

# Pedagogical Paradigms: Aalto's University of Technology at Otaniemi and Mies Van Der Rohe's Illinois Institute of Technology

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Publisher Alvar Aalto Museum  
ISSN-L 2323-6906  
ISSN 2323-6906

[www.alvaraalto.fi](http://www.alvaraalto.fi)  
[www.alvaraaltoresearch.fi](http://www.alvaraaltoresearch.fi)

*“Of course, much of the inspiration was in Aalto’s own design work: every Aalto building was didactic in the sense that he intended those who could read the lesson to see how the problem ought to be solved”*

(Lee Hodgden, Aalto pupil and employee, as quoted in ALVAR AALTO: The Mature Years, Goran Schildt)

For educators in architecture and design, charged with constructing both a faculty and a curriculum, there can be two direct objects of contemplation: the potential of architects as educators and the possibility of architecture itself as educational. In other words, nurture and nature: the architect as didactic role model and the architecture of the school and university as didactic curriculum.

Thus, the architecture of universities and of schools of architecture – and their architects – is fertile ground for cultivation by student, professor and practitioner. If the university campus, at least as understood in American terms, constitutes a bounded, ordered precinct, an academic city-state representing both educational and societal ideals, might it also be in parallel both an inspiration and an instrumental agent in the education of architects?

As a student and professional educator, I have spent the better part of my adult life living and working within a succession of American academic precincts – each of them distinct in architect, design and character, but in sum an entirely coincidental set of the most emblematic campus plans and architectures of the nation. From Thomas Jefferson’s “academical village” of American classicism at the University of Virginia to James Gamble Rogers’ Collegiate Gothic residential colleges and courtyards at Yale College, to Cope and Stewardson’s and Frederick Law Olmsted’s intertwined courtyards and landscapes at Washington University in St. Louis, these intentional, coherent designs for collegiate and professional education all emerged out of the modern era and assumed their near-iconic forms in the first half of the 20<sup>th</sup> century; all have been privileged places in which to reside. Although it would be another lecture entirely, I will propose here that the relationship between the design and character of the built environment and the higher ideals of a society and culture can be nowhere more closely aligned than in these academic precincts. For these three universities in particular, that alignment of architectural design and educational mission is central to their identity.

It has also been my privilege to study and work within a fourth modern campus of significant design, character and ambition, the University of Technology at Otaniemi (once known as TKK, now as Aalto University), a campus designed and initially built out by architect Alvar Aalto in the decades immediately following the Second World War. The TKK campus rightfully takes its place among the defining works of the architect; here I would like to propose further that the TKK campus is one of the emblematic academic designs of modern architecture.

Indeed, although geographically distant from the United States, Aalto’s Otaniemi campus design in Finland can be fairly understood as one of the very few, great “American” post-war campus plans and precincts, sharing this podium with its immediate pre-war and post-war contemporaries: Eliel Saarinen’s Cranbrook Academies in Bloomfield Hills, Michigan; Goucher College in Maryland; Black Mountain Arts College in North Carolina; and Frank Lloyd Wright’s Florida Southern campus in Lakeland, Florida (just entered onto the US National Register of Historic Buildings).

My assignment to the TKK design of an “American” attribute is not colonialism nor sentimental desire. In the TKK commission, Aalto’s own teaching and design experience at MIT during and after the War – as well as his general enthusiasm for much of United States education – were matched by TKK Professor Otto-livari Meurmann’s ambitions for a new university design resembling an “Anglo-Saxon” campus. In this Atlantic ideal of a modern university plan, Aalto’s 1948 master plan and subsequent main buildings are rivaled perhaps only by its near-contemporary, the campus design and main buildings for the Illinois Institute of Technology in Chicago, Illinois, by the charismatic Mies van der Rohe. Recently I was asked to consider the leadership of this program, and to reside on this campus – to dance with the devil, as it were - and have thus been led to this comparison today in the furtherance of my own professional work.

Mies van der Rohe’s directorship of both the Bauhaus and the IIT Architecture Program, his commitment to establishing a new architecture curriculum in the post-war United States (rivaling that of Gropius at Harvard), and the clarity of his designs for the new IIT campus make it the strongest contrasting didactic example of this special group. The IIT campus reigns supreme in any historical survey of post-war campus planning efforts; the recently published *ARCHITECTURE SCHOOL: One Hundred Years of Architecture Education in North America*, for example, makes this clear in its appraisal of schools and their architecture. Despite the good work of the Aalto Foundation’s documentation and book, Aalto’s work in Otaniemi has received less critical appraisal of any kind, and is less recognized for its contributions to campus planning and architecture. In this brief review, I would like to sketch the emblematic character of the works for each architect, and for the pedagogical paradigm of an education in architecture and more generally in technology, insisting in conclusion that the most valuable means of understanding the importance of both designs for larger educational purposes is in complementary relation to each other. Of interest at the current moment is that while IIT is actually well-known in the public mind for its modernist architect, TKK has undergone such a dramatic shift in academic administrative organization that the one name best suited for its new identity is that of its architect. Aalto University now makes clear what was implicit since 1948.

Three means of analysis and assessment are utilized: the biographical, the formal and the cultural.

## I. Biography

First, a setting out of biographical timelines: the two academic campus designs are situated at similar points in each architect’s career, occurring at the onset of their 50s, and essentially being the first major post-war commission for each. The comparison of the life and work trajectories of the two architects – with the IIT/TKK commissions as a centering device – reveals aspects of both lives operating in a seemingly “call-and-response” manner, distinguishing individual approaches towards practice and education in architecture, and possessing a range of common colleagues.

Mies, twelve years Aalto’s senior, receives a trade school education before apprenticing with Peter Behrens; his early work presents strong classical references drawn forward from Schinkel. Aalto, borne at the cusp of the 20<sup>th</sup> century, obtains a formal university education in architecture, with a grounding in the classical traditions; moving directly into private practice with his wife, Aino, Aalto’s early work possesses its own, lighter classicism, referred to now as “Nordic Classicism.” Both architects will be well served by architectural commissions at the succession of Universal Expositions in the inter-war period: Mies’ own demonstration of a modern architecture will be made explicit through the design of the German Pavilion at the Barcelona Universal Exposition of 1929 – the pavilion also

includes the now iconic display of the “Barcelona Chair”; Aalto’s declaration of a modern architecture tempered by Finnish vernacular traditions comes in the form of the Finnish Pavilion at the Paris Universal Exposition in 1937 – the Artek exhibition on the interior contains Aalto’s equally iconic Paimio Chair.

Both architects display early academic ambitions: Mies moves through leadership positions in the Deutsche Werkbund, and then once refuses and then accepts the directorship of the Bauhaus in Berlin at the invitation of his colleague and rival Walter Gropius in 1930; the same year, Aalto, on the basis of an ascendant career in practice, applies for and is rejected from the position of Professor of Public Building at the Faculty of Architecture in Helsinki (the appointment goes to architect J.S. Siren, architect of the Finnish House of Parliament). A year later, his application to the position of Professor of Town Planning is turned down as well (the position going to Meurmann).

Mies emigrates to the United States ahead of the onset of the war and thereafter resides, teaches and practices at IIT and in Chicago until his death; Aalto’s career draws him to the United States at a similar point in time, but despite many friendships, an appointment at MIT (and a possible shared partnership with the Saarinens), he ultimately determines to return to Finland. While Aalto will design at MIT – and at the Mount Angel Library – his work will mainly exist in Finland and Europe, despite his appreciation for American culture. Of note in this last regard is the publication of research on both architects’ fascination with and work in the United States, *Mies in America* (2001, Whitney Museum of Art) and next month, *Aalto in America* (2012, Yale University Press).

At least five important personal and professional relationships intersect with the lives of Aalto and Mies, and their engagement with American architecture education and practice. Eliel Saarinen was mentioned earlier, as the architect of the Cranbrook Academies magnificent campus and as director of the Cranbrook Architectural Studio. The older Saarinen and the presence of Cranbrook hovers in the background of this dialogue; Saarinen’s emigration to the United States and establishment of a professional and academic career had preceded Mies’ by nearly 20 years. By the Second World War, Cranbrook programs in the visual arts, design and architecture had already assumed a leading position in American education; the “Cranbrook vision” of craft and industry was itself deeply reflected in the design and character of its buildings and landscapes. At this time, too, Eliel’s talented son Eero, born in Finland but a naturalized American, was about to embark on his own independent career; in 1948 he won the international competition for the Jefferson National Expansion Memorial in St. Louis and departed his father’s practice for an intense period of design commissions. Among the younger Saarinen’s major resulting works was the General Motors Technical Center, a research and development “corporate campus” design with clear allegiances to Mies’ preferred compositions of rectilinear volumes and panelized construction systems.

Aalto’s longtime friend and philosophical companion, Laszlo Moholy-Nagy, was of course also known to Mies’, first in the Bauhaus and then again as the director of the Institute of Design in Chicago. The Finnish interior and furniture designer, Ilmari Tapiovaara, began his career in Finland simultaneously with Aalto, and then joined the Institute of Design in Chicago for a time before returning to a teaching position in Otaniemi in interior architecture. Lastly, the Chicago born and bred architect Harry Weese would profess a fascination for Aalto, Asplund and other Nordic architecture even ahead of his enrollment in Aalto’s MIT design studio – this affinity was life-long, yet Weese (and his body of college and university designs) would also be included in “the Second School of Chicago Architecture” championed by Mies.

The biographical references are here used primarily to suggest that whereas Mies' educational bent is well-known, Aalto was more invested in architectural education (and art education, as noted by Harry Charrington in his discussion of Frederick Kiesler) and in American university design ambitions than we might initially comprehend. As pedagogues, however – as professors, directors of programs, lecturers and critics - the two architects each have distinctive characters, methods and histories. At MIT, for instance, Aalto, by all accounts, taught by informal means, relying on anecdote, humor, intuition and enthusiasm (and a mélange of languages), attempting to communicate an implicit set of approaches to design in general through references to his own works. Mies' more structured curricular program and teaching method, by all accounts, emphasized discipline, rigor, analysis, and a precise sequencing of assignments, and referred to more general principles of architecture such as proportion and harmony. Both styles of instruction relied greatly on the force and presence of personality, as much as in their declared agendas, yet if an "Aalto pedagogy" ceased in 1976, to a large extent, the Mies curriculum remains at work at IIT, particularly in their foundation design years. While Aalto had both loyal students in his MIY studios, and an even more loyal cadre of atelier employees, there was never quite the "Aalto School" to equal the Miesian effect on those who graduated from IIT.

Having taken this long to sketch out these converging and diverging biographies, I also believe we now are closing in on a "post-biographical" moment in Aalto studies. Harry Charrington's fine book of conversations has incomparable value, but while there are written texts, biographical anecdotes, oral histories still to unpack or transcribe, these are less tangible to me now than the more lasting evidence of the buildings and landscapes themselves. In this, I assert that the projects and buildings of Aalto's head, hand and heart are in fact the extant texts; they are both the basic curriculum and the core faculty for all of us in these endeavors.

## II. Formal

On this basis, we would do well to examine closely the evidence of the academic campus plans and main buildings – as constructions first and only then as bearers of meanings, large and small. Importantly, both campus designs, as universities of technologies, emphasized to their designers the need to design towards economy and efficiency. In formal design terms, the two campus designs and their respective main buildings offer diametrically different approaches to these charges and offer contrasting organizations of space, hierarchy of form and program, circulation, and tectonics of structure and material. While a full examination of all the buildings and all these aspects is beyond the time limits today, three comparative examples might suffice to outline design approaches and design distinctions: form and ordering principles at the scale of the site and program; environmental responsiveness to climate and natural light in particular; and tectonic approaches from structure and enclosure to secondary elements and details.

1. Site and program disposition

City / Periphery

Site ordering: cleared/constructed, imposed/topological;

Spatial organization: composition of individual volumes / of linked volumes

2. Environmental response

Building envelope

Climate control / natural light

Building section / wall section

3. Tectonics

Structural expression; systems expression

Materials / construction methods

Details / corner conditions / stairs and doors

## III. Cultural

Having sketched these understandings with the broadest of pens, finally we can consider these universities of technology in intellectual and cultural terms. If the re-construction of the post-war European and North Atlantic culture was to be educational, as much as physical, Aalto's university and Mies' institute evidence the challenging split in post-war sensibilities, balancing a fascination with the rationalization of human needs, spatial enclosure and the building process with a searching skepticism as to the ultimate quality and effect of that process when taken to its logical extreme. The necessity of this balancing and reconciliation was all too obvious by 1945, and still evident in 1948, as the lasting impact of the knowledge of industrialized genocide and the tools of nuclear obliteration was felt intellectually, educationally and culturally.

Thus, beyond the immediate necessity to achieve "economy and efficiency" in construction, the technological perspective is almost reflexively present in every aspect of these designs. Of course, positive considerations of technology are part of both architects' common heritage – gained from the Bauhaus's ambition to marry craft and industry, Sigfried Giedion's observations on "mechanization" and the technological "zeitgeist" of the modern era, Artek's intention to join "art and technology."

However, Mies' confidence in abstract planning principles and the industrialized materials, structures and systems of construction is revealed at almost every scale of consideration. Aalto's creative doubt in the virtues and sustainability of technological solutions and his realistic understanding of environmental conditions is equally visible along the same spectrum. A similar dialogue on the relevance of nature and response to the natural environment is also evident. Two quotes are illustrative on this, as is the figurative comparison of the two iconic chairs:

*"Technology is rooted in the past. It dominates the present and tends into the future. It is a real historical movement – one of the great movements which shape and represent their epoch ... **Wherever technology reaches its real fulfillment, it transcends into architecture ... technology and architecture are so closely related. Our real hope is that they grow together, that someday the one be the expression of the other. Only then will we have an architecture worthy of its name: Architecture as a true symbol of our time.**" / MIES*

*"Standardization borrowed from the domain of pure technology, which has recently invaded architecture, is of an entirely different nature. This invasion springs from the fatal misconception that architecture is a form of technology. It is not ... In fact, **the problems of architecture cannot be solved at all with the methods of modern technology ... Of course, architecture uses technology, but it does so by applying various technologies simultaneously, and its principal goal is to bring these technologies into harmony. Architecture is thus a kind of super-technical creation, and the harmonization of many disparate forms of activity is central to it.**" / AALTO*

Equally, both architects' campus designs contain implicit and explicit references to the Classical world (both architects demonstrate a facility with Latin that is almost unimaginable today). For Mies, every project at IIT is an ideal temple, with proportions, symmetries, axialities and alignments perfected according to contemporary materials and structural systems. The gridded campus plan of IIT, the glassed vitrines of its laboratories, the centralizing geometry of Crown Hall, can all be seen as assertions of an omniscient, precise and encompassing rationality, bespeaking the perfectability of man, even of man's appeal to the godlike, the divine. For Aalto, every project at TKK is a dense juxtaposition of theater and courtyard typologies allowed to patina, weather and soften into a near-natural constructed landscape. The TKK landscape and buildings can all be seen as assertions of a worldly, wise acceptance of limits and contingencies, bespeaking the presence of the human in material form, and the consequent vulnerability, indeed mortality, of our lives.

Lastly, both Mies and Aalto proceed from these academic commissions to post-war careers of high productivity and reputation – and this, too, may be another lecture in itself, although the sequence is well known to most here. But the outlines of that work is already visible in these educational projects – the oscillations of the rational and the phenomenal approaches, the ideal and the contingent proposals of form, structure and material, the contending assertions of technology and nature (or at least, natural resources), the alternation between confidence and doubt in human ability to order the world, the struggle to retain some vestige of the classical and humanist world and still to keep pace with modernity.

What would either architect have made of our contemporary technological moment, as technologies in application to biology and communications expand the charge to university education and corporate interest alike. Universities still are centers of technological research and innovation, and some continue to purpose worthy architectures – see, for instance, Fumihiko Maki's Media Lab at MIT, or Nicholas Grimshaw for the Danforth-Monsanto Foundation and Washington University. But much of the intellectual work has already shifted to corporate sponsored research and development, occurring in the alternate proprietary campuses of the 21<sup>st</sup> century – pharmaceutical and agricultural research centers, telecommunications headquarters, and digital technologies precincts. And this architecture,

no matter its larger formations, has all too clearly lapsed into a euphoria of transparency – as the ultimate expression of technological prowess, of innovation and modernity. Witness SANAA working for Novartis, or Norman Foster for Apple.

With this highly conditioned contemporary vision, as educators we have a third object of contemplation beyond faculty or curriculum: what is called “ideology” or more euphemistically, in strategic planning terms, “mission and purpose.” To this end, I would assert that in inhabiting our universities, we inhabit all universities; in considering TKK-Aalto, we must also consider IIT – and Cambridge and Cranbrook, and the Bauhaus-Dessau and the Berlin Free University, and now Tsinghua and Ahmedabad, as well. In proposing a curriculum, we refer to all curricula – from Vitruvius, Book 1, Chapter 1 to the nine-square grid of John Hedjuk and the Texas Rangers to the BIM-reliant modes of today. My intention in suggesting relationships between IIT and TKK is not to prefer one over the other, but first to position TKK on the same plane of consideration as that long afforded IIT and second, to outline the spectrum of educational possibilities situating both designs. I am more taken not by the differences between the two but by their complementarity; their relative value is best understood not in isolation but in relationship to each other.

It is this conceptual, intellectual and pedagogical space “in-between” hard-edged values and bounded belief systems that education must work to open students towards; it is the exploration of this open intellectual space “in-between” that Aalto’s work, in particular, encourages. In its own way, I could now make the same argument for IIT – but only by virtue of its juxtaposition with TKK-Aalto. For some years, I have been using Aalto’s wood reliefs of the 1930s as a primary expression of these articles of faith, faith in an educational vision of intentional liminality, of ambitious, constant juxtaposition of ideas and forms. This seems an appropriate image with which to conclude now.



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Peter MacKeith 1.2.2013. 2/8. Working papers - Alvar Aalto Researchers' Network March 12th - 14th 2012, Seinäjoki and Jyväskylä, Finland. Mies van der Rohe's directorship of both the Bauhaus and the IIT Architecture Program, his commitment to establishing a new architecture curriculum in the post-war United States (rivaling that of Gropius at Harvard), and the clarity of his designs for the new IIT campus make it the strongest contrasting didactic example of this special group. Illinois Institute of Technology - Description. Founded in 1890, IIT is a Ph.D.-granting technological university awarding degrees in the sciences, mathematics and engineering, as well as architecture, psychology, design, business and law. IIT's interprofessional, technology-focused curriculum prepares the university's 6,200 students for leadership roles in an increasingly complex and culturally diverse global workplace. IIT was formed in 1940 by the merger of the Armour Institute of Technology, founded in 1890, and the Lewis Institute, founded in 1895. Both schools had nationally re Born in Germany in 1886, Ludwig Mies van der Rohe broke new ground with his architectural designs. He started out as a draftsman before striking out later on his own. During World War I, Mies served in the German military. Settling in Chicago, he ran the school of architecture at what is now the Illinois Institute of Technology and also developed the plan for its campus. Highly regarded in his field, Mies was the subject of a solo exhibition at the Museum of Modern Art in New York City in 1947. He also continued to be in demand as an architect, building the Lake Shore Drive Apartments in Chicago and the Seagram Building in New York City. A joint project with Philip C. Johnson, the dark metal-and-glass 38-story skyscraper was completed in 1958.