Inside-Out:
A design investigation of the exchange between
the built elements and the natural elements.

by
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Abstract

A tent exposes the very direct relationship between man, shelter, and the natural elements (air, sun, water and earth) - a relationship that excites our minds and generates the memories by which we measure real time. How can a building realize this relationship?

This thesis explores the exchange between the inside and the outside by considering the enclosure as an assemblage of systems - wall, structure, insulation - which perform different tasks. By deploying these systems "independently," transparent zones and spaces are generated between the inside and outside. This approach relies on the premise that space is generated through the definition of its limits, and exchange is achieved through the celebration of limits.

These ideas are explored in the design of two projects: a family house situated in the countryside and a mixed-use infill building located in an urban setting.

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By Olivier Delacour

Submitted to the department of Architecture on May 10, 1991 in partial fulfillment of the requirements of the degree Master of Architecture.

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Introduction

In a tent I can hear the rain pelt against its surfaces and the wind whip around its edges.

A tent exposes the very direct relationship between man, shelter, and the natural elements (air, earth, light and water) -- a relationship that excites our minds and generates the memories by which we measure real time. The notion of memory and time surfaces often in *The Magic Mountain* by Thomas Mann:

We are aware that the intercalation of periods of change and novelty is the only means by which we can refresh our sense of time, strengthen, retard, and rejuvenate it, and therewith renew our perception of life itself. Such is the purpose of our changes of air and scene...; it is the secret of the healing power of change and incident."
In architecture, change and incident can be very subtle: a sun ray that pierces a window and falls on a table not only makes us aware of the table and the play of light and shadow, but also of the space that defines the moment.

But, as houses become increasingly temperature-controlled and air-tight, outside forces are muted -- or worse, simply substituted by the even hum of the air conditioner. In other words, our quest for comfort has resulted in a sensorially poor environment, where the conception of space is reduced to a question of geometry as opposed to a space delimited by our senses.

**Intention**

What if we review the sheltering function of our house and ask ourselves - what is it our house should shelter us from? And how could a house intensify particular moments rather than generate a year-round average?

The investigation of these issues led me to (re)consider the enclosure as an assemblage of systems performing different tasks. What are these systems, and how can they be deployed to generate differentiated and
sensory-rich spaces? These are the questions that will be discussed in the pages to follow.

**Approach**

Two projects are designed to explore these issues: one project is located on an urban site, the other is set in the countryside.

The reason for choosing two "opposing" sites is that their similarities and dissimilarities help illuminate the issues under investigation. The contrasting constraints dictate different design solutions.

Since the projects *are* the vehicle of investigation, the first chapter introduces the two sites and the designs that have been generated. The subsequent chapters then elaborate the theory supporting these designs. Finally, the conclusion follows with a discussion of the results.
Two Projects

This chapter will briefly introduce the respective sites and projects without attempting to explain the resulting solutions, since those questions will be dealt with in the subsequent chapters.

Although both projects have been developed in parallel throughout this investigation, the countryside project is more documented and is therefore more developed than the city project. I will, thus, refer more often to the countryside project.
City project
The site is located on St. Botolph street in Back Bay, Boston. It is an empty lot that has been left by the developers to avoid the problem of the corner (figure 2.1). The importance of this site is not its particular location and context, but the constraints in the form of established edges such as party walls, the sidewalk and the street and the way these constraints impose themselves on the deployment of the building systems (introduced in chapter 4).
2.2. Site plan.
The empty lot is 40 feet wide, that is, wider than the normal lot width (24 feet).

The program consists of a small shop and an office on the first floor, as well as two apartments on the second and third floors, respectively.

The front entrance to the apartments leads to a small glass-covered inner courtyard, which becomes the intermediate space between the inside and the outside. From here, stairs lead up to the apartments and to the two private roof terraces. The courtyard, together with the angled screen/wall is designed as an attempt to generate exchange from within. As a calm inner space, separated from the street but open to the light from the sky and sun, it provides suitable space for plants, small trees; rain water collected from the roof can generate sound. The angled screen/wall is the element around which all the spaces revolve, thus it becomes the orienting element.

2.3a. Roof plan with terrace.
2.3b. Apartment plan.

2.3c. First floor: office and small shop.
Countryside project
The site is situated in Concord (MA) near Walden Pond, on top of a hill that gently dominates the surrounding forest. A rather steep - tree and bush - covered rock formation forms the edge of the hill (figure 2.4). I chose to build on this edge. Figure 2.5 is a diagram of the site representing the meadow on top of the hill, the edge and the forest below (we will later come back to the choice of location).

2.4. View from halfway down the steep edge on the countryside site.

2.5. Diagram of the site showing landscape elements.
2.6a. Top view of site model (trees are not shown).

2.6b. Sketch model of the project.
The program is a large family house of 3000 to 4000 square feet, similar to the size of the house that is being completed on the hill. Although the intention was to build a smaller house, the thesis subject, as it developed, called for a larger program enabling more opportunities to experiment.

A path leads down to an existing masonry bench, and this generates the approach (see plan and site model). From the bench, the path continues along the wall (figure 2.7), past the house and ends at the entrance. On the upper terraces, controlling the approach and dominating the house, is the kitchen. As we walk through the house, we pass the dining room, living room and study to finally arrive at the bedrooms (figure 2.8). Thus the most private spaces are situated lower on the site imbedded in the trees. The lower retaining wall is used to emphasize this privacy between the bedrooms and the rest of the house since there is no need for privacy towards the outside.
2.9. View of the whole project.
2.10a. Sections.
2.11. Roofs opens up to the light.
2.11. Retaining wall becomes an enclosing wall.
2.12. The bedrooms are on a deck above ground in the tree branches (just like a tree house...).
2.13. Zones and spaces generated by the "cohabitation" of the walls, structure and screens.
2.14. The posts can become frames/screens (to the right).
Exchange Through Discontinuity

"Light gives everything vibrations but if there is nothing, there are no vibrations... ."

Carlo Scarpa

In order to render the discussion of "exchange" tangible, a vocabulary needs to be developed and clarified, which may, in turn, suggest a method of approach.

The enclosure forms the limit or zone where environmental elements (air, sun, water, earth) meet human requirements. It is in this zone that decisions are made to either receive or reject these elements. The limit or zone is characterized by a single discontinuity or by a series of discontinuities. Discontinuities may be either primarily physical, such as the level change between sidewalk and street, or merely sensory-perceptible, such as temperature and light-intensity change between sun and shadow.
Where there is a discontinuity there is a transition. A transition is built by an element that contributes a modification - either perceptive or physical. Transition, in turn, generates spacial definition.

The process of perception requires three elements: a source (e.g., the sun), a modifier (e.g., screen) and a receiver (e.g., eye). The modifier is the element that defines the transition through the stimulation of our senses. Perception and physical movement or the anticipated movement only make spacial sense when superimposed and compared with past experience. (This notion resurfaces in the definition of existential space below.) For example, a level change only makes spacial sense through the experience of moving over it. Or, to take another example, the echo from a person’s steps in a cathedral is understood only because it has happened before. Connections are made as experiences are repeated.

As summed up in table 3.1, an exchange is achieved through the celebration of the limit between the inside and the outside, that is, only by establishing discontinuity can continuity be generated.
Table 3.1 PROCESS OF SENSING

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>MODIFIER</th>
<th>RECEIVER (senses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light; sun</td>
<td>Reflector; mirror</td>
<td></td>
</tr>
<tr>
<td>Artificial light</td>
<td>steel</td>
<td></td>
</tr>
<tr>
<td>Sound; wind</td>
<td>Transmitter; glass</td>
<td></td>
</tr>
<tr>
<td>Thunder</td>
<td>Translucent</td>
<td></td>
</tr>
<tr>
<td>Rain</td>
<td>Color</td>
<td></td>
</tr>
<tr>
<td>Nature</td>
<td>Screen</td>
<td></td>
</tr>
<tr>
<td>Temp.; sun</td>
<td>Transformer; color</td>
<td></td>
</tr>
<tr>
<td>Wind</td>
<td>Screen</td>
<td></td>
</tr>
<tr>
<td>Ground</td>
<td>Lambertain surf.</td>
<td></td>
</tr>
<tr>
<td>Sky</td>
<td>Translucent</td>
<td></td>
</tr>
<tr>
<td>Scent; rain +</td>
<td>Absorber; color</td>
<td></td>
</tr>
<tr>
<td>Earth/plants/trees</td>
<td>(light) mass</td>
<td></td>
</tr>
<tr>
<td>Forest</td>
<td>Glass</td>
<td></td>
</tr>
<tr>
<td>Street</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CELEBRATES THE DISCONTINUITY

EMPHASIZES CONTINUITY

DEFINES/DELIMITS SPACE.

RELATES SPACE TO PLACE/WEATHER/SEASON.

DEFINES/CLARIFIES/INITIATES PRIVACIES/USES/ACTIVITIES.

3.5. Private and public outdoor spaces covered by corrugated steel. Roof drain empties into an open well. (If it rains a lot you better do the most of it...)
Project in Sweden by Ralph Erskine.
Before the exchange, or limit, can be elaborated, "inside" and "outside" must be more formally defined. Here we touch upon a debated subject, namely, the conception of space.

The concept of space has preoccupied thinkers throughout the history of our civilization. Greek philosophers discussed whether space is real or non-existent. Plato introduced geometry to describe space scientifically. Aristotle considered space to be the sum of all places.\(^3\)

Today we can distinguish between five space concepts: \textit{pragmatic space} integrates man with the physical elements, \textit{perceptual space} considers the person, his orientation and identity, \textit{existential space} brings in the social and cultural context, \textit{cognitive space} recognizes our ability to think about space and \textit{logical space} is defined by pure mathematical relations.\(^4\)

3.6a. The top window gives a view of the sky, the glass blocks generate a sparkling light, and the bottom window provide a view out when seated.
Project by Herman Hertzberger.
3.7. Structure, windows and furniture generate screens. Charles Rennie Mackintosh, Glasgow School of Art. Library.
Architects and architectural theorists have expressed space in somewhat different terms although parallels can be drawn. Sigfried Giedion, for example, identifies three historical space conceptions. "The first architectural space conception was concerned with the emanating power of volumes, their relations with one another, and their interaction. This binds the Egyptian and Greek developments together. Both proceed outward from the volume... ." The milestone that signalled the emergence of a second space conception was, according to Giedion, Hadrian's Pantheon at the beginning of the second century: "From that time on, the concept of architectural space was almost indistinguishable from the concept of hollowed-out interior space." The third space conception combines the first and second stages. While Giedion remains vague as to what this means, Norberg-Schulz speculates that "the third space conception, which is still in its infancy, is chiefly concerned with the problem of the interaction between inner and outer space."

The interest in the interaction between inner and outer space brought an existential element into the discussion. In fact, during this last century, architects and scholars have been primarily preoccupied with existential space. But, what is existential space? Norberg-Schulz defines it as a "relatively stable system of perceptual schemata, or 'image' of the

environment. In other words, we define and understand our environment through past experience and cultural inheritance, which evolve only gradually. For example, a century ago a sheltering space was expected to be built of thick walls. Today, due to enabling technologies, a space enclosed predominantly by glass has become a perfectly "acceptable" shelter.

Perceptual space and existential space are elements of an intellectual terminology that do not make architectural sense on their own. While the perceptual element provides immediate sensations, the existential element provides the tool (such as memories) by which sensations can be interpreted.

Having established a general vocabulary to help define the interaction between "inside" and "outside," we now need to translate some of these notions to architectural systems.
The modifier

The modifier can generate five basic effects: reflection, transmission, transformation, diffusion, and absorption. Table 3.2 lists modifiers and some of their potential features (this list is representative only and is by no means exhaustive).

<table>
<thead>
<tr>
<th>TYPE</th>
<th>MATERIALS/FEATURES</th>
<th>IMPLICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>REFLECTOR</strong></td>
<td></td>
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</tr>
<tr>
<td>Reflects light</td>
<td>Mirror (steel/glass): Total reflection. Reflection can be modified by sanding.</td>
<td>Changes spatial impression; reflects elements - illusion; reflects trees, sky, earth.</td>
</tr>
<tr>
<td>Reflects sound</td>
<td>Glass; Reflects + refracts Water (pool/lake/sea); Reflection changes with the state of the surface (due to rain, wind, leaves).</td>
<td></td>
</tr>
<tr>
<td>Transmits light</td>
<td>Glass; Near total transmission of light. Can be colored.</td>
<td></td>
</tr>
<tr>
<td>Transmits sound</td>
<td>Screens (steel, wood, masonry, trees, curtains, water screen, water + wire mesh); Gives light a pattern (morphology).</td>
<td></td>
</tr>
<tr>
<td><strong>TRANSmitter</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transmits light</td>
<td>Glass; Color; Our eyes are most sensitive to the greens and yellows. Relative brightness of orange-red and blue changes with illumination.</td>
<td>Provides clear view; extends space =&gt; less intimate.</td>
</tr>
<tr>
<td>Transmits sound</td>
<td>Screens; (see above) Glass; (see above) Texture; Generates shadow-light alterations. Variations over time.</td>
<td>Combined with mullions =&gt; framed view; horizontal frame =&gt; panorama, vertical frame =&gt; perspective.</td>
</tr>
<tr>
<td><strong>Transformer</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transforms light</td>
<td>Steel, Glass, Plastics...; Transforms rain to sound. Variations over time.</td>
<td></td>
</tr>
<tr>
<td>Transforms sound</td>
<td>Wood, clay, concrete, earth... + rain/sun; Generates scent.</td>
<td></td>
</tr>
<tr>
<td>Transforms scent</td>
<td>Any material with a lambertian surface; Generates a softer light/color. Distributes the light.</td>
<td></td>
</tr>
<tr>
<td><strong>DIFFUSER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diffuses light</td>
<td>Color; Absorption by wave length. Light transforms to heat.</td>
<td></td>
</tr>
<tr>
<td><strong>ABSORBER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absorbs light</td>
<td>Glass; Absorption of the infrared. Heavy materials (masonry, concrete...); Absorbs light and releases heat. Lower transmission of sound.</td>
<td></td>
</tr>
<tr>
<td>Absorbs sound</td>
<td>Membrane, cavity, porous materials; Lower reflection of sound.</td>
<td></td>
</tr>
</tbody>
</table>
3.11. The water extend the trees giving them an immaterial monumental presence.
Water, for example, can act as a mirror, its reflection changing depending on the state of its surface. When water moves, it also diffuses sound. In winter, water freezes, thereby transforming itself. Thus, water can be considered as a complex modifier that conveys a sense of time by revealing changes in weather and season.

Apart from manipulating our perception of the environment, the modifier can also manipulate the time span of a sensation. For example, after rain subsides, humid earth fills the air with its rich smell, and running water can still be heard in the rain gutter. But the moment passes quickly. These sensations can be intensified and prolonged through the use of pools that collect rain water instead of letting it immediately and invisibly disappear into the earth (see figure 3.12 and 3.13). Olfactory sensations can be intensified by planting trees and bushes that transmit a particularly strong scent when humid.

In a similar way, color stimulation may be intensified by applying them in complementary pairs. Eyes are more sensitive to the red end of the color spectrum in bright light, but the opposite is true when viewed in dim light. This means that the relative brightness of, say, orange and
blue changes under different light conditions: when juxtaposed, the "weakness" of one color under a particular light condition will strengthen the other, and vice versa.

**The enclosure**

The material and technical limits of the past often led to rather "closed" spaces, that is, spaces were defined by a strong discontinuity between the inside and the outside. But the same limits led to a strong continuity of the interior spaces through material consistency and structural readability. For example, by building exclusively with bricks, structural functions could only be generated by introducing a modification in the deployment of the building system: a brick arch is built *visibly* differently than a brick wall. A strong discontinuity between inside and outside also exaggerate the transition - contact with the outside became a celebrated event, marked by intense stimulation of the senses.

By contrast, modern materials and technology can reduce the transition between the inside and the outside to a thin "membrane" of glass, seemingly conveying total continuity.
In reality, only a visual continuity exists. The modifiers otherwise stimulating our other senses are gone; the confusion becomes total when marking the "entrance." How does one enter a glass box since there is nothing to enter?

It is in the elaboration of the enclosure (which includes the wall, roof, and structure) that discontinuity can be emphasized, thereby eliminating the confusion. We can consider the enclosure an assemblage of systems performing different tasks and therefore subject to distinctive rules. Distinctive rules provide clarity and, hence, continuity. Existential continuity through discontinuity - revelations only come about through contrasts.
3.15a. Frame and landscape.

3.15b. Frame and landscape.
Generating Discontinuity

In the previous chapter we investigated how exchanges can be achieved through the deployment of modifiers. The next step is to concretize this notion by identifying appropriate building systems - a framework is needed to facilitate the deployment of modifiers.

More specifically, the goal is to develop independent systems that follow their own rules. In modular prefabricated building systems, the entire construction, with all its size ranges, is often subject to a condition governing the particular system. But as Behnish points out "... systems can also be separated from one another and subjected primarily to their own conditions. In this way they can find their own form: load bearing, space-creating, functional, decorative, furnishing and other systems. Thus, a new entity can come about, the result of overlapping structures. They complement one another without coercion - complex, lively, transparent." 9

4.1. Complexity through overlapping.
Since intensity and complexity are achieved through the overlaying of systems, each system must be simple and consistent; otherwise we risk constructing an incomprehensible maize. (figure 4.1).

**Building systems**

A typical modern "two by four" framed wall system, as seen in figure 4.2, acts as insulation, structural support and generator of privacy, all collapsed within the thickness of the stud. If these systems instead are deployed as independent elements they can be overlaid without necessarily coinciding, thus generating a wide range of differentiated limits (figure 4.3). Figure 4.4 and 4.5 show the potential spaces generated when using directional systems. Thus, we have identified three systems: wall system, structural system and insulation system.

4.2. Wood framed wall system.

4.3. Diagram of "broken" up wall.
4.4. Zones and spaces generated when structural and insulation system are parallel.

4.5. Zones and spaces generated when structural and insulation system are orthogonal.
The wall system

The particular form and role of the wall system is conditioned by the landscape and context. For example, the countryside site encompasses a rather steep ridge, forming the edge of a large hill. This edge acts as a discontinuity in the landscape between the top of the hill, which opens into a meadow, and the forest below. But the edge is not strong enough to be sensed from the meadow; thus, the meadow has no clearly defined limit to the south. The theme of this thesis being the exchange through emphasis of the discontinuity, I chose to build this edge starting with a series of retaining walls (figure 4.6). The walls also generate a controlled landscape, with a system of places and paths that contrast with the natural landscape (figure 4.7).

These walls are organized in primary, secondary, and tertiary walls (figure 4.8). The primary walls generate the landscape size and define the upper and lower limit of the building; the secondary walls are deployed within the larger walls and generate the building size; and the tertiary walls define the room sizes.
4.7. Paths and places generated by the walls.

4.8. Primary, secondary and tertiary walls.
The situation for the city site is, of course, very different. Here the landscape is built, decisions have already been made that define vehicle and pedestrian movements as well as street-, sidewalk- and building-edges. The street and party walls establish strong directions that are difficult to oppose. But since the site is wider than the surrounding lots (40 feet as opposed to 24 feet), it becomes possible to build an internal wall (figure 4.9) that, similar to the retaining walls on the country site, generates "slack," controls movement, and builds continuity between the inside and the outside. In this case, the wall initiates a primarily vertical continuity.
In opposition to the party walls, this wall is nonstructural; it may be transparent, translucent or opaque. The wall is continuous from the ground floor where it defines the entrance, to the roof where it protects the roof terraces (figure 4.10 and 4.11).
**Structural system**

While the wall system builds the landscape and is therefore conditioned by it, the structural system can be more detached. An abstract geometrical grid composed of 8 x 12 foot bays (figure 4.12) organizes the structural layout. The basic structural elements are defined by the four posts of a bay, but these can be replaced with walls when necessary. Since the exchange between a building and its environment also depends on its capacity to change over time, it is essential that the system follow a logic, enabling change through the addition or substraction of bays. In this case, the additive/subtractive capacity has

4.12. The structural system and some possible permutations.
been achieved by considering the 8 x 12 foot bay as an independent element; a 4 foot slack is generated between each bay. For the city site, the idea of change through the addition or subtraction of bays cannot apply because of constraints imposed by party walls and the street edge. Growth or change can, however, occur in the smaller sizes - following the dimensions of the balcony, porch or deck. Thus, this structural system has not proven as dynamic for the city site as for the country-side site. This shortcoming has to some degree been compensated for by introducing a structural shift, illustrated in figure 4.13, which opens up the back- and street-edge.

4.13. Structural shift to open the back- and street edge (city project).
Insulation system

The insulation system (or enclosure in a narrow sense, compared to enclosure as described in the previous chapter), is built from a framework that supports the insulation, screens, glass and/or windows (figure 4.14). The framework is built in two sizes: 7 feet high (the height of a door) by 10 feet long and 7 feet high by 6 feet long, which permits the frame to be fitted within a structural bay (8 x 12 feet), if necessary. The framework can be built in a workshop, and the slack (the difference between the dimension of the frame and the dimension to be fitted) is built on site. The slack negotiates discrepancy between workshop and construction-site precision.

The three systems are overlaid in such a way so as to generate a wide range of differentiated spaces and zones (in their relation to the environment). Although the three systems can be deployed following their own independent geometry, this would have created a confusing level of complexity. For both projects I chose to let only the wall system generate a different angle, leaving the two remaining systems to react.

4.14. Framework supporting the insulation, screens, glass and/or windows.
Interaction

The role of each system discussed above - wall, structural and insulation - defines the respective range of sizes they generate. For example, the wall systems designed for the countryside project are retaining walls, which build the landscape; that is, they limit and thereby define the largest area. The structural system supports the floors and the roof, which define the intermediate building and room sizes. The insulation system encloses the rooms and thus generates the room and its corresponding "armlength" sizes. These size ranges overlap, hence an interaction occur. The different sizes of each system and the roles they play also suggest the need for different materials and/or textures. The walls, for example, can have a rough texture (stone masonry or concrete), the structure can be made of untreated wood and the framework supporting the insulation system can be made of smooth sanded wood. In other words, the move from large to small systems could correspond to a move from rough to refined materials.

The movement and level changes on the countryside site set a hierarchy of spaces, from public to private, and define their potential interaction with the outside and the inside, which in turn implies use. We then need to be able to alter the systems so as to reinforce the particular
need for privacy. The privacy of the bedrooms, for example, can be achieved by transforming the structure, the retaining walls or the insulation system so that they become opaque or translucent walls. When the retaining walls become privacy-generating walls, they can also take on a structural role; in a similar way, the structure can be a screen or a wall (figure 4.12). An interaction thereby occurs between the systems and, to repeat the quote by Behnisch: "Thus, a new entity can come about, the result of overlapping structures. They complement one another without coercion - complex, lively, transparent."
Conclusion

But what does this have to do with the exchange between the inside and the outside? And what does it have to do with modifiers such as water, glass, and colors, discussed in the preceding pages?

The two primary retaining wall systems create a "formal exchange" by alternating the notion of inside and outside of the wall with the inside and outside of the enclosure (insulation system) (figures 5.1). Furthermore, the overlaid systems, in themselves, generate a formal exchange by having the structural and wall systems extend beyond the enclosing system, thereby generating a material and spacial continuity between the outside and the inside. It also provides for a range of spaces alternately walled in, covered, covered by trellis, open to the sky and so on (figure 5.2).

5.1. The "inside" of the wall define an outside space - the outside of the wall define an indoor space.
At this stage we have generated a large building size framework that needs to be inhabited by panels, glass, screens, trees, furniture, water, that is, by more modifiers.

I have purposefully avoided letting this thesis become an investigation in the various ways modifiers (such as water, glass, screens) can be used to manipulate light or sound. Possible variations, for example, on the theme of water are endless. These investigations easily become a series of demonstrations without providing any particular conclusion. Furthermore, if the building systems themselves don’t generate formal, material or spacial exchanges between the inside and the outside, the attempt to locally manipulate light to engage an exchange, becomes studied and trite. Instead one can provide for the accidents that may generate exchanges beyond any architect’s imagination.
# Illustration Credits

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<thead>
<tr>
<th>Number</th>
<th>Photo Credit</th>
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<tbody>
<tr>
<td>3.4</td>
<td>Project by Ralph Erskine, Arkitektur Jan (1990).</td>
</tr>
<tr>
<td>3.5</td>
<td>Ibid.</td>
</tr>
</tbody>
</table>


Bibliography


THE WINDOW
Long I was a closed window.
I was licked
in the impatient evening
by joyful light
and cooling shadow.
Till they were welcomed
by an open window.
And everyone shouted:
An open window -

Thorsteinn fra Hamri
(Icelandic poet)


8. Ibid, p 17.
