................... 22

SOLAR AIR HEATING SYSTEM
Matrix Energy Inc. ............... 8

STONE MASONRY VENEERS
StoneRox/Bradstone ............... 6

WHEELCHAIR LIFTS
Delta Elevator
Company Ltd. ............... Inside Front Cover

WINDOWS & DOORS
Strassburger Windows and Doors .......... 22

WOOD PRODUCTS
A&M Wood Specialty ............... 28

INDEX OF ADVERTISERS

ACOUSTICAL DISTRIBUTORS
OAS ................................... 22

ACOUSTICAL ENGINEERS
HGC Engineering Ltd. ............... 28
G & E Engineering Ltd. ............... 4
MGM Consulting .................... 28

DECORATIVE CONCRETE
Euclid Canada ..................... 8

CONSULTING ENGINEERS
Halsall Consulting Engineers ........ 28
A&M Wood Specialty ............... 28

ARCHITECTURAL ACOUSTICS
Valcoustics Canada Ltd. .......... 28

ARCHITECTURAL BUSINESS SERVICES
AMX Group ...................... 28

ARCHITECTURAL WOODWORK
MCM 2001 Inc. ............... 27

AS-BUILT FLOOR PLAN SPECIALISTS
BAM Canada ...................... 29

BRICK MANUFACTURERS/SUPPLIERS
Thames Valley Brick & Tile .......... 29

BUILDING CODE CONSULTANTS
LMDG Building Code Consultants Ltd. .... 28

CARPET
Tandus Canada ...................... 6

CLAY PAVING BRICKS
Thames Valley Brick & Tile .......... 29

CONSTRUCTION LAW SERVICES
Aird & Berlis, LLP .................... 28

CONSTRUCTION MATERIAL
Holcim Foundation for Sustainable
Construction .................. Inside Back Cover

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PERSPECTIVES | FALL 2010
Guelph is a hill town and, with that, comes the sensation of vertical movement, along with changes of light intensity and breeze. I live on an east-facing hill, just west of downtown. Beyond, the Eramosa valley stretches into the surrounding fields. When summer storms approach, the breeze brings the field scents of timothy and clover that blend with the town aromas of roasting coffee and fresh bread. At the end of a very hot spell, the hills focus the sound of thunder.

Today, the air is still and moist and carries the sound of distant bells. The voice from St. George's bell tower has begun to speak — the 36-bell, three-octave carillon, crowned by a solitary swinging bell of nearly 4,000 pounds, known locally as “Big George.” Magnificent peals of praise ring out as the music overcomes the fog and speaks of hope for what we cannot imagine.

The carillon, which was reopened in 2006 after work completed by Meeks, Watson and Company of Georgetown, Ohio, is accompanied by a Gillett and Johnson tower clock. The quarter-chime train strikes the Westminster chimes on four of the bells of the carillon and the hour train strikes the hours on the carillon bourdon, “Big George.” It is thought that the Westminster chime tune was arranged by a Dr. Crotch after the Aria I know that my Redeemer liveth from Messiah by G. F. Handel.

St. George’s Anglican Church, Guelph was completed in 1873 from a design by Architect Henry Langley. It is a Gothic Revival Church, finely detailed in local limestone. A divided choir is located in a deep chancel with the altar in a sanctuary. The services are rich in both music and word. Congregants love and expect the music shared there. The four-manual Casavant pipe organ is magnificent. The chancel and nave have fine acoustics and form a rich sound. As a result, the space is in demand by the community for music events and, periodically, it serves as a venue for lectures, most recently by Phil Fontaine, Former National Chief, Assembly of First Nations.

It was during a period of rapid growth when this ambitious structure was built. Guelph was not yet a city, with fewer than 10,000 inhabitants. Then, as now, Guelph’s local architects were seldom given the chance to design major buildings. Henry Langley, Architect, of Toronto produced a version of the Gothic, which dominated Guelph. The design for St. George’s church was the formal revival of a medieval model that had its roots in English religious architecture of the 1840s. One of the guiding principles of the style was that the church’s outside shape should clearly and honestly reflect its interior organization and distinction of spaces, with different levels of roofline. A stone bell tower completed with a spire of great verve and ebullience completes the composition. The main church roof is slate maintained in its original design. A depiction in Picturesque Canada emphasizes this spire among the other Goths that dominated the skyline of Guelph, in the early 1880s.

Bill Birdsell is principal of his architectural firm in Guelph and Council Liaison to the Perspectives Editorial Committee.
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