

Thesis

Tézisek angol nyelvű fordítása és rövid összefoglalás

Thesis

The *objective* of the dissertation was to examine the possibility and necessity of how architectural design can meet today's newly arising needs in the field of revolutionizing the culture of working with light. These demands originate from two sources: on the one hand, the exponential rate of development seen in recent decades in materials that can be generated and in technology for managing light (deflector, qualifier, etc.) as *technical-technological knowledge*, and on the other hand contemporary man's changed attitude and relationship with himself, his fellow man, and his environment, *transformation of his definition of himself*. My hypothesis at the starting point was that architectural design can only stay ahead of these needs, and even further them, by simultaneously and by *shared conceptualization* including in the formation of the future building the light effects that no longer shade and light the building externally, but rather as an *immanent* yet intangible incomprehensible component exert their influence back on the architecture and interpret it, rendering the tangible comprehensible but static building and its spaces *dynamic*, full of life, and possible to experience more fully. Another of my preliminary concepts was that another part of the changed behavioral attitude in the practice of designing buildings is that the designed building begins to speak to its future resident (or worker, user) in such a way that the unique considerations of the user in regard to lighting needs are also *composed into* the *flexible* design of the future building, and in this way the lighting design is carried out while *jointly* taking into consideration and carrying on a dialog with the functional and esthetic needs, the natural and manmade environment, the local culture and the technological possibilities.

A part of the research was studying the professional literature from the special point of view described above, during which it came to light what historical and current examples there are of architectural design using this approach, coming from various schools of thought. In the professional literature I could lean primarily on the reports on foreign design practices and on theoretical-underlying conceptions. I extended my orientation to learning about those philosophical-religious-metaphysical views that lay in the background of thinking about space and that showed precisely the inseparable *connection* of space formation with the interpretations of light. This orientation in literature was supplemented by the other source of my dissertation, which is also its motif: my concrete experiences in my own design *practice*, and the preparatory and generalized model experiment material, which I discuss in separate chapters. This also indicates the *method* used here: I used empirical *experiences* as the foundation for my theoretical interpretation of the directions design is pointing towards the future, while *model studies* made possible the experimentation with abstract, "consequence-free" design effects and emergence of natural laws in (architectural) space, as well as tracking the light's path under experimental conditions. The framework and boundaries of execution were exposed, so that the findings could be made concrete using the materials and processes technically available. It became apparent that through the art of conscious light design the architecture of the building also changes, and the spaces of buildings designed in this way become virtually *lighting forms*, and new possibilities for forming spaces are discovered.

Alongside the natural and given light from the Sun, there is significance gained by manufactured, *artificial* lighting and the *malleability*, programmability of the relationship between the exterior and interior light. The reason for the designed nature of the light effects is that not only the designer, but the receiver side is also tending to becoming more and more *sensitive* to exploiting the visual possibilities offered by light.

Conclusions: it became obvious that further development of the *aesthetic culture of handling* light is both the task of the artistic design and the opportunity for personal development in the receiver/user/observer, a process taking place not only in the concrete architectural space, but in the arena of social communication as well. The *aim* of the practice conceived in the joint space and light design approach is to experience a shared space experience and a light experience embedded into it that contributes to facilitating a dynamic *energetic balance* in relation to both the natural and manmade environment and to man's striving for inner harmony. The paper refers at several points to parallel light-handling efforts and trends in associated arts (photography, film, theater, design, etc.) and some sciences (physiology, psychology), which are sources of further inventions in the practice of joint building and light design. Here architecture must scan the yet-unexpressed needs of the future and put these into long-term perspective and shape, strengthening the spontaneous tendencies of artistic sensitivity and ambition.

The *train of thought* of the paper:

In accordance with my starting point and preliminary hypothesis and having thought through the architectural possibilities of the art of light and light design, in my dissertation I first examine the antique and medieval examples of philosophical-religious-metaphysical approaches related to light, revealing to what great extent the method and motifs of thinking about light (behind which hide the fundamental relationships between man and himself, his creative activity, and his environment) influence the architectural (and graphic arts) thinking of a given era. I touch on how Christian thought returns again to those cosmological-theological theories which offer balance between the opposites of light and darkness, this world and the world beyond, matter and spirit, and how they profess the dual, effusive, and recurrent motion of the deity and of light. Then I turn to the changes in this relationship to light in modern architecture, more closely in the second half of the twentieth century; to the possibilities of light composition and positive examples of it; and to targeted expansion of the role of light. I illustrate these thoughts with photos of the light modeling, with explanation, presenting the change of the perspective space into four dimensions with the addition of the movement of light; with the balancing effects of natural and artificial light, following the train of thought to the question of balance. In the next chapter, by examining the content and aesthetic formulas joined together in the module-system, I separate those conditions that are necessary for a new kind of space-light relationship to be born, so that the models constructed in this way should not be exposed to being "covered up" and blown away by the wind because they were incapable of fitting into a unified material, formal, functional and symbolic system of relationships. Presenting some completed sacred and secular architectural examples, I move on to the next group of questions: How does light work as something that virtually becomes (immaterial) construction material, what information does it carry, does the light-perspective projection represent a value, and how do the material structures and surfaces modify the perspective, and so how do the effects of sparkling, reflection, lighted, shadowed, and matte surfaces, transparent, translucent, opalescent and color-changing surfaces, as well as the new kinds of lighting materials join with the other elements in the environment. In my analysis I turn to such examples as the buildings of Corbusier, Chareau and Buvoet's House of Glass, the Budapest building of the Austrian High School or Nouvel's Paris work (the Arab World Institute) and the works of Tadao Ando, as well as the Frankfurt headquarters of the Hombrich Art Foundation. I close the series of examples with a presentation of my own work, a concept lighting solution which took form during the Győr Watermirror Residence dialogs.

The closing chapter turns back again to the role of the environment and of the effect of lighted space on a receiver determined in cultural space on the formation of the building. It goes into the basic concepts, cases and perspectives of natural and artificial lighting, the importance of active and balanced lighting, programmed light settings, and the role of colors, partially revealed recently.

The *results* of the research: based on study of historical-cultural tradition, professional literature and my own practice in design, I found lessons that I believe express what will be the inevitable needs of the architecture of the future.

The aims, tools, and method of approach of architectural design must change in such a direction that knowledgeable, sensitive, and more aware and differentiated use of light in architecture would make possible a more cultured, more creative, and more effective “focus on light”, a *re-identification* and partial *reconsideration* of the role of light. Here we can include, among other things, bringing to the surface the connections perhaps forgotten in everyday life between light, space, and perception, broadening routines of perception, even integrating and bringing about unfamiliar modalities and effects, “renovation” using light, and new *communication* possibilities awakened by the re-thought formation of space. There could be a role in this innovation for distancing from the prevailing practice by means of the new technical tools available, by new positioning of lighting, introduction of unusual functions, use of light and shadow as an independent formative medium, planned surprising effects of light clusters and shadows, etc. When designing a building as a whole, it must be taken into consideration that people living under today’s cultural conditions want more and more to live and reside in an environment that is developed according to their individual ideas and expresses or represents them, the look of which encompasses the defining lines of their world views, as well. For there is no longer a style dominating the age; the entire value and phenomenon world of aesthetics has become *plural*; the sole aesthetic expectation, for lack of artistic vernacular, the arena of interpretation has also opened up and is configured into planes in which every participant in the creative and receiving processes strives to find opportunities for artistic expression or re-creation of his own world. Even in ways of seeing, the circumstances or pictorial world developed or influenced by individuals is becoming more and more acceptable. Lacking a previously given direction, there is expansion of the role of the search itself, *change* and causing change, innovation, and the practice *process* of creators and re-creators/receivers. Integrating the changing functions of light that changes over time into this experience (seeking and avoiding light, light-oriented method of perception) intensifies the open journey and creative shaping momentum even more, the exciting uncertainty of unpredictability and the lifelike, yet always temporary certitude of the evolving *harmony experience* and *balance*.

This recognition should precipitate and must play a role in the *aesthetic education* and persuasion of contemporary and future generations, and also in the cultivation of the knowledge factor in vision: in both educational *institutions* and in contemporary “receivers” contemplating new elements of the architectural environment – living in buildings operating with the new outlook - architecture, which is always building for the future, must be a catalyst for a sort of transformation, also in regard to the relationship with the role of light and with the deliberately organic environment, and first and foremost in cultivating the *creative vision* necessary for light-architecture, in opening a new dimension in sensing with the eye. In our case, the special aim of this is to bring about a “total experience” which creates an *internal balance* when seeing the building (in both those learning about architecture and in the average user) that imperceptibly contains the light effects and is able to actively synthesize the partial elements, and to literally cast new light on one subject and another subject, as well on as the relationship between the subject and the natural-material world.

Summary, my conviction and motivation for the dissertation:

Grasped from the standpoint of light, because of technical development and a change in outlook, today it is possible to conceive of space formation with light that can be *designed* along with the building as an artistic creative element in its own right. The art of light design changes the architecture of the building in such a way that individual space elements become *lighting forms*, revealing new possibilities in structure construction as well as surface configuration. Alongside the natural light source, *artificial* light is gaining a new and more significant function. The *malleability* and even programmability of the relationship of exterior to interior light also influences the architectural appearance. Quantitative and qualitative design of light effects is based on the fact that both designers and receivers are tending to become more *sensitive* to exploiting the possibilities offered by light amid the new “climate” conditions. For this reason, further development of the culture of handling light is simultaneously the task of the artistic design and an opportunity for the receiver in regard to architecture and social communication. The aim is to experience a shared space experience and a light experience embedded into it that contributes to facilitating a dynamic energetic balance in relation to both the environment and to man’s striving for inner harmony. The account builds on those lessons that both new and reconstructed buildings will make heard by their unavoidable demand in the architecture of the future.