cepted to prepare a complete new program for the Architecture Degree, according to his own ideas.

After Mies left Chicago, Hotchkiss wrote him in the name of AIT Board of Trustees, and requested him to specify his curriculum, prior to offering his appointment. Despite time limitations and after some correspondence concerning on numerous details about the school, Mies expressed interest in the problem and the position. A comprehensive program was finally elaborated, which Mies was able to send by the late Fall. He later summarized it as follows in a prospectus describing his intentions:

“(...) I have undertaken to develop a curriculum which in itself incorporates this clarifying principle of order, which leaves no room for deviation and which, through its systematic structure, leads to an organic unfolding of spiritual and cultural relationships. Inasmuch as the question is that of an organic principle of order, depending on no definite presuppositions but reckoning with given American conditions, the danger of grafting one form of culture on an environment of another character is avoided. (...) The strength but also the difficulty in the American situation lies in the existence of new problems of spiritual significance and new means for their solution. But the strength of the existing organizational and technical forces assures the possibility of an original and meaningful solution of the cultural question. (...) Culture as the harmonious relationship of man to his environment and architecture as the necessary manifestation of this relationship is the meaning and goal of the course of studies (...)”.


Once back in New York, Mies managed to elaborate his ideas for the new curriculum for AIT Architecture Degree with the assistance of some of his former students at the Bauhaus, then working there. These included H. Drearyne, who helped him with the contents, as well as W. Priestley and J. Rodgers, who delineated it in the shape of a chart under his close direction. In addition to them, Mies had the support of W. Peterhans, a former colleague at the Bauhaus, lately immigrated and living in New York. Peterhans was fluent in English, and helped him to translate his ideas for the curriculum.

The program was summarized in an oversized chart [Fig. 2.25], send attached to the program, that represented Mies’s first attempt to systematize his ideas about architecture in America.\(^{51}\)

At a glance, seen with a pragmatic eye, the curriculum “(...) was revolutionary. It established a method of work, analysis, and design which sought to imbue brick, glass, steel and space with a coherent and rational expression. Juxtaposing an architecture of space and frame, Mies wanted to create a curriculum which would always yield excellent craftsmen and occasionally produce or encourage those with the gifts to make the expression of technique an act of high art.”\(^{52}\)

Heald agreed with Cunningham to approve it without any alterations and, by the end of the year, the program was formally sanctioned by AIT Board of Trustees.\(^{53}\)

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However, despite the conversations described in the article, his statement that “the text was deeply inflected by Mies’s reading of his new intellectual context” probably cannot be proved, according to the hurry in its elaboration. This may explain why Schulze argues that it was elaborated “at the beginning of his tenure in 1938, later revised and widely reprinted”, in Schulze, F., and Windhorst, E. (2012), «Architect and Educator: 1938-1949,» in Mies van der Rohe: a Critical Biography. New and Revised Edition (Chicago: u of), ch. 7, p. 204. He attributes it to the “characteristic Bauhaus belief that there was no principle that could not be rendered diagrammatically”, quoting Dickerman, L., «Bauhaus Fundamentals,» in Bergdoll, B., Dickerman, L. (eds.) et al. (2009), Bauhaus 1919-1933: Workshops for Modernity (New York: moma), p. 25, in Idem.


53 See Heald, H.T., «Minutes of the Dec. 10th Meeting, 1937» [Heald Papers, Box 1114, folder «Executive Committee, Board of Trustees», University Archives #1998-49 (Paul V. Galvin Library, IIT)].
Encouraged by such decision, Mies made one last trip to Chicago early at the beginning of 1938, to discuss several aspects regarding the deep organizational changes that his appointment would mean to AIT, long accustomed to a Beaux-Arts orientated education.

By the end of March, just before his departure back to Germany, Mies added the final condition of the addition of three new teachers of his choice to the architecture faculty. All of them spoke German and English fluently, and had been linked to the Bauhaus during the years of Mies's directorship: Walter Peterhans, who had headed the Photography Department, Ludwig Hilberseimer, a German architect who had been director of Architecture and Construction Design, and the young American John B. Rodgers, who had studied under Mies and Hilberseimer in Germany. They were accepted without objections by Heald.

In April, in view of the fulfillment of all the stipulated conditions, Heald sent Mies a formal offer of a two-year appointment, beginning next September. By the early Autumn of 1938, internal bulletins of the Institute officially spread the news — Ludwig Mies van der Rohe accepted the position of professor of architecture and director of AIT Department of Architecture.

2.26 Announcement of Mies’s appointment as Director of AIT School of Architecture, AIT internal newspaper, 1938.

Proudly presented as being “world famous as a founder of modern architecture”, Mies was publicly introduced to AIT as “recent director of a famous school in Germany”, while no explicit mention was made to the Bauhaus; a fact that gives an account of the reality of the school by that time. Perhaps by a similar reason, Mies was carefully described in the article as “already acquainted with the United States”, despite his unfamiliarity with its professional context, or his limitations with the language.

3. MIES'S EXILE AND PRELIMINARY CAMPUS DESIGNS, 1938-40

We endeavor to isolate aesthetic qualities from one another and to display them in an intensified form. We then combine them in a ‘quite different’ whole in which they are transcended —say, in a space which is generated out of themselves.

This calls for the strictest mental discipline and critical acumen.¹

3.1 A New Vision for the Architecture Curriculum at AIT

Since its establishment in the early days of Armour Mission, AIT Department of Architecture had been located downtown at the Art Institute of Chicago (AIC), away from the decaying facilities at the South Side campus [Fig. 3.1]. This had brought the benefit of a desired image of AIT School of Architecture as linked with Chicago downtown, the quintessential place for business and entrepreneurship excellence in the city.

By the late 1930s, access to higher education still remained restricted to wealthier families, and the Architecture school at the AIC still followed the traditional Beaux-Arts teaching method, where the student was proposed different exercises in a series of increasingly difficult assignments.\(^2\)


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3.1 Aerial photo (above) of the immediate surroundings of AIT campus, highlighted in red, in the year 1938 (opposite page).
Although a growing metropolis by the time Mies arrived there, Chicago did not reach yet the size of Berlin, then the largest city in continental Europe and one of the cultural centers of the world — “in his mind and in fact, Chicago and Berlin were a matter more of contrast than of comparison”.

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<table>
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<tr>
<td>AIT Buildings</td>
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<td>1 AIT Armour Mission Bdg. (Student Union Building)</td>
<td>11 Ogden Field (‘The Bog’)</td>
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<td>2 AIT Main Building</td>
<td>12 RF Electrical Engineering Research Building</td>
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<td>3 AIT Heating Plant</td>
<td>13 AIT Fraternity Row</td>
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<td>4 Physics Hall</td>
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<td>5 Chapin Hall &amp; Research Foundation (RF) Magnetic Recording Lab</td>
<td>14 Cudahy Residence</td>
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<td>6 Parking Lot</td>
<td>15 Mandel Residence</td>
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<td>7 RF Administration Building</td>
<td>16 Vendome Theater</td>
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<td>8 AIT Pattern Shop</td>
<td>17 ‘The Mecca’ Flats</td>
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<td>9 AIT Machinery Hall</td>
<td>18 Keith Public School</td>
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<td>10 AIT Armour Laboratory</td>
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<td>20 Binga Bank &amp; Arcade Bldg.</td>
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This method would be definitely replaced by the progressive implementation of Mies's academic program, structured according to a totally different approach. Indeed, Mies had agreed with Heald to keep the existing faculty, while a complete changeover of the program was carried out. The purpose of this decision was twofold. On one hand, it gave the students with advanced standing the option to complete the curriculum under which they began their studies, if they so decided, as a way to conceal interests with the existing faculty. On the other, Mies himself could focus his dedication as a teacher on the relatively small number of students who started under the new one from the beginning. Meanwhile, this situation would allow him to test different exercises and carefully adjust his program.

The aim was —given the widespread ignorance about his persona among most of the teachers— not to influence the open spirit of the department, and to leverage the willingness of many of its members to join an innovative, broader program with international ambitions.

This was not the case for the Bauhaus, whose name had already come to the ears of most Chicago educational institutions with the recent establishment at Chicago South Side of the so-called The New Bauhaus [Fig. 3.2]. Founded by the artist Lázló Moholy-Nagy, who had emigrated to Chicago in 1937, The New Bauhaus was an undergraduate school originally focused on industrial design, with the aim to “establish a school of design that will meet the needs of industry and reintegrate the artist into the life of the nation”.

Accordingly, the curriculum of the new institution was inspired in Moholy-Nagy’s own ideas about contemporary artistic production, developed from his courses at the Bauhaus —to delve into a given medium in order to extract and to extend its productive principles. These ideas had already been summarized in his famous book ‘The Language of Vision’, which was reissued as part of a series of publications by the new school [Fig. 3.3]. According to it, his main concern was with providing a practical experience in materials, perception, and the phenomenon of space, to the designer in an industrialized society.

3.2 The New Bauhaus School of Design at Chicago, 1937-38.
The New Bauhaus school was located in an existing residence at Prairie Avenue —note the extension at one side of the building, in a Modern style— just a few blocks away from AIT campus. The New Bauhaus was developed according to Moholy-Nagy’s teaching experience in the Bauhaus at Weimar and Dessau, under the direction of Walter Gropius. Not in vain, Gropius—who was already at Harvard by then—granted full support to the school and visited it regularly, providing it with an excellent public image.

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However, Moholy-Nagy developed from these conclusions an abstract reflection on light and transparency as “the new medium of spatial relationship”, which “made patent the spirit of the age by means of contemporary technique”, leading him to architecture. Once at the United States, which he saw as “the ideal soil to nourish an educational principle which strives to achieve a greater unity between art, science and technology”, with “the simultaneous task of culturization and industrialization of a continent”, Moholy-Nagy now decided to complete the curriculum of his new school with a five-year degree in Architecture, as the natural and ultimate consequence of his ideas. Even if such program apparently did not go further than a well meaning scheme, any results

6 Moholy-Nagy, L. (1948), «raumgestaltung ist nicht in ersterlinie eine frage des baumaterials» [space creation is not primarily a question of the building materials], in Op. cit., ch. iv, p. 231


came to be aborted before it was finally imparted, when the institution was forced to close for financial problems in 1938.

Anyhow, its emphasis on the visual aspects of design, as “the agent to convey impressions to the mind”, did find wide recognition, and the school was able to attract different prominent personalities from Chicago during its brief existence, encouraging him to rework his educational project in the shape of a new institution — the Chicago School of Design. Even if now specifically focused on graphic design, Moholy-Nagy did not seem to refuse to associate it to the legacy of the Bauhaus, which “as an art university [sic.] tried (...) to work out a better way by incorporating art, science and technology into its teaching program,” and kept presenting the school as ambitiously committed with the “education of American youth in the spirit of our age”, aware of the will for modernization in American institutions.

3.4 Public letter by L. Moholy-Nagy, exposing the curriculum of his Chicago School of Design, 1939 (left); “To the spirit of Armour Institute” (right).

After closing his New Bauhaus, Moholy-Nagy reworked it under the name of The Chicago School of Design, now specifically reoriented to graphic design, in an attempt to make its achievements profitable. His public call for cooperation with other institutions (above), appealing to a spirit of public commitment and institutional cooperation — otherwise the only way to guarantee its financial continuity — was aligned with the ongoing modernization process at AIT (right), initiated by president Heald to cope with its severe economic hardship.

10 “Development of this knowledge will generate a genuine ‘language of the eye’ whose ‘sentences’ are the created images and whose elements are the basic plastic signs, line, plane, halftone gradation, color, etc. Visual observation enables assembly of these signs (...) The growing experiences of basic plane elements compel clarification of their interrelationships and the investigation of balance, tension, proportion, symmetry, rhythm, position”, as expressed by KEPES, G. (1939-1940), «Education of the Eye,” and «The Task of the Educator in Industrial Society,” in School of Design in Chicago, brochure (Chicago: R.R. Donnelley & Sons Co.) [reprinted in WINGLER, H.-M., STEIN, J. (eds.) et al. (1969) Op. cit., ch. 9, p. 99].


This was the case of the new “spirit of Armour Institute” promoted by Heald [Fig. 3-4], who aimed to modernize AIT, and to transform it in one of the leader schools in the country. Most probably aware of the impact of Moholy-Nagy’s activity, Mies was however reluctant from the institution and its founder since he arrived, and would always remain distant from him, apparently for his use of the name of the Bauhaus —whose rights belonged to Mies as its last director— on behalf of his own benefit.13

Perhaps trying to compensate this circumstance, the public presentation of the new faculty members of AIT Architecture School [Fig. 3-5] emphasized their experience at the Bauhaus, and particularly that of Peterhans, introduced as “Professor of Visual Training”. Although no such discipline was imparted at the Bauhaus —where he had headed the Photography Department— Peterhans was then described as “engaged in visual studies in which he investigated the structure and surface of materials and their mutual relationship”, for which he “created an educational technique to sharpen powers of observation and to reveal objectively the relationships between materials, structure and space.”14

3.5 “Meet the New Faculty Members,” AIT bulletin, 1938.

The article presented the new AIT teachers for 1938 academic course in a double-page spread. Among them, one can find Mies van der Rohe (left page, 3rd from right, lower row), here described as “having achieved world wide renown as the European creator [sic] of Modern architecture”. According to his contractual terms, Mies brought with him two colleagues from the Bauhaus: Ludwig K. Hilberseimer (right page, 3rd from right, lower row), and Walter Peterhans (left page, 2nd from right, upper row). The article outlined precisely the role that they would play in Mies’s curriculum.


14 Armour Institute of Technology (ed.), “Meet the New Faculty Members,” Armour Engineer and Alumnus 4(1): 39 (Oct., 1938) [emphasis added].
3.1.1 Implantation of Mies’s Architecture Educational Program

As it was customary when a new professor took his chair, after Mies was named head of the Department of Architecture he was requested to present publicly a general outline of his future work at AIT. Among great expectation, by late November Mies gave a public speech, in which he exposed mainly his ideas about architecture and its teaching. The event took place and, despite the fact that the speech had to be delivered in German and simultaneously translated—Mies did not speak English by then—it was followed by a great audience.

Later widely reproduced, this introductory speech remains relevant today as one of the few documents preserved in which Mies deliberately tried to expose his ideas about architecture, and is considered as a summary of Mies’s intellectual position by the time he started his professional career in the U.S. The speech is also significant for giving account of the meaning of certain concepts that he would mention later as key for his American career.

15 First published in English in Mies van der Rohe, L. (1938) «Mies van der Rohe’s Address, Delivered at Banquet Held in His Honor, Armour Engineer and Alumni, 4 (2): 19, Dec., 1938. It was later reissued as Mies van der Rohe, L., «Inaugural Address as Director of Architecture at AIT, Nov. 20th, 1938,» in Johnson, Ph. (1962) Mies van der Rohe (New York: Braziller/IRA), pp. 196-200, which has been used as the main reference for its subsequent study.


17 Harrington probably refers to its later English version, when he says that it was “stirring and quickly and widely reprinted”, in Harrington, K., «Order, Space, Proportion — Mies curriculum at AIT,» in Achilles, R., Harrington, K., Myhren, Ch. (eds.) et al. (1986) Mies van der Rohe: Architect as Educator (Chicago: UOC), p. 49.


19 This can be inferred by the fact that the translation of the speech was supervised by Mies himself. Today we also know that the speech was written during his last stay in Germany before he emigrated definitely to the U.S. On this regard, Blaser narrates that “(...) the original of this speech was in a box which did not reach Chicago until 1964, along with the residue of his Berlin office. Comparison of this original text with a copy
Considering that, by the time Mies assumed his charge at AT1, his experience in education was “both extensive and brief”\(^\text{20}\) it seems probable, to a certain point, that his educational work in America “could thus be established on principles which had already assumed their basic form on European soil”\(^\text{21}\). Nonetheless, the speech was definitely influenced by the significant effort he made to come to terms with what he perceived as the most relevant questions in American education by the time,\(^\text{22}\) such as

that was made later in the States with an American typewriter proved to me that the address was formulated in Germany”, in Blaser, W. (1997),  The Principles of Mies, in Mies van der Rohe: Lehre und Schule—Principles and School (Basel/Stuttgart: Institute for the History & Theory of Architecture at the Swiss Federal Institute of Technology, Zurich/Birkhäuser), p. 7.

20 “(...) As with his architecture up to that time, his educational experience showed very great promise and relatively little actual achievement,” as pointed in Harrington, K., «Order, Space, Proportion — Mies curriculum at IIT», in Op. cit., p. 49.


22 “Mies studied material in the contemporary American discussion of education and values. Mies collected and read several books on this debate in the late thirties.”
the concern for its impact in society, or the challenge to educate in principles and values.

Despite the obscure articulation of the text, it specifically recalls “but one goal” —“to create order from the desperate confusion of the present time”. Although initially brought by Mies regarding architectural education, this idea is used in the text ultimately referring to society as a whole, a circumstance that has prompted its reading in a more general way. A similar reasoning can be made regarding his insistence on ‘clarity’, repeatedly mentioned all along the speech. Thus, education must “lead us from chance and arbitrariness to the clear lawfulness of intellectual order”, in order to gain “clear understanding of (...) material”, commanding us to “learn about our goals (...) to analyze them clearly.”

If we assume Mies’s contemporary definition of order as “the definition and the meaning of the being”, it seems that, although apparently a premise for signification, he saw its absence as an opportunity to build “anew” in a relevant way. Often seen as a reflection of his own personal situation, it seems clear that the ideas expressed in the speech were in tune with the feelings at AIT by then. In essence, the speech summarized Mies’s ideas for architectural education in a will to develop a method of work, a way of doing, which could be able to conduct to a clarity of thought by means of an understanding its fundamentals. In Mies’s own words, “to illuminate the possible orders and lay bare their principles.”


“(...) Things by themselves create no order. Order as the definition of the meaning and measure of being is missing today; it must be worked toward, anew (...)” in Mies van der Rohe, L., Letter to Carl O. Schniewind, Jan. 31st, 1939 [Papers of Ludwig Mies van der Rohe, Manuscript Division (Washington D.C., 205)].

Schulze argues that such reasoning “(...) may have been the independent product of Mies’s own philosophical probing. But it could equally well have had its proximate source in his private artistic struggles, or in the ‘desperate confusion’ of interwar German culture, politics, and economics, or in the concatenation of any number of challenges personal or professional,” in Schulze, F., and Windhorst, E. (2012), Op. cit., p. 192.

On the contrary, a different approach concerning what is not explicitly mentioned in the text\(^{29}\) shows revealing about the direction in which its vague passages have been usually misinterpreted or, at least, twisted in their meaning. Notoriously, Mies certainly speaks about structure in different passages of the speech, but he definitely does not mention specifically that a building should have a 'clear structure', a 'clear construction', or even contemplate the idea of 'Baukunst',\(^{30}\) all of which he would later recall as the defining architectural principles of his American work.\(^{31}\) In fact, Mies's conscience about the actual direction that his new career would take in America was inevitably limited.\(^{32}\) Consequently, to what extent the speech aimed to offer a general overview of Mies's ideas on architectural education, or of his own architectural principles, is something we cannot know.

In addition to this, the abstract conceptualization of the aims proposed by Mies for his pragmatic, systematized curriculum, have been often seen as indicative of the deep contradiction on it: the implicit assumption that “architecture at the highest level —perhaps the only level of interest to him— cannot be taught, at least widely, and certainly not to the young, even eager, undergraduate”.\(^{33}\) Such bias in the curriculum —widely debated among his disciples,\(^{34}\) and not always positively\(^{35}\)—, shows a certain exploitation of the educational activity, overshadowing behind its open assumption that the students would only become began to question and explore creatively after they had previously internalized [Mies's] architectural principles.

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\(^{30}\) Cfr. note 19.


\(^{32}\) Schulze contradictory follows that "(...) at the beginning of that career in 1938, Mies had thus far failed to articulate it, as the address confirms," in Idem [cfr. note 3].


\(^{34}\) "(...) It was planned to train a student to become an architect in the most direct fashion where the student might come in without any knowledge of architecture and emerge, if not as a great artist, at least as a thoroughly trained architect (...). He knew how to draw, how to build, how to plan, and he was assured of a basic professional status. If he was an artist, he could elevate any one of these professional assets to the level of fine art (...)," in Speyer, A.J., and Saliga, P. (1996) Oral History of A. James Speyer (Chicago: AIC), pp. 61-62.

\(^{35}\) "(...) The curriculum of the school remains terribly vocational and purposely un-intellectual (...) I think Mies actually was training people to work in his office. I have a sense that in the cultural displacement of leaving Europe he didn't feel [American] society had a cultural milieu where artists could build things (...)”, in Beeby, Th.H., and Blum, B.J. (2002) Oral History of Thomas Hall Beeby (Chicago: AIC), pp. 40-41.
All this in mind, when one looks back at the prospectus for his educational program elaborated by Mies the previous winter of 1937-38, which he summarized in the shape of a chart [Fig. 3.9], a clear insight of these ideas can be effectively appreciated. Although usually seen as a secondary source, it offers global overview of his intentions, as well as a hint of his priorities at the precise moment in which he conceived his educational activity. Most singularly, Mies repeatedly mentioned here the notion of ‘organic’, used to mean “coherent, consequential, related to an order”, referring to a contemporary Architecture whose potentialities were still to be developed in an integrated and intelligible way.

Mies’s insight lies in assuming that these principles can lead to an aesthetic quality whenever they are ordered in a whole in such a way that all its parts are allowed to express its own, inner nature, summarized in his famous ending of the speech quoting Thomas Aquinas —“Beauty is the radiance of the truth”.  


37 This interpretation has been developed mainly in Harrington, K., «Order, Space, Proportion — Mies curriculum at IIT», in Op. cit., p. 56, where it is argued that Mies possibly “saw structure as analogous to the crystal structure at the base of all matter”. Indeed, crystal theory had been a common reference among the faculty of the Bauhaus. See, for instance, Moholy-Nagy, L. (1918), «die biotechnik als metode schöpfender tätigkeit» [«biotechnic as method of creative activity】 and «das biologische als regulator schlechthin» [«the biological pure and simple taken as the guide»], in Op. cit., ch. ii, pp. 60-61, ch. iv, 1918-1919, quoting the ideas of Raoul H. France, extensively represented in Mies’s personal library [see Appendix].

It is under this perspective that the prospectus now strongly recalls some passages of the speech, particularly when it mentions *structure* as the very basis upon which a contemporary architecture can be developed, and characterizes it as “the crystallization of [time’s] inner structure, the slow unfolding of its form”.

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Mies's discourse had a direct impact in the curriculum when it was finally implemented—the students were required to learn the fundamentals at first on the basis of a disciplined training, but with emphasis on general rather than specific problems, in the hope that they had a clear grasp of the principles of architecture from the beginning of their education. As a start, students were required to gain knowledge by means of a disciplined training on fundamentals, namely on the nature of construction materials and their craft, on drawing skills, and on academic subjects. But at the same time, they had to address an abstract reasoning in a meaningful manner concerning such principles, as a way to deal with problems similar to those they would have to face later in architectural design, but from a simplified, conceptual point of view. Summarized in Mies's own words:

“(...) Architecture in its simplest forms is concerned primarily with the useful. But it extends from the almost purely practical until in its highest forms it attains its fullest significance as pure art. This relationship leads to a curriculum which makes clear, step by step, what is possible in construction, what is necessary for use, and what is significant as art (...).”

3.10 Examples of exercises developed at AIT Drawing courses since 1939.

The Drawing courses initiated the Architecture curriculum at AIT, as a basic instrument for the student to develop a sense of discipline, clarity and precision, under the assumption that a clear drawing, crystallized to essential significant lines, could only be the result of clear a thinking.Beginning with the study of line drawing at first, examples of commonly proposed exercises on the theme of an array included the study of the results of the use of vertical, horizontal and diagonal orientations (left); the different effects of varying the spacing and weight of its lines (center); or the consequences of using lines of different lengths. The Drawing sequence was later completed with hand drawing, descriptive geometry, and projective representation.

An overview of the program of these fundamentals can be found in «Materials and Construction,» Blaser, W. (1977), Op. cit., pp. 46-63. As an explanation for the academic contents in the program, Harrington suggests that “(...) since Mies did not have an academic background, his knowledge of physics and calculus was largely based on office experience and his own assumptions, reinforced by his readings in philosophy and science, that they provided a foundation for creative thought,” in Harrington, K., «Order, Space, Proportion — Mies curriculum at IIT,» in Op. cit., p. 56.

Such was the ambition of the so-called ‘Visual Training’ courses which, under the direction of W. Peterhans, assumed specifically the development of a sense of proportion in the student. These courses were “designed for training the eyes [of the students] and forming and maturing a sensitivity for proportion”, so they “learned to discard any line that did not fulfill a purpose” singularly considering purposes other than just functional. Their purpose was described as to

“(…) endeavor to isolate aesthetic qualities from one another and to display them in an intensified form. [To] combine them in a ‘quite different’ whole in which they are transcended —say, in a space which is generated out of themselves. This calls for the strictest mental discipline and critical acumen —characteristics which are much rarer in students than the desire to indulge in free experimentation, and which must therefore be all the more deliberately fostered.”

Radically different to any Architecture training experienced at AIT until then, this approach proved as an excellent mean for “fostering insight and stimulating ideas” in the student, and soon offered excellent results. But, despite the fact that Visual Training was considered an essential part of the curriculum “(...) since it begins at a deeper level in training the eye for architectural conception and quality, and for formal creation in the widest sense”, the range of its exploration was, indeed, strictly controlled [Fig. 3.11].

3.11 Examples of exercises developed at AIT Visual Training courses since 1940.
Different assignments were developed during the Visual Training courses, which set out increasingly difficult composition exercises —based on line drawing and/or collage— progressively more complex in their elements and aims. As an example, during its initial phase on the third semester, the students were required to explore the way “two black lines of different width divide the board into four rectangles of different proportions”, while a “balance is sought between the lines, the rectangles and the board itself” (left); the “visual unity dependent on the flowing interrelation of the various proportions of the rectangles and the board” (center); or the arrangement of a “row of black and white rectangles, relating their proportion and rhythmical structure to the surrounding board and to each other” (right).

to Organic Architecture in any of these later documents.

44 Idem. The text is followed by examples of some proposed exercises, in «Drawing and Visual Training,» in Idem, pp. 37-45.
As a matter of fact, while generally acknowledged for its utility “to train the eye and sense of design and to foster aesthetic appreciation in the world of proportions, forms, colors, textures and spaces”, the purpose of Visual Training went actually further than that—the development of a way of designing that makes possible an architectural experience by means of rendering visible the inner relationships in any construction, and therefore enabling a critical account of its structuring principles. Behind this approach lied the assumption that the task of the educator was to awaken the students to their “own insight and understanding of the common (...) from which art springs”. Such aim required “(...) to present visual qualities and relationships in a pure form, intensified to the highest degree, straining toward ripeness and fulfillment, so that they attain perfection, as it were, by themselves, and in free accord cause the technical means to be forgotten”.

It was in this sense that the student had to internalize technical knowledge, and “understand construction to work effectively and imaginatively with engineers, but he must also refine his visual perception so that he can learn to construct with his eye”.


But the singularity of the inclusion of Peterhans’s courses in Mies’s Educational Program was, although relevant, nevertheless instrumental — they were specifically conceived as introductory to architectural principles. This would allow the students, according to Mies’s belief, to develop a progressive consciousness about their own skills, until being able to face an architectural assignment.\footnote{Such understanding of \textit{vision} as an instrument for proportion would be one of the main differences between Mies and Moholy-Nagy during the years they shared at Chicago.}

Consequently, Mies outlined the Architecture sequence so “by way of a synthesis of the whole course of instruction, the student is introduced to building as an art. He is taught the essential nature of art, the application of its means and its realization in the building”.\footnote{MIES VAN DER ROHE, L., «Leitgedanken zur Erziehung in der Baukunst [Principles of Architectural Education],» in BLASER, W. (1965), \textit{Die Kunst der Struktur—L’art de la structure} (Stuttgart/Zurich: Verlag für Architektur), p. 51 [text originally written in English].} With this aim, he opted for implementing exercises that he had already successfully experimented at the Bauhaus \cite{Mies van der Rohe, L., «Architecture», in Armour Institute of Technology (ed.), \textit{Bulletin of Armour Institute of Technology}, xxxiii (3): 48-49 (Apr., 1939) [reprinted in WOLDSORFF, Ch. (ed.) (1966), \textit{Der Vorbildliche Architekt: Mies van der Rohes Architekturunterricht 1930-1938 am Bauhaus und in Chicago} (Berlin: Bauhaus-Archiv), pp. 184-185].

Five principles were the foundation of this sequence:

1. The structure as an architectural factor: its possibilities and limitations.
2. Space as an architectural problem.
3. Proportion as a means of architectural expression.
4. The expression value of materials.

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Five principles were the foundation of this sequence:

1. The structure as an architectural factor: its possibilities and limitations.
2. Space as an architectural problem.
3. Proportion as a means of architectural expression.
4. The expression value of materials.

Mies implanted his courtyard house exercise, that he had developed at his architecture courses at the Bauhaus, at AIT Architecture program. It consisted in the design of a house and its courtyard enclosed with brick walls. Assuming that space was primordial, the student had to determine the position of the interior walls, completed as a whole with the exterior perimeter. In this context of spatial freedom, a basic set of structural elements of a load and support scheme —mainly slabs, walls, and columns, but hardly beams— had to be articulated, considering its expressive impact in the whole by means of proportion. Free from excessive functional requirements, the arrangement of its interior allowed a systematic study of the essential nature of each of these elements, as well as their principles, in a clear and specific way.
Systematically exploring these principles in assignments of increasing size and program, the students were required to make emphasis in a clear resolution of the structure — commonly evolving from slab to skeleton frame schemes — as a guarantee of a questioning and understanding of the fundamentals of their own projects. By a careful study of basic configurations, unobtrusive to the required functions, the proportions of its structural members and its construction details had to find a clear and harmonious articulation with its enclosure [Fig. 3.44]. Furthermore, such claim for honesty and commitment, in consideration of a relevant role of the architect in contemporary society and culture, implied a dismiss of any authorship, in what he understood as the ultimate

consequence of assuming Baukunst. In Mies's own words

“We do not produce designs. We consider what might be done and then we try to develop it, and then we accept it. We always develop in accordance with critical criteria.” 53

Often interpreted as a prejudice about the capability—or even true will—of the average student to assume such responsibility, 54 this approach resulted in assignments singularly based on specific problems previously explored by Mies [Fig. 3-19]. As a matter of fact, while he initially taught undergraduate classes, by the time war was over his personal contact with students was reduced to the supervision of master thesis projects—most commonly related to his own assignments—probably because

“(…) it was not in Mies’s nature to correct or attempt to refine a student’s work (…) Instead, he led by the force of his own intellectual and artistic gravity, and by the example of the [IIT] campus as it rose around him.” 55

3.15 ‘House with three courts’ (above) and ‘Court-house’ (left), student exercises developed at IIT under Mies direction.

Commonly, the students were assigned exercises based on previous results of Mies’s own teaching experience. Taking these as a reference, their different variations were ‘critically’ studied, to evaluate their possible improvement, or just analyze the scope of their solutions, in most cases with very limited options for innovation. Thus, talented graduates, already acquainted with Mies’s personal architectural discourse, often ended as employees at his own office.


54 “(…) It seeks to show that architecture can be made using reason and responsible judgment instead of uninformed opinion and personal whim,” as described in Svensson A., and Chang, P.-Ch. (eds.) (1980), «Architecture Sequence», in Op. cit., pp. 45-46. Most polemically, the fact that the sentence literally quotes passages from Mies’s Inaugural Speech, gives an account of the actual reception of his Educational Program by the later faculty.

3.1.2 Mies’s AIT Campus Master Plan Design

By the mid-1930s, a Master Plan for the future redevelopment of AIT’s South Side campus [Fig. 3.16] was being officially developed by AIT trustee and faculty architect Alfred Alschuler, by agreement of AIT Development Committee. However, whether apparently not fully satisfied with the results so far, or just considering the impact of an all modern college complex, Heald decided to informally commission Mies an alternative proposal.\(^{56}\)

Unofficially, Mies started to study a series of schemes made out of compact buildings in a generic site — extending 120 acres

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\(^{56}\) Mies recalled the verbal arrangement explaining that “[Heald] said to me one day, ‘Mies, you had better think about a campus.’ That was all the commission I had. We never made a contract as long as he was there,” in Mies van der Rohe, L. pub- lic interview broadcasted by the BBC (May 27, 1959) [Transcript published in Cad- bury-Brown, H. T., «Ludwig Mies van der Rohe: An Address of Appreciation», Archi- tecture Association Journal, 834 (1959): 56-58. Jul.-Aug., 1959].

Schulze suggests that “Heald knew how much symbolic adrenalin would be re- leased if such a campus could be planned by a designer of Mies’s stature,” in Schulze, F. (1985), «Revival: Modernism Without Utopia, 1938–48.» in Mies van der Rohe: A Critical Biography (Chicago: Gale), ch. 7, p. 221.

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<table>
<thead>
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<th>Key</th>
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| **AIT Buildings** | 11 | Ogdan Field (‘The Bog’)
| 1 AIT Armour Mission Bldg. (/& Student Union Building) | 12 | RF Electrical Engineering Research Building
| 2 AIT Main Building | 13 | AIT Fraternity Row
| 3 AIT Heating Plant | 14 | Graduate House
| 4 Physics Hall | 15 | Mandel Residence
| 5 Chapin Hall & Research Foundation (RF) Magnetic Recording Lab | 16 | Vendome Theater
| 6 Parking Lot | 17 | ‘The Mecca’ Flats
| 7 RF Administration Bldg. | 18 | Keith Public School
| 8 AIT Pattern Shop | 19 | Coal Yard
| 9 AIT Machinery Hall | 20 | Binga Bank & Arcade Bldg.
| 10 AIT Armour Laboratory |  |  |
over an apparently flat, open and green location [Fig. 3.18] — devoid of any determinant conditions of the existing campus location, except for a rough estimation of space needs, that Heald apparently facilitated to Mies.\textsuperscript{57} The different variations produced seemed to insist on a similar spatial approach, where

“(...) buildings are always grouped around a central plaza in such a way that they create a continuous interchange of open and closed spaces. This interwoven effect is achieved by the simple but highly original device of sliding adjacent units past one another, rather than placing them side by side” [Fig. 3.17].\textsuperscript{58}

Taking this early scheme as a start, Mies began then to work on a full campus Master Plan for AIT by the spring of 1939, with the help of his administrative assistant at AIT, John B. Rodgers, and one of his graduate students, George Danforth. For such purpose, an office was set in the Railway Exchange Building, opposite to the AIC, where AIT Architecture studio classes took place.

The design begun by an in-depth study of AIT’s program of space requirements,\textsuperscript{59} undertook by Rodgers, and the possible

\textsuperscript{57} Armour Institute of Technology (ed.), 

\textsuperscript{58} Johnson, Ph. (1947), "1937-1947", in Mies van der Rohe (New York: Braziller/Stone), p. 131 [emphasis added].

\textsuperscript{59} Lambert, Ph. (ed.) et al. (2004), «Learning a Language,» in Mies in America (Mon-
room arrangements for the various necessities of the different departments. After testing various alternative dimensions, Mies finally settled on a bay size of 24 feet—a dimension that not only provided an optimal structure for the classrooms and laboratories, but also proved effective to accommodate other functions, both with larger or smaller space demands [Figs. 3.19, 3.20]. Ex-

3.18 Models of various preliminary schemes for AIT campus Master Plan on a generic site, c. 1938.

The preliminary schemes proposed a large central open space, transversally accessed by pedestrians, whose edges were vaguely defined by 'sliding' blocks without closing them. The parallelism of these blocks, slightly overlapping, conformed transitional spaces that suggested itineraries, according to their shared axes, to other secondary spaces developing longitudinally in the campus. Such 'suggested' directionality made these open spaces dynamic and invited for casual walk, in a fluid and continuous spatial sequence.
tending this principle to the entire campus site, Mies decided to superimpose a square grid based on a unit length of 24 feet all over its plot plan. As Mies described it,

“(...) we came to a system of 24 feet, so I drew a network of 24 feet by 24 feet all over the campus. The crossing points were the points where we put columns. Nobody could change that. I had some fight about it; but I stuck to it. So you could connect the buildings at any place and you still had a clear system.”

Following this same structural interpretation, Mies extended the planar logic of the grid to the height of the buildings, embracing a half module for the typical floor-to-floor dimensions. Consequently, the proposed buildings acquired a general appearance of prismatic blocks of two to three stories, vertically extruded from a spatial grid that actually spread in all dimensions throughout the whole campus. This way, the module was adopted not just for the construction of the individual buildings, but also as an ‘ordering principle’ of the space between them.

In the mid-term, such strategy proved to be favorable. On one hand, once established, it definitely gave a formal standard, “(...) so that the buildings wouldn’t be positioned in a haphazard sort of way in the future, that it would be a guiding principle”.

On the other hand, the inherent flexibility of its system of construction (theoretically) made possible that “(...) if necessary, it can expand farther; with equal ease it can be converted as space requirements change and as technology swings forward with giant strides.”

Both arguments were often used by Mies to underline the importance of the durability and flexibility of the chosen solution.

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61 Schulze appropriately points that “as it turned out, almost without exception the campus buildings were and remained freestanding, and ‘connections’ were few,” in Schulze, F., and Windhorst, E. (1992), Op. cit., ch. 7, p. 197.

62 Schulze states, without further reasoning, that “Mies’s rationale is questionable. Even for a new campus planned as a unity, there is no necessary link between the plan dimensions of individual buildings and their siting relative to one another,” in Idem.


64 Whitcomb, M.E., «Campus Design: An interview with Mies van der Rohe», College and University Business, 6 (4): 13 (Apr., 1949). It is interesting to contrast this approach with the argumentation made in Rowe, C., «Neo-“Classicism” and Modern Architecture II», Oppositions, i: 14-26 (Sept., 1973).
But, presumably, his main intentions were actually other—to guarantee an architectural unity for the campus in the future, on the basis of a “generalized building”.65 The construction of such a large project would most probably extend over decades, therefore implying that some of its parts would probably had to be completed by other architects. In addition to this, the adoption of a regular modularity would facilitate the use of standardized—and conse-

MIES VAN DER ROHE’S ILLINOIS INSTITUTE OF TECHNOLOGY
MIES’S EXILE AND FIRST AIT CAMPUS DESIGNS, 1938-40

The existing streets that crossed and surrounded AIT campus were traced according to the large-scale order imposed by the pervasive eight-blocks-to-a-mile square grid underlying all across the urban fabric of Chicago. Given the fact that the program of necessities of the future AIT campus demanded its extension over several city blocks, Mies might have decided to use the grid as the ordering principle of his campus design. Such decision was probably taken under the assumption that, being its ‘natural order’, any further intervention in the campus Master Plan beyond his own directorship necessarily would have to deal with it.

Subsequently cheaper — building components and their organization in a variety of ways.

Used here for the first time in Mies’s career, it seems reasonable to assume his choice of a modular grid to coordinate site planning, interior space planning and building structure, as the result of his personal experience of the grided layout on which most American cities lay. Presumably “confronted by the unrelenting flatness of IIT’s South Side site, as well as the eight-blocks-to-the-mile rhythm of Chicago’s constraining rectilinear city plan” [Fig. 3.21], Mies soon attuned to Hilberseimer’s defense of the grid as an overall organizing device of large scale units.

3.21 Square Mile Index Map of Chicago, 1940 (location of AIT South Side campus highlighted in red). The existing streets that crossed and surrounded AIT campus were traced according to the large-scale order imposed by the pervasive eight-blocks-to-a-mile square grid underlying all across the urban fabric of Chicago. Given the fact that the program of necessities of the future AIT campus demanded its extension over several city blocks, Mies might have decided to use the grid as the ordering principle of his campus design. Such decision was probably taken under the assumption that, being its ‘natural order’, any further intervention in the campus Master Plan beyond his own directorship necessarily would have to deal with it.


68 An early influence of Hilberseimer, “(...) having employed grids in his teaching
Probably guided by the assumption that “public realm was representational; it not only housed activities of a public and collective nature but it symbolized these activities,” Mies assumed AIT campus as a ‘superblock’ [Fig. 3.22] or “designed whole”.69

<table>
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<tr>
<th>Module</th>
<th>Dimensions</th>
<th>‘Superblock’ Modulation</th>
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<tbody>
<tr>
<td>Base (M)</td>
<td>24’ x 24’</td>
<td>(± 7.31 m x 7.31 m)</td>
</tr>
<tr>
<td>3/4 M</td>
<td>24’ x 18’</td>
<td>(± 7.31 m x 5.48 m)</td>
</tr>
<tr>
<td>1/2 M</td>
<td>24’ x 12’</td>
<td>(± 7.31 m x 3.65 m)</td>
</tr>
<tr>
<td>1/4 M</td>
<td>24’ x 8’</td>
<td>(± 7.31 m x 2.43 m)</td>
</tr>
<tr>
<td>1/8 M</td>
<td>24’ x 6’</td>
<td>(± 7.31 m x 1.82 m)</td>
</tr>
<tr>
<td>M+1/2 M</td>
<td>24’ x 36’</td>
<td>(± 7.31 m x 10.9 m)</td>
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and planning projects since the Bauhaus days”, is suggested in MERTINS, D. (2004). “AIT/ IIT: Open Campus,” in AIT (London: Phaidon), ch. «Organic Architecture», p. 246. However, although Hilberseimer was certainly active in the planning of AIT/IIT campus, Mertins does not offer any evidence regarding his participation in the preliminary AIT schemes, when the grid was set.


For a specific approach to the South Side Redevelopment Plan as a ‘superblock’
Following previous plans, Mies assumed a centralized campus green in which eight city blocks “would be amalgamated into large superblocks straddling 33rd Street, which would serve as main entry and spine of the campus”.70 Although he originally “planned to remove the long center street from the rectangular site (...) in order to dispose a unified group of large buildings around an open plaza”,71 Mies finally accepted it, and the fact that it actually divided by the middle the campus main space.72

After exploring different building configurations [Fig. 3.23],73 Mies finally deployed the program in free-standing buildings which, although regulated by a grid, were carefully disposed to achieve a flowing space expanding in all directions. As a result, Mies finally arrived to a solution in which each of the two result-

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Notwithstanding, Turner seems to examine the campus from a later point of view, not considering its actual historical and urban context, where it was radically modern for the U.S. at the time, and definitely acted as a pioneer and reference model for later campus plans. On this regard, see, for instance, “Illinois Institute of Technology, Chicago”, Architectural Record, 117: 126-131 (Jan., 1933, “College Building Types-Study No. 48”, special issue).

73 Mies tried alternative layouts in a series of sketches drawn on a small notepad, now preserved at cca, Montreal, which probably constitutes the most extensive set of drawings concerning aiit/iit campus outside the states, New York. Its contents, together with the whole sequence of the design, are thoroughly analyzed in Lambert, Ph. (ed.) et al. (2001), «Learning a Language», Op. cit., pp. 223-275.
Mies van der Rohe's IIT campus design was characterized by the interplay between different buildings, each serving a specific function. The campus was designed to have two main halves dominated by large buildings, one opposite the other: the Library and Architecture School Building to the south, and the Administration and Student Union Building to the north (Fig. 3.24). This arrangement was only possible with the interruption of the grid in the working drawings all along the process. The inadequacy of the grid to solve the variety of uses of the campus program could be guessed from the beginning.

Key

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<tr>
<th>Mies van der Rohe's AIT Campus Design Buildings</th>
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<tbody>
<tr>
<td>1 AIT Metals Science Bldg.</td>
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<td>2 AIT Civil Engineering Bldg.</td>
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<td>3 AIT Student Union &amp; Administration Building</td>
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<td>4 AIT Chemistry Building</td>
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<td>5 AIT Physics Building</td>
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<td>6 AIT Architecture &amp; Library Building</td>
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<td>7 AIT Mechanical Engineer Building</td>
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<tr>
<td>8 AIT Electric Research Bldg.</td>
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Dearborn and Federal Streets — two major thoroughfares that ran for miles crossing north to south along Chicago South Side — in order to gain the required planning flexibility for the larger buildings and new, landscaped open spaces. Thus, the campus final shape was defined to achieve a specific character of “plazas” for the common open spaces, with the particularity that “(...) without being closed, combine the intimacy of the courts (...) with the clarity of a classically arranged campus.”

Partly, this was the result of the permeability of the open public spaces, increased by raising some of the buildings that delimited them on exposed steel columns. As a consequence, while the border was still perceived as continuous at a medium distance, the whole spatial experience at the perimeter was richer for the pedestrian [Fig. 3.25]. This was achieved by means of different sequences of transitional spaces, often in the shape of green corridors or open halls, that qualified the access from the public to the private spaces of the campus. But, at the same time, the clarity of the proposed scheme was not just an effect of the orthogonal plan, as “(...) order is not dependent on axial grouping, but on a subtler symmetry deriving from the fact that every building, no matter what its size, is based on the same cubic bay (...)”.

So, extended in space, the regularity of the grid derived from a planning instrument to an visual device. Its aim was to control

3.25 Sketches over perspective views studying groups of buildings at AIT campus, 1939.

Over a block model, Mies studied various configurations for the different groups of buildings, that were carefully adjusted on the basis of the proposed grid. Next, these groups of buildings were evaluated as accurately as possible with the help of perspective views (left), which later served as the basis for quick sketches in search for the desired effect (right), to be drafted again. This iterative method resulted in extensive studies of the arrangement of each of the elements that defined the open spaces, as well as of its relation to the other ones surrounding it.

74 Johnson, Ph. (1947), «1937-1947», Op. cit., p. 131, 137. The campus is here compared, respectively, with Oxford and Jefferson’s University of Virginia.

75 Idem [emphasis added]. Here ‘symmetry’ is recalled as a “balanced whole by means of measure in its parts”, as it was understood in the classical tradition. Regarding Mies’s interpretation of certain principles of classical architecture for his AIT campus design, see Harrington, K., «Order, Space, Proportion — Mies curriculum at IIT», in Op. cit., p. 49.
3.26 Mies's AIT campus Master Plan, with underlying grid and buildings structure, in its urban context, c.1939.

When one looks at Mies's AIT campus Master Plan in terms of its overall image, the design proves to offer a satisfactory solution not just for being clearer for its users, or being able to guide and better accommodate any later additions. Moreover, the spatial equivalence of the grid and its basic structural bay to the ordering principles of its context, allows a visual apprehension of the structuring principles of a whole environment, that does not require of previous knowledge about its program or construction.
the spatial unity of the whole, by means of setting a basic visual rhythm which was also stressed by the facades of the campus buildings, framed by their exposed structural bays. Being varied in length, width, and height, as well as in the constructive solutions of their facades, the campus buildings were far from monotonous despite their modulation [Fig. 3.46]. Linking constructed and void space, here the grid

“not only displays perfectly (...) the simultaneity of vision’s grasp of its field dissolving the spatial (...) separation of figure against ground into the continuous immediacy of a purely optical spread — but also repeats the original (...) desire of objectivity and extreme clarity” [Fig. 3.47].²⁶

But, most significantly, Mies decided not to include any of the urban context of the campus in the final presentation boards, but a plain blank background [Fig. 3.28]. Furthermore, no reference was made to the existing historic buildings at the campus, or even to the grid. This decision was presumably a way to mitigate the problems arising from the simplicity of the approach of using a single structural module to meet the different functional require-
3.29 Mies’s Master Plan design for AIT campus, 1939 —preliminary sketch of general aerial view (above), and perspective view of inner court (left).

Preliminary sketches show the problems of Mies’s structural approach when facing uses with singular structural requirements —specifically the load-bearing walls of the “diverting accents” of the fan-shaped auditoriums (left), or the “exoskeletal structure” of the Student Union auditorium (above) that he finally decided not to include in the final drawings. In addition to this, details of the environment —such as the elevated train stop at 33rd St.— were finally omitted in the presentation drawings as well [see Fig. 3.29], despite they presumably would have had an important role in the design.

However, it has favored a common misunderstanding of Mies’s AIT campus design as a preliminary step for later versions, acknowledged for just being able to “reflect and enhance the character of the Institute as a major center for technology”, 78 in a sort of figurative reading of the functional, elementary forms of its buildings, far from his intentions.

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This being deliberated, such interpretation would be secondary for Mies, most likely concerned with a design “expressive of the values of a modern university in relation to the city” [Fig. 3.39].

3.0 Mies’s Master Plan design for AIT campus, 1939 —aerial view (above), and general plan inserted in its original urban context (opposite page).

Presentation board showing an aerial view of the proposed AIT campus Master Plan, as seen from NW. As in the earlier Holabird’s scheme, Mies deliberately omitted any solution for the edges. Furthermore, all the context has disappeared, particularly all of the several Armour original buildings, as the storied Main Building, still extant today.

Key

Mies van der Rohe’s AIT Campus Design Buildings
1 AIT Metals Science Building
2 AIT Civil Engineering Building
3 AIT Student Union & Administration Building
4 AIT Chemistry Building
5 AIT Physics Building
6 AIT Library & Architecture Building
7 AIT Mechanical Engineer Bldg.
8 AIT Electrical Research Bldg.
9 AIT Mechanical Building
10 AIT Power Plant
11 AIT Field House

Preexisting AIT Buildings
12 Sports Field
13 Undefined (Parking Lot?)

Other Relevant Structures in the Area
14 RF Electrical Engineering Research Building
15 AIT Fraternity Row
16 Graduate House
17 Mandel Residence
18 Vendome Theater
19 Keith Public School
20 Binga Bank & Arcade Bldg.

3.2 The Birth of Illinois Institute of Technology

Parallel to its South Side campus Redevelopment Plan, AIT had been working on a full institutional renovation for years since the mid-1930s. Finally, after months of negotiations between trustees of AIT and Lewis Institute—a Chicago school that had been serving for almost 50 years in the fields of liberal arts as well as science and engineering—an agreement for their consolidation was ratified by the end of 1939. The two schools decided to merge into a single institution, henceforth to be known as Illinois Institute of Technology (IIT) [Fig. 3.31]. Inspired by the idealism of their shared philanthropic origins, “by joining forces, they ensured the survival of their shared mission: empowering young people to lead independent, meaningful lives”.

The merger deeply affected the character of the developing AIT/IIT Master Plan for the South Side campus which, compared to Lewis Institute, still lacked of a unified plan for its dispersed facilities [Fig. 3.1].

On one hand, it introduced a cultural program in the university curriculum, which hereinafter extended its academic offering to not strictly technical themed programs. Most probably, this might had favored a reception of Mies’s discourse, which he always had tried to formulate from the widest point of view possible. As a matter of fact, not only the new ongoing Architecture program was not affected by the merger, but their chairmen took care to announce that a “complete development of the plan contemplates the acquisition of a new, well-planned campus, conveniently situated”.

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80 Both institutions came to an agreement on Oct., 9th, 1939, later announced on Oct., 26th. Due to a provision in the will of Allen C. Lewis, founder of Lewis Institute, the merger was delayed until its legality could be finally established by the Court of Cook County on Apr., 33rd, 1940. By July, combined boards of both schools were already created, thus clearing the way for operation for the beginning of the academic course by next September, as detailed in ARMOUR INSTITUTE OF TECHNOLOGY (ed.), «Progress in Armour–Lewis Merger», Armour Engineer and Alumnus 4 (5): 34 (May, 1940).


On the other hand, although the original purpose of the merge could be traced back to the hardships that both institutions had to put up with during the years of the Depression, the improvement of the economic prospects since World War I had meant indeed an important push for both of them. As a consequence, by the time the merger was finally achieved, the resulting institution was financially stronger than any of its predecessors. Budget extension now made feasible the dream of building “a great technological center” with an international projection for the first time in the history of AIT — “a new era had begun.”

3.32 “Illinois Institute of Technology — A Consolidation of Armour Institute of Technology and Lewis Institute”, advertising (above) and promotional brochure (left).

The facilities of the new school (left), as well as its new, extended academic offer (above), were widely announced by means of numerous advertisements and brochures, where the emergent IIT was enthusiastically described — “In the community as a whole, the consolidation will unify support which has hitherto been divided between two institutions, and will permit those who wish to support education and research in technology to concentrate their efforts upon one major institution.”

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3.3 Urban Visions and Preliminary Designs for IIT Campus

Just after the merger, Armour Institute campus consisted in five old buildings and a few temporary facilities, all disseminated over a barely seven-acre location in the middle of 750 acres of a condemned neighborhood [Fig. 3.33]. Not in vain, the fact that the Architecture Program remained being imparted at the Art Institute might not be by chance, as Mies “was aware in the early years how frighteningly depressing Chicago was, especially the area around IIT,”84 Accordingly, one of the first effects of the founding of IIT was the determinate reactivation of its earlier plans for the acquisition and clearing of nearly 110 acres of slum land on the South Side [Fig. 3.35].85

This determination was encouraged by the public presentation, in 1941, of the first results of the extensive land survey of the city that the Chicago Plan Commission (CPC) —a private organization participated by Chicago’s most prominent businessmen—had initiated in 1938 for its own private interests. The organization had been conducting a use-survey of all urban structures in Chicago urban area, documenting their condition. CPC completed the results thus obtained with additional information about “community background, vital statistics, and juvenile delinquency assembled from other sources,”86 in search for federal loans for investment opportunities.87 Aware of its activities, IIT made a formal request to CPC, asking the organization to expand its survey area on the Near South Side, so it included all the properties that IIT considered suitable for its expansion in the neighborhood [Fig.

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84 “(...) It was one vast slum that was gradually cleaned out, [with] people living in the utmost depravity,” in Goldsmith, M., and Blum B. (2002) Oral History of Myron Goldsmith (Chicago: aic), p. 49.

85 According to Macauley, “at the height of the demolition program buildings were coming down at the rate of one a week”, in Macauley, Irene (1978), Op. cit., ch. x: “Out of the Chaotic Rubble”, p. 70.


87 “Business was neither willing nor able to spend its own money on such research; the federal, state, and even municipal governments, meanwhile, lacked the resources and the special interest to undertake it,” as argued in Whiting, S. (2001), «Flatland: The Impenetrable Density of Chicago’s Near South Side», in Op. cit., p. 652.
3.34, extending from 31st to 35th Streets, and from Lake Michigan to Rock Island railroad tracks.88 As a consequence, “(...) IIT’s campus-planning strategy both emerged from and simultaneously engendered slum-clearance measures that later facilitated municipal, state, and federal legislation.”89

Such was the reality of Chicago South Side, “(...) indeed rather bleak next to the visions of an America where economy and reason would coincide,” behind Mies’s AIT campus design.90

89 Whiting, S. (2001), «Manifest Destiny: IIT and the Urban Frontier,» in Op. cit., p. 655. While Whiting follows “(...) that this request was heeded, reveals the extent of IIT's significance in the area”, it might have been rather a consequence of the economical power of certain IIT Trustees, and the confluence of their interests with those of other businessmen in the CPC, than of its actual position in the neighborhood, from which IIT always remained distant.
3.35 Aerial view of IIT campus by the year 1940, as seen from South above; IIT campus by the same year, in its urban context (opposite page).

Profusely used by IIT for promotion purposes, aerial views tried to offer an overall image of the campus and to lessen the effects of blight in its surroundings. Note that the attempt to include the Fraternity Row houses at Michigan Boulevard in the image gave the impression that its center was not the group of buildings around the Student Union, but instead its edge with State St., dominated by the presence of The Mecca.

### Key

**IIT Buildings**

1. IIT Armour Mission Bldg. (/Student Union Building)
2. IIT Main Building
3. IIT Heating Plant
4. Physics Hall
5. Chapin Hall & Research Foundation (RF) Magnetic Recording Lab
6. Parking Lot
7. IIT Aeronautical Lab
8. Metals Research (Temporary Building)
9. RF Administration Building
10. IIT Pattern Shop
11. Institute of Gas Technology (IGT) Labs and Research
12. IIT Machinery Hall
13. IIT Automotive Laboratory

**RF Buildings**

14. Field House
15. Ogden Field ("The Bog")
16. RF Electrical Engineering Research Building
17. IIT Fraternity Row
18. Graduate House

**Other Relevant Structures in the Area**

19. Haber & Haber Motor Exp.
20. Mandel Residence
21. Vendome Theater
22. "The Mecca" Flats
23. Keith Public School
24. Coal Yard
3.3.1 Alschuler’s IIT Campus Master Plan Design

Meanwhile, by the late Autumn of 1940, Alfred Alschuler had already finished the plan of a future consolidated campus for IIT at the South Side, that AIT/IIT Development Committee had officially commissioned him. Following Holabird’s early Master Plan design for AIT campus, Alschuler had assumed the demolition of all existing buildings on twelve city blocks, with the exception of Armour’s own historic buildings [Fig. 3.36]. Developing a whole new design, Alschuler arranged the campus according to an axial scheme, where all its most relevant buildings were disposed so they conformed symmetrical precincts, in a distilled and austere neoclassical style [Fig. 3.37].

However, discreetly critical with Alschuler’s design — of which he, apparently, “found little to like in it”91 — Heald had maintained informal contacts with Mies concerning an alternative for what he saw as a conventional design. Aware that neither AIT Board of Trustees nor faculty committees would hardly volunteer to replace a well-known figure for them as Alschuler92, Heald had privately invited Mies to prepare a campus Master Plan of his own, that he planned to present only when completed, in hopes that an awe-inspiring design would overshadow all previous plans.

Unexpectedly, “an act of God,”93 hastened Heald’s plans, giving Mies a chance to formally assume the commission — by the end of 1940, just a few days before the scheduled public presentation of the plan to IIT Board of Trustees, Alschuler died.94 Heald then informed Mies that, although accepting his alternative plan, he would present a design by Mies itself.

92 Schulze argues, without further reasoning, that, as a German, Mies was “radical a figure by traditional American standards”, in Idem.
“(...) the Board of Trustees has decided out of respect for Mr. Alschuler to use a sketch he prepared before his death (...) I do not want you to feel that, because the board is using Mr. Alschuler’s sketch, it represents any reflection on your work in connection with the program. It happens that [Alschuler] had prepared a sketch which shows a partial development with certain old buildings in use [Fig. 3.38] and which is not as comprehensive as the general program on which you have been working, and the Board felt that at this time it would be best to show the picture in that way”.

Without further explanation, and very likely “a product of institutional political infighting”, Alschuler’s plan was widely published just a few months after his death, before it was definitely shelved. Mies officially assumed the design of IIT campus Master Plan.

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97 An official public announcement was issued in Chicago Daily News, (Jan. 13th, 1944). Most commonly, the plan was anonymously referred as “an architect’s view”.

3.37 “Illinois Institute of Technology—An Architect’s Idea of the New Campus” (left); “View North from Thirty-third and Dearborn” (above). Despite described as a “program of practical development over a period of time”, that “permits orderly growth, by the replacement of old, inadequate facilities” in different institutional publications, Alschuler’s Master Plan design nonetheless visibly kept most of the historic buildings of Armour Institute.
3.38 Alschuler’s Master Plan for future IIT campus, 1940.
Both the preliminary plans (above) or the presentation drawings (left) presented several contradictions, particularly in its treatment of the traffic or the lack of solutions for the edges of the complex, as it could be appreciated when it was inserted in its urban context (opposite page).

### Key

<table>
<thead>
<tr>
<th>Preexisting AIT Buildings</th>
<th>Alfred Alschuler’s IIT Campus Master Plan Design Buildings</th>
<th>Other Relevant Structures in the Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 AIT Main Building</td>
<td>7 Tennis Courts</td>
<td>18 Vendome Theater</td>
</tr>
<tr>
<td>2 AIT Heating Plant</td>
<td>8 IIT Student Union</td>
<td>19 Huber &amp; Huber Motor Exp.</td>
</tr>
<tr>
<td>3 AIT Machinery Hall</td>
<td>9 IIT Library &amp; Humanities Bdg.</td>
<td>20 Mandel Residence</td>
</tr>
<tr>
<td>4 RF Electrical Engineering Research Building</td>
<td>10 Field House</td>
<td>21 Coal Yard</td>
</tr>
<tr>
<td>5 AIT Fraternity Row</td>
<td>11 Athletic Tracks</td>
<td>22 Binga Bank &amp; Arcade Bldg.</td>
</tr>
<tr>
<td>6 Graduate House (/Brown Hall)</td>
<td>12 Power Plant</td>
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<tr>
<td></td>
<td>13 IIT Research /RF Facilities?</td>
<td></td>
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<tr>
<td></td>
<td>14 IIT Mechanical Lab</td>
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<tr>
<td></td>
<td>15 IIT Engineering &amp; Sciences Bldg.</td>
<td></td>
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<tr>
<td></td>
<td>16 Undefined Building</td>
<td></td>
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<tr>
<td></td>
<td>17 Parking Lot</td>
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</tbody>
</table>
3.3.2 Hilberseimer’s Settlement Unit

At the same time, by the late 1930’s Hilberseimer developed a theoretical model of urban development from his early studies on the European garden city [Fig. 3.39] that would have a critical influence all his later American work —the ‘Settlement Unit’.98 Conceived as a generic solution to articulate the different needs of urban life —as well as their relation to each other— in an almost self-sufficient whole, such resulting unit would facilitate a decrease of density and congestion by means of minimizing the need for displacement, and of an integration with open, green spaces. This was to be achieved by providing a urban-scale framework that, allowing a free and unhindered growth of its different parts, would include all the basic necessities for the development of a healthy communitarian life [Fig. 3.40].

Assuming a basic set of residential, working and recreational needs for such community, each of these functions were assigned a place in adjacent areas, in a way that their own requirements could be satisfied. These areas were coordinated in relation to each other and to the whole in order to avoid any adverse influence on another. Ideally, the unit finally acquired the shape of a rectangle of such proportions that it would reduce to a minimum the amount of required infrastructures [Fig. 3.43]. However, the flexibility of Hilberseimer’s scheme was intended to lead to diverse derivations, as a consequence of its adaption to topography and to orientation, as well as of its meeting to the specific development of its functional requirements. Furthermore, a number of units could be combined, as their inner structure would favor original conditions within each of them to always remain the same.

Among this infrastructural planning, the street system received major attention in the definition of the unit,99 differentiated according to its function. Major highways (a) interconnected the unit with existing population centers in the region —or combined with other several units into rows linked together— derived to local arteries. On one side of the local traffic artery (b) lied an industrial area (c) that could be expanded if necessary, while on the


Based in his own personal contact with Hilberseimer, Späth particularly focuses in the influences of E. Howard’s ‘Garden City’, A. Soria y Mata’s ‘Ciudad Lineal’, and T. Garnier’s ‘Cité Industrielle’, effectively acknowledged by Hilberseimer himself in Hilberseimer, L. (1940), «The Elements of City Planning,» Armour Engineer and Alumnus 1 (6): 4.7 (Dec., 1940), although no reference to this document is made in Späth’s essay.

3.40 “The City in The Landscape” (top); “Elements of City Planning” (middle and bottom)

Ludwig Hilberseimer exposed for the first time his theoretical urban scheme of the ‘Settlement Unit’ in 1940 (middle), although it was not until 1944 that he finally included a thorough description of it in his book *The New City* (bottom).
other commercial and administration buildings (d) were planned. Their impact filtered by a green belt (e), smaller lanes finally connected the latter to a residential area (f). To reduce local traffic as much as possible, the different areas of the unit were sized within walking distances and, although every house could be reached by car, traffic within the residential area was avoided by making all residential lanes closed-end streets. Aiming to secure a proper orientation for the dwellings, the streets of the unit, or even the inner lanes leading from the houses to the streets, were intended to be arranged accordingly, when possible. The whole residential area was surrounded by a park, where community buildings (g) for social institutions or public gatherings would be conveniently placed. This park could be reached without crossing any traffic street. Gardens and farms, contained in the built environment of the unit, would then naturally adjoin the park area (h), connecting the unit to the open countryside in a continuity with surrounding “meadows and forest.”

An essential characteristic of the unit was that it offered these communities the opportunity for expansion. While new communities could be formed from a single unit, new units could be added to the existing ones when necessary. In addition to this, the inner structure of the units could also be combined into larger—or smaller—communities, and all would still provide working areas with space for industry and commerce, as well as space for parking. Whenever no expansion was required, Hilberseimer proposed that industries and their respective residential areas could be placed on both sides of the traffic artery, where a second row of units could then be replaced by units of smaller facilities for part-time workers.

But, no matter its final configuration was, the population of the unit was always to be kept in a desirable low-density. Accordingly to the possible fluctuations in its population, the buildings within the different areas of the unit could would vary in size and type. Determined by different considerations, the size and extension of the constructions in the industrial and administrative areas of the unit was influenced, on one hand, by the kind of work to be performed in them. On the other hand, the unit should be large enough to provide a variety in work and life, as well as to be able to support the necessary commercial and cultural facilities to meet the social and personal demands of the individual. Family houses of different sizes, preferably linked to green open spaces, punctuated by mid-sized apartment buildings, were proposed for the residential areas.

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100 Fitting the landscape of the American Midwest territories, where the unit was presumably conceived to be implanted.
To sum up, Hilberseimer insisted in the need to find a balance between the flexibility and a density of the occupied land in each unit in the lowest possible rate, to “preserve an organic community life, so that democracy could prevail, and each individual participate in community activities.” 101

4. WAR SHORTAGE AND DISCIPLINE
INQUIRY, 1941-45

— But if you acknowledge that his teaching system in America led to a kind of rigidity, why can you not also argue that the work he did in America was comparably inflexible and rigid? Especially if he stood for a fact [the Zeitgeist] that he considered incontrovertible?

— Some of it was, surely. But Mies could be and was at times flexible, resourceful, and, in a limited way, responsive to the city frame and fabric. He was not totally indifferent to context as the current view makes him out to have been.¹

4.1 Mies’s IIT Campus Master Plan Design

Despite not explicitly participating in it, by 1940 the U.S. was deeply involved in World War II. The rampant American industry had seen on it a business opportunity that boosted the displacement of labor force to confined areas of industrialized cities, such as Chicago. Such circumstance worsened the arising congestion and urban dysfunction in their industrial belts, as the South Side [Fig. 4.1], where “relatively high densities, aging, rail-based infrastructures, and increasing traffic congestion were seen by planners and many ordinary Americans as ‘obsolete’.”


### Key

<table>
<thead>
<tr>
<th>IIT Buildings</th>
<th>Other Relevant Structures in the Area</th>
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</thead>
<tbody>
<tr>
<td>(Student Union Building)</td>
<td>21. Mandel Residence</td>
</tr>
<tr>
<td>2. IIT Main Building</td>
<td>22. Vendome Theater</td>
</tr>
<tr>
<td>3. IIT Heating Plant</td>
<td>23. ‘The Mecca’ Flats</td>
</tr>
<tr>
<td>4. Physics Hall</td>
<td>24. Keith Public School</td>
</tr>
<tr>
<td>5. Chapin Hall &amp; Research Foundation</td>
<td>25. Coal Yard</td>
</tr>
<tr>
<td>(RF) Magnetic Recording Lab</td>
<td>26. Bunga Bank &amp; Arcade Building</td>
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<tr>
<td>6. Parking Lot</td>
<td></td>
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<tr>
<td>7. IIT Aeronautical Lab</td>
<td></td>
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<td>8. IIT Classrooms &amp; Laboratories</td>
<td></td>
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<tr>
<td>Temporary Building</td>
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<td>9. RF Administration Building</td>
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<td>10. RF Ice Lab</td>
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<td>11. RF Explosives Test Cell</td>
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<td>12. RF Laboratories</td>
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<tr>
<td>13. IIT Machinery Hall (Mechanical</td>
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<tr>
<td>Engineering Building)</td>
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</table>

4.1 “No Planning”, c.1940 (above); IIT campus and vicinity by the year 1940 (opposite page). Financial support from federal plans allowed IIT to progressively acquire most of the properties surrounding its campus location in Chicago South Side. However, the deteriorated nineteenth-century brick houses and wood-framed walk-ups that occupied them, still stood up for nearly a generation before they were eventually razed. That was the case of the Mecca Flats, now owned by IIT.
4.2 Mies and Hilberseimer examining a working model of an early IIT campus scheme, c.1940.

Although both architects kept a close collaboration in their academic activity since their very first days at Chicago, Hilberseimer apparently joined IIT campus design once Mies had already completed his AIT Master Plan design. By that time, Hilberseimer had already developed several of his urban studies, favorably received among different professional planning associations from Chicago. This circumstance might have influenced Mies to look for his support, to better deal with the urban difficulties that his original design found.

As a result, the new design for IIT campus reintegrated both Dearborn and Federal Streets, against the initial scheme of a continuous superblock. Probably to compensate the risk of spread and to preserve an overall unity— as the availability of funds expected was somewhat unpredictable, and their realization seemed undefined—a unity of expression was adopted for the campus buildings. Now in the shape of compact homogeneous blocks, their spatial relations became determinant to the point that the crossing streets appeared as secondary.

After the merger with Lewis Institute, IIT had opted for Mies's campus design as a way to deal with the urban decay and unhealthy conditions of the blighted areas all around the land properties of the institution, now a serious problem, and to give an impulse to the renovation of its aged facilities.

However, Mies’s Master Plan, originally conceived for AIT, found severe difficulties to be approved by city authorities, who disallowed the closing of streets, not considering feasible to interrupt any main thoroughfare, and therefore effectively barring any possibility for a superblock scheme. This circumstance forced Mies to rework his whole initial plan during 1940–41, now with the help of Hilberseimer [Fig. 4.2]. In Mies’s own words,

“I made one design for the campus —it was not built— where I removed most of the streets, so that I could place the buildings freely there. I was told by Henry Heald, the president, that it could not be done at that moment. They would not permit me until much later to remove the streets. So I was confronted with the past. I had to develop a plan in that normal block pattern, and I did that”.

3 “Ironically, it was later decided that the street could be removed, but only after construction had begun,” as described in Johnson, Ph. (1947), «1937-1947», in Mies van der Rohe (New York: Braziller/monac), p. 139.

4 Blake, P., and Kallman, G.M., «A Conversation with Mies van der Rohe», in
4.3 Aerial perspective views of different versions for Mies’s IIT campus Master Plan design, 1940 (-41).

A large number of variations was considered, carefully tested during the development of the project, as the program of each of its buildings was developed in parallel. These were always subsequently tested together with the designs for the rest of the buildings, in order to evaluate their effect in master plan as a whole. This can be appreciated in the fact that perspective drawings used for such purpose were elaborated with the same point of view, probably in order to establish a proper comparison between the advantages or disadvantages of each of these designs.

Significantly, some of the views developed at Mies’s office included existing buildings, probably in assumption that the new designs would have to coexist with them during a certain period of time.

Mies experimented then with numerous other arrangements [Fig. 4-3]. Shifting the sizes and the layout of the buildings, these finally adopted a consistent scheme of independent and compact blocks, usually low-rise structures of two or three stories with a flat roof, with which Mies was already acquainted.5

The reintroduction of streets resulted in smaller blocks — compared with the previous superblock — and, necessarily, the planned campus buildings for the Library and Administration and the Student Union were proportionally reduced in size, now including a single interior court each of them. The resulting layout [Fig. 4-4, 4-5] kept the overall axiality of the original ITT campus model, as published in “Progress of the Development Program,” ITT internal bulletin, 1941.
Campus design, although now in a more “relaxed” way, except for the building groups located in the blocks on either side of 33rd Street, where it was strictly maintained.

The buildings tended to bring their short side close to the nearer blocks, parallel or perpendicular, giving a general impression of “slide freely past each other.” The aim was that, at ground level, a moving pedestrian could experience a “shifting sense of blocks appearing and disappearing, not overruling the symmetry but qualifying it,” which, in fact, defined “clusters of smaller buildings” confining inner spaces without enclosing them. As in AIT campus Master Plan, six of the twelve planned buildings would be elevated, so these open greenswards, vaguely bounded on three or four of their sides, suggested, rather than imposed, a flexibility in their limits that allowed different possible uses, a

4.5 Presentation views and plans for a future “Metallurgical Engineering Building”, as published by IIT by 1941.

In an attempt to provide an overall image of the future campus and obtain the broadest support possible from investors, previous designs for the campus buildings, already discarded, were publicly presented. That was the case of the Metallurgical Engineering Building, published in 1944 as it had been designed for AIT campus Master Plan, when it had already modified and renamed as the Minerals and Metals Research Building by then.

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7 In Schulze, F. (1985), “Revival: Modernism Without Utopia, 1938-49,” in Op. cit., p. 199. Schulze pointed that this was “always with the long dimension of the building north to south,” in Ibid., p. 200, while this did not always happen.

He later speculated that “because the first plan’s superblocks are almost square, Mies was able to dispose buildings at right angles to each other, which we assume was his preferred solution,” following that “parallel siting and the ‘sliding’ of one building past the next (always with the long dimension of the building north to south) are arguably functions of the smaller rectangular blocks to which Mies now had to adapt,” as suggested in Schulze, F., and Windhorst, E. (2014), “Architect and Educator: 1938-49,” in Op. cit., p. 200.

8 Ibid., p. 199.


10 While Schulze generically argued that “critics have interpreted this as an example of— or even a quote from— the compositional style of Dutch artist Piet Mondrian,” he later concluded that, “Mies always denied the influence, for his work in both Europe and the U.S.,” in Schulze, F. (1985), “Revival: Modernism Without Utopia, 1938-49,” Op. cit., p. 200. The note was eliminated from subsequent editions.
progressive implementation, or even future extensions.

This flexibility and openness definitely suited the uncertainties about the actual financial possibilities of the newly consolidated institution. Trying to palliate this situation and to secure the implementation of as many of the new campus buildings as possible, IIT President H. Heald [Fig. 4.6] and board Chairman J. Cunningham announced a fundraising campaign, endorsed by all IIT Trustees,\(^{11}\) that included a series of meetings with “more than one hundred of Chicago's civic and industrial leaders [about] the development in Chicago of ‘the greatest technological center’ in the U.S.”\(^ {12}\)

Heald's endowment fund proved successful, and a budget extension was achieved by means of a determined commitment of institutions with whom IIT had a close relationship, such as the Research Foundation of Illinois Institute of Technology (RF), the Institute of Gas Technology (IGT), or the American Railroad Association (AAR). Their financial autonomy from IIT allowing them

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11 See Illinois Institute of Technology (ed.) Minutes of the Committee Meeting Held in Apr. 14”, 1944, n.p. [Heald papers, box 11814, folder ‘Executive Committee, Board of Trustees,’ University Archives #124.04.01 (Paul V. Galvin Library, IIT)].

12 Illinois Institute of Technology (ed.) (1944) A Program and a Plan (Chicago: IIT), n.p. [University Archives, 1940s Fund Raising Brochures Collection, #1948.204 (Paul V. Galvin Library, IIT)].
a faster action, most of them agreed to start to promote their facilities in the available land, even if in different phases.

By the Spring of 1941, a ‘Special Development Program’ was publicly presented by IIT Board of Trustees, based in Mies’s new campus Master Plan design for IIT campus. However, only its academic area — bounded on the north by 32nd Street, on the South by 34th Street, on the east by State Street, and on the west by the New York Central–Rock Island tracks — were displayed in the numerous press releases dedicated to it [Fig. 4.7], most commonly offering an earlier versions of the Plan. Although the included description was commonly vague or even sensationalist, an immediate action to complete the so-called “Library and Humanities Units” was generally emphasized. By the next Autumn,
Heald announced to IIT Trustees that Mies had already produced “an outstanding plan for a modern campus, and working drawings are now being developed by the firm of Holabird & Root” [Fig. 4.8]. But, while the entire program contemplated progressive steps over a period of time, certain phases were outlined for completion during the forthcoming years.

Accordingly, the new Master Plan design had foreseen additional facilities apart from the academic area—still envisioned as a commuter school at that point—to be located in the two strips of land remaining between 31st and 32nd Streets to the north, and 34th and 35th Streets to the south [Figs. 4.9, 4.10]. Pending from land acquisition, these strips had been initially assigned to host research or private institutions, deliberately kept aside from public presentations according to their own interests. The new facilities were promptly publicized as “the outstanding example of modern architecture in the United States,” for which “architect van der Rohe’s plans call for the completion of twelve [sic.] buildings on the six blocks of ground acquired for this purpose.”

16 Heald, H.T. (1941), “First Annual Report of the President to the Board of Trustees, 1940-41” (Oct. 15th, 1941), p. 18 [University Archives #044.04.01 (Paul V. Galvin Library, IIT)]. The firm had initially offered its collaboration just for the elaboration of the presentations, as part of an agreement with IIT Trustee J. Holabird. It only served as Mies’s associate architect for campus buildings from 1944 to the early 1950s.

4.9 Mies’s Master Plan preliminary design for future IIT campus, c.1940-41, including ordering grid and existing streets.

Among all the academic buildings in Mies’s IIT campus Master Plan design, only a few were finally approved by IIT for future construction. These limited to a first section to the east of the campus (No.1) comprising the future Naval Science Building, the Metallurgical and Chemical Engineering Building—including now an inner court—, and the Chemistry Building. This first group of approved buildings was completed with a second group to the south of the campus (No.2) including the Minerals and Metals Research Building, together with a new Power Plant and a new Electrical Vault serving all of them.
4.10 ‘A PROGRAM and a PLAN,’ IIT internal bulletin (above); Mies’s Master Plan design for future IIT campus preliminary design, c.1940–41, with buildings in approved sections highlighted over the ordering grid (left).

A fundraising campaign simultaneously promoted by IIT Board of Trustees (above), was able to obtain financing for the future development of a second section to the southeast of the campus (No.2), outside of the academic area (shaded in red). Promoted by the IIT, these included the Mechanical Engineering Research Building, and a building for offices and laboratories, as well as a first building for the ARR.

This was completed with a final section to the northeast (No.3), dedicated to the ARR, including an administrative building and laboratories, all of which Mies thoughtfully developed during the following years.
Most significantly, and despite what could be inferred by the publicized images, institutional announcements did put emphasis in the fact that

“(...) no interruption in campus activities will be involved as existing facilities are and will continue to be utilized until replacement is complete. Property supplementing the oldest portions of the former AIT campus, now the South Side campus of IIT, comprises the major footage on which the ‘Technology Center’ will arise (...)”.

In fact, and against all institutional publicity —probably focused on providing a modern image of renovation— the successive designs conceived by Mies for IIT campus had considered this situation [Fig. 4.19], which, indeed, only could be solved by a continuous re-design effort in the elaboration of the Master Plan.¹⁹

This work became especially intense when the economic scarcity caused by war stopped all building activity at the campus.

¹⁸ Ibid., p. 63.

4.2 World War II and the Restructuring of IIT as a Technological Center

IIT ambitious building plans had soon to be lowered after the U.S. entered the war in December 1941, and the economical situation changed drastically. Due to the initial material scarcity and economical limitations imposed by the war effort, all building activities had to be delayed, where not directly stopped. As a consequence, few new buildings could hardly be constructed until its end, and this would only be possible by means of a persistent revision of the original expansion plans. Nonetheless impulsed by the availability of funds provided by the recent merger, IIT campus Master Plan had then to be reworked in coordination with the regular activities of the institution.20

Supported by IIT Board of Trustees, President H. Heald made an official request to responsible charges at U.S. Office of Education, proposing that a Naval Reserve Officer Training Corps (NROTC)21 unit from U.S. military services be formed at IIT, on the basis of its academic experience, focused on engineering training. Although unsuccessful in its request, IIT agreed to develop a specific program including series of different short-term courses orientated for both war technical officers and civilian war workers, to be incorporated to IIT regular academic activity, which was accelerated [Fig. 4.12]. This program helped to fill the critical shortage in engineering and scientific manpower for industrial and military needs.

Even if IIT was not able to obtain immediate benefit from the situation,22 the number of courses rapidly increased, to the point

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20 As a matter of fact, this was a common practice among American universities by the time, as argued in Turner, P.V. (1984), «Campus Planning as Process,» in Campus: An American Planning Tradition (New York/Cambridge, Mass.: The Architectural History Foundation/MIT), ch. 7: «Dynamism, Change and Renewal,» pp. 266-266.

21 The NROTC programs offered full academic standing to U.S. reserve officers enrollees, and awarded them an undergraduate degree on completion for their reinsertion in civil life after service.

22 In fact, “while civilian universities did offer military training for future soldiers and sailors, the NROTC programs did not award degrees in military science, and did not result in commissions upon graduation,” as pointed in Bruck, C. (2008), «Pres. Henry T. Heald, IIT, the U.S. Navy v-i2, and wwi», unpublished essay, n.p. [University Archives (Paul V. Galvin Library, IIT)].
that IIT became an educational center for both civilian and military personnel.

Such circumstance allowed IIT to undergo a whole re-orientation of its curricula (Fig. 4.13). Perhaps as a way to ensure the continuity of their presence in the campus, most hosted research institutions, such as the RF, got involved in the new programs. But these private investments, often under restricted conditions and not subjected to external administration, did not follow an informed prioritizing typical of more financially secure institutions. This condition, added to the immediate action demanded to IIT, soon exceeded any of its previously established plans for an orderly development of the campus Master Plan, now conditioned by the imperative need of facilities for the increasing military personnel on campus.

4.13 “The End of the ‘Country Club’ Era,” advertisement at IIT internal bulletin, 1942 (above); A. Kahn’s Tank Arsenal at Detroit, Mi., c.1941 (left).

Attesting that “the brutal impact of technological war is revolutionizing educational thinking” (above), IIT attempted a renovation of his curricula, to become mainly focused on technology and research. This was a natural consequence of the turn to large-scale fabrication of war ordnance and equipment, massively addressed by the industrial sector all across the nation (left), to which IIT had commonly served.

23 The imparted courses were so numerous that, by August 1942, IIT had become the “war training center of Midwest,” as stated in Illinois Institute of Technology (ed.), press release by IIT Department of Public Relations, Aug. 7th, 1942 [University Archives, #1942.149, News Releases collection (Paul V. Galvin Library, IIT)].


25 During the war years, “55,000 [?] persons were enrolled at IIT,” according to McAuley, I. (1948) «World War II», in The Heritage of Illinois Institute of Technology (Chicago: IIT), ch. ii, pp. 70-71.
This was not exempted from difficulties, as the sparse financing obtained by IIT forced to house all its new activities in preexisting or temporary buildings in the campus that nonetheless barely covered the new demands. According to this, part of the row of deteriorated Victorian mansions facing Michigan Ave, along a block, used by IIT as fraternity houses until then, were refurbished as quarters for the Navy officers [Fig. 4.14]. New facilities dedicated to a mess hall and training classes were erected, although only progressively, according to the availability of funds and material resources, where not directly accommodated in spaces used by IIT for similar purposes before the War. This situation led IIT to reassess his campus development plans, given that

“(...) cooperation with the Government in defense engineering training activities compelled the Institute to assume many additional and unforeseen responsibilities (...) under the already heavy handicaps imposed by inadequate plans and equipment.”

By June 1942, around 70% of the engineering facilities at IIT campus were in use by the U.S. Army and Navy, according to Brueck, C. (2008), Op. cit., n.p.

Illinois Institute of Technology (ed.) (1942), This is War! (Chicago: IIT), n.p.
Inevitably, the progress of Mies’s campus Master Plan design reflected the severe financial constraints under which IIT had to operate, as well as his sharp understanding of the sparse opportunities that he would have for the development of its buildings,28 largely built on his option for the “systematization, standardization and speed” from the methods and processes of fabrication from industry, favored by different federal programs.29

All along World War II, only two buildings of his whole IIT campus design [Fig. 4.15] could be built,30 and any improvement in the campus facilities invariably depended on fund-raising [Fig. 4.16]. Indeed, “though for Mies the ‘big decisions’ were architectural, politics and money turned out to be variables of equal importance.”31 In fact, IIT would never manage to raise enough funds to coordinate a programmed building campaign during the years that Mies spent in charge of the Architecture Department.

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28 In Heald’s words, “there were many times (...) when I felt that he deserved a better client, or at least he deserved a wealthier one!,” in Heald, H.T., «Mies van der Rohe at IIT,» in Blake, P. (ed.) et al. (1966) Op. cit., p. 108.


30 During the war, permission to build new structures had to be granted by the War Production Board.

4.16 “Buildings to come,” article dedicated to Mies’s IIT Master Plan, 1942.
A photomontage: a view of an earlier model of IIT campus Master Plan design, extending over Chicago South Side, was widely published in specialized periodicals, probably for securing funding options. However, Mies had developed his design in parallel to the official published version, which was indeed far more advanced by then.
4.17 “Library and Administration Building” (top), and “Mechanical, Chemical, and Electrical Engineering Buildings” (bottom), views of buildings designed by Mies, included in an internal IIT publication, 1942.

Mies’s strategy to widely disseminate his design through specialized periodicals provided him a strong support for its actual construction. The public relevance reached by the project, silenced any criticism possibly generated by his overtly modern architecture in advance.

Furthermore, Mies developed a detailed study of the expression of the buildings, elaborating presentation drawings since the early stages of their design, as a way to achieve his desired spatial concept for the campus. This conditioned his later approach to the constructive solutions finally adopted to build them.

4.2.1 Industrial Architecture as Baukunst

Concerned about the organization of elemental building types into clear, elemental shapes, once his campus Master Plan was approved Mies assumed a long-term research on the structure and visual qualities of the envelope of the completed designs [Fig. 4.17]. Throughout a long testing process that would evolve “from drawing to construction,” Mies studied the implications of their expression in the experience of the campus space within the framework of his academic courses, where different solutions were carefully evaluated before construction.

As a matter of fact, since the public presentation of his earlier version of his IIT campus Master Plan, Mies had orientated the assignments in his classes as a support for the development of

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his research on the expression of the constructive articulation of structure, initiated for its buildings. This work became especially intense around the year 1942, when all building activity in relation with the new campus Master Plan stopped.

Without renouncing to his disciplined approach, Mies “found a measure of freedom from the rigor of articulating connections in the theoretical spatial problems he proposed to his students.”33 These exercises explored the spatial possibilities in the use of standardized industrial components, on the basis of their convenient economy, efficiency, and flexibility, specifically summarized by two projects that would acquire a special relevance for his IIT campus buildings.34

On one hand, his project35 for a Concert Hall [Fig. 4.18], where “from his intensive study of auditoria for his IIT campus, Mies made the leap of conceptualizing a universal space”.36 A new kind of public realm, of an unprecedented scale, was now envisaged in the “given” structural achievements of industrial construction, which Mies enthusiastically assumed.38

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34 Lambert described these as “an example of Mies’s propensity to long nurture an idea and his intuitive sense for seizing the occasion to realize it,” in Ibid., p. 425.
35 Based on an original collage by IIT student P. Campagna (1941, not preserved), two more versions than the one produced by Mies (1941, MoMA) are preserved, later reworked by his collaborators R. Malcomson (1942, CCA) and D. Brenner (1943, AIC), as identified in LAMBERT, Ph. (2001), «The Concert Hall Collage (1941, 1942),» in Op. cit., p. 425, note 59.
36 Ibid., p. 424. Indeed, Mies’s interest in the structural type of the large-span pavilion came from the early days of his European practice. This would be attested by an oversized photograph of the interior space of the Galerie des Machines for the 1887-89 Paris Exposition, that he brought with him when he emigrated to the U.S., and kept mounted on a board, probably for teaching purposes [University Archives, Ludwig Mies van der Rohe Papers collection, #1948.023 (Paul V. Galvin Library, IIT)].
38 He supported his classes with examples of industrial structures, mainly extracted from NELSON, G. (1993) Industrial Architecture of Albert Kahn Inc. (New York: Architectural
On the other hand, a singular open-plan space arose from his project for a Museum for a Small City [Fig. 4.19], that devised a generic architecture that, despite its basic means, achieved a spatially complex experience in an equally flexible solution. Its expansive configuration, where architecture defined space rather than confined it, definitely recalled Mies's previous architectural accomplishments, although now elaborated into a more realistic and affordable language from common construction.


On the basis of these both concepts, was a working method that Mies extended to his classes at IIT, focused in defining a certain attitude towards structure and construction rather than in building itself [Fig. 4.20]. Mies commonly characterized the aims of such methodology with a term he had used since the days of his earlier practice, ‘Baukunst,’ instead that of ‘architecture.’ Specially suiting Mies’s manifested concern for his IIT campus buildings, “(...) the definition of architecture as ‘Baukunst’ carries special conviction: ‘Bau’ (building) is the static and law-conforming element based on a strict intellectual order, and ‘Kunst’ (art) is the free and creative element which can operate within a clear structure”\textsuperscript{41}

Mies’s claim meant a skillful use of the basic resources of common construction, in such a way that these achieved a expressive quality of their own. The result was to be a practice that, despite its accessibility, nonetheless did not refuse to assume higher ends by “elevating fundamental construction to structure”\textsuperscript{42} Behind this notion, lied the assumption that the task of the architect was “(...) not to invent forms, but to give expression to forms and structures that were immanent in what was already at hand.”\textsuperscript{43}

Such idea certainly should have appeared to Mies as a straight description of his sought “principle of structural order”
4.21 Views of facades and interior space of Mies’s IIT Minerals and Metals Research Building, 1943.

Far from ordinary solutions for industrial construction, Mies opted for placing the skin of the building outside its steel frame structure, in order to obtain continuous facades of horizontal bands of translucent glass and brick. These were connected back to the bearing structure with additional steel sections that could be directly expressed in the exterior (left), since the building code for industrial buildings did not demand fireproofing. This decision allowed a coplanar arrangement of all the elements of the skin (above), that enhanced its final effect of a “taut block,” precisely defined and singularly abstract, despite the common materials used.

for his campus design, as “a condition where form becomes a consequence of structure and not the reason for construction,” whose clear expression would give a lasting architectural solution.

The notion was first put into practice with the approval of the construction of the IIT Minerals and Metals Research Building in 1943, which came to be the first completed building of Mies campus Master Plan [Fig. 4.21]. Despite the strict functional restrictions, Mies was able to give the building of a expression of...
its own, within a constructive standard far more higher than the usual for industrial constructions.

In addition to it, Mies completed in 1943 a first phase of a second building, the ARF Mechanical Engineer Research Building. Based in the same principle of the skeleton structure, it followed the same linear scheme with repeated structural bays. Nonetheless, it was designed in concrete due to material restrictions and, relegated to an utilitarian construction, would later suffer several transformations, often routinely solved.

Both structures, together with additional facilities following Mies’s Master Plan confirmed an area mainly dedicated to research in the south of the campus [Fig. 4.22] which, completed with temporary structures, served as a test for later developments. By

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46 One-way span structures were characterized as ‘Gothic’ by Mies, according to LAMBERT, Ph. (2000), «Forging a Language,» in Op. cit., pp. 290-291. She later extended such denomination to characterize his solutions for corner details, in Ibid., p. 295.

47 A first phase of ARF Life Science Research Bdg., by Schmidt, Garden & Erikson.

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**Other Relevant Structures in the Area**

* Structures in red designed by Mies van der Rohe

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4.22 IIT campus by the year 1943, in its urban context (opposite page); blueprint of Mies’s IIT Civil — later Electrical — Engineering Building site plan, reworked to coexist with existing IIT facilities, 1943 (above).

Taking advantage of the funds obtained from the U.S. Government to train military units on campus, IIT decided to initiate a first phase for the implementation of its Master Plan. However, the tight budget and conditions, together with the large number of hosted military personnel, only allowed temporary structures. These were completed with just a few of its originally designed buildings, financed both by IIT and ARF (opposite page). The need for extension in the use of existing facilities imposed a rework of the existing plans, in order to allow a coexistence with these, even if temporary (above).
4.23 Photomontage of aerial view of a later model of IIT campus Master Plan design, extending over Chicago South Side vicinity, c.1943.

The accurate detail of the models elaborated in Mies's Office described precisely the condition of the designs for the campus buildings by then. Notably, these were continuously updated with their latest versions, as here the IIT Library and Administration Building, or as they had already been built, as it was the case of IIT Minerals and Metals Research Building, and the first phase of IIT Mechanical Engineer Research Building. On the contrary, other existing temporary structures, imposed by Government programs, were repeatedly omitted from this and subsequent models.

then, hosted research institutions led the building activity in the campus, as an indication of the importance of the research being done at IIT. In response to the increasing demand during war-time, the RF expanded its research activities, and in 1943 its was renamed as the Armour Research Foundation (ARF).

That same year, in response to its commitment with the war effort, IIT finally got involved in a new Government program that, although limited, granted funds for the erection of temporary facilities at the north section of Federal Street, therefore allowing the urbanization of most of the vacant land facing the railroad tracks. This new situation leaded to the re-design of IIT Civil Engineering and Mechanics and IIT Electrical Engineering and Physics Buildings. Although they still remained elevated, these buildings acquired the shape of a compact, longitudinal, and independent volumes, analogous to those of the completed

48 IIT was finally included in the U.S. Navy V-12 program, dedicated to provide college education to U.S. Navy's civilian and the technical training of military personnel, as reported in Illinois Institute of Technology (ed.), «Navy to Send 700 Men to IIT on July 16» in Technology News, 33 (1943): 1-2 (June, 1943).

4.24 View of a full model of Mies’s IIT campus Master Plan (1st version), as seen from NW, c.1943.

Although not the final version of Mies’s design—note that buildings adjacent to the railroad tracks are here still elevated, as in earlier versions of IIT Master Plan—the model became representative of Mies’s original intentions for his campus design, as it effectively described the open spaces between the campus buildings. Most probably, the different pieces resembling the model corresponded to different stages planned by IIT Board of Trustees for its implementation.

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4.25 Mies’s IIT Library and Administration Building, presentation boards of vertical sections (top), first floor (middle) and ground plan (bottom), 1944.

The building incorporated several significant issues, such as a free-standing core, a cantilevered mezzanine, or an interior garden court, that gave a satisfactory and — apparently — simple solution to its complex program. This way, the design set a standard for most of the constructive solutions that Mies would use in all his forthcoming designs for the different IIT campus buildings.

Notoriously, while the structural bay was nearly twice as wide as the originally set by the campus grid — with overall dimensions of 216 by 312 ft. — its interior partitions did fit into the regular module of 24 ft.

A major role in the spatial definition of the campus was assumed by its larger representative buildings, in whose design Mies would spend large periods of time. By 1944, Mies finally concluded his IIT Library and Administration Building [Fig. 4.25].
The design was relevant as it summarized his rigorous effort to “elevate construction to structure,” by means of incorporating a large-scale space that defined a public dimension for the institutional facilities of the campus. This was achieved by addressing the design of its structure from the very beginning of the project, as an integral and relevant part of it. If its expressive potential had to be integrated in the building, the architect should assume its design and construction.

Making use of just a limited combination of the same standardized constructive elements used for its structure, Mies was able to define a consistent and coherent system for his building. Consequently, all its constructive elements could be disposed according to its structure, around which the partitions or the exterior envelope were articulated. As a result, the structure could be naturally expressed in the exterior of the building, and thereby show its own internal principle in a clear and apprehensible way.


4.26 Mies’s IT Library and Administration Building, exterior perspective of the sw corner (left), and working details for its construction (above), 1944.

Being a single-story structure, no fire-proofing was required for the building structure, and it could be exposed. All the structure connections were designed to be welded, and its different details were thoughtfully designed in full-scale plans to analyze their actual impact in its final appearance.
This effort was supported by the simultaneous research — started by 1941, parallel to the elaboration of his IIT Minerals and Metals Research Building — that Mies developed for the IIT Metallurgy and Chemical Engineering Building [Fig. 4.26]. Being its construction postponed, Mies was able to take his time to study a solution for his ‘Classic’ scheme for the skeleton structure, that he generically adopted for the classroom buildings of the campus.

In fact, the design shared most of its constructive solutions, based in the assemblage of standardized steel sections, with the Library and Administration Building, which informed alternatively both projects. ‘Taking now a careful account of the constructive behavior of its elements and their interrelation, “the drive toward the logical and ‘right use’ of constructive elements resulted in the sheathed Classical in contrast to the exposed bare-bones Gothic Solution (...)”'

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54 Its completion was only possible later in 1946-47, just before the Navy Building.
56 Lambert has proved their parallel development, where common solutions informed both buildings, in Ibid., pp. 298-303.
57 Ibid., p. 303. Lambert was probably alluding to the cracking of the continuous brick spandrels at the facade mullions of the Minerals and Metals Building.
The solution for the articulation of a two-span skeleton structure was finally refined in the development of the constructive solutions for the Naval Science—renamed as the Navy—Building, to which Mies devoted a particular attention [Fig. 4.37].

The exterior side of the enclosing elements of the facade were now aligned and partially interlocked with the mullions, that embraced their assembly in both directions, paralleling the beams and posts of the bearing structure behind, conveniently encased in concrete for fireproofing purposes. This resulted in a regular rhythm of vertical members every half of the structural bay, that resembled the reticulated facades originally proposed for the campus since the very early designs. Noteworthy, the mullions stopped before reaching the ground, “to acknowledge that what shows is not fact, but a symbol of fact”.

58 Finally renamed as the Alumni Memorial Hall, by the end of the war.

4.28 Presentation boards describing the vertical sections (top), first floor plan (middle), and ground plan (bottom), of Mies’s IT Navy Building, 1944-45.
In clear reflection of the institutional changes addressed by IIT by the time, the program of some of the buildings was still to be defined, as it can be appreciated in Mies’s working drawings (left) prior to a public presentation of the Master Plan. Considering the fact that the dilapidated surroundings would be most probably subjected to further redevelopment, the context was then omitted, and replaced by a green belt all around the campus (opposite page). Notoriously, the plan incorporated the revised versions of IIT Library and Administration, IIT Mechanical Engineering, and IIT Metallurgy and Chemical Engineering Buildings, now with inner courts, not included in previous presentations.
In view of Mies’s refined work, IIT President H. Heald tried to find support “to plead [IIT trustees] for the release of war-restricted building materials needed to construct a facility” specifically conceived for the Navy’s training program, given the “inadequacy of physical training facilities” on the campus [Fig. 4.28]. While his request was not approved, by 1944 Heald did obtain a compromise to realize Mies’s design for the Naval Science Building—despite the fact it was designed for academic purposes—in a mid-term, in view of the benefits generated by the hosted research institutions [Fig. 4.29] and the positive prospects for a war ending.61

This was against other relevant designs, already completed but with higher costs—most significantly, the Library and Administration Building—that were shelved for an undetermined time. Aware of the difficulties, Mies kept including all of them in his subsequent presentations, although from now on he would focus on the development of the academic buildings [Fig. 4.30].

60 “Heald solicited the Navy’s help in appealing to the Board so that a building with an inside space for physical training activities could be built on the State St. campus—the cost of construction to be borne by IIT,” according to Breuer, C. (2006). Op. cit., n.p., which gave a detailed account of Heald’s correspondence with U.S. Navy authorities.

61 Referring to Mies’s campus Master Plan, an internal IIT publication announced that “priorities [for building permits] will go to projects for which financing as well as the blueprints are in hand (...). The trustees reiterate their appeal for immediate financial support of the development program,” in Illinois Institute of Technology (ed.) (1944). Appointment with Peace (Chicago: IIT Press), n.p.

4.30 “Comparative Income & Assets,” chart published in an IIT internal bulletin, 1944 (above), and IIT campus in its urban context by the year 1944 (opposite page).

The reorientation of research institutions in order to provide technological support to the hosted military programs proved extremely advantageous for IIT, and provided a definitive impulse for the financing of new campus facilities in this direction.

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4.31 Mies's 1944 Master Plan design for future IIT campus, in its urban context (opposite page); “Illinois Institute of Technology — Technology Center,” as published in an IIT internal bulletin, 1945 (left).

In an alternative layout that was published in IIT internal bulletins, IGT and ARF research facilities were rearranged under the generic description of “research laboratories.” The proposal was a consequence of late discussions concerning the convenience, finally discarded, of shared laboratories for the different research institutions affiliated to IIT.

Consolidated as a “commuter college” with the opening of an Elevated Train Station at 35th St. the year after, the campus Master Plan incorporated a large amount of parking lots.

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**Key**

**Preexisting IIT Buildings**

1. IIT Fraternity Row
2. Graduate House (/Brown Hall)
3. ARF Electrical Engineering Research Building
4. IIT Metals Research (/Foundry Building)
5. ARF Engineering Research

**Mies van der Rohe’s IIT Campus Master Plan Design Buildings**

6. Power House
7. Auditorium & Student Union
8. Physics & Electrical Engineering
9. Chemical & Civil Engineering
10. Library & Administration
11. Gymnasium & Natatorium
12. Research Laboratories
13. Gas Institute
14. Armour Research Foundation (ARF)
15. Mechanical Engineering
16. Architecture & Applied Arts
17. Chemistry
18. Metallurgy
19. Humanities
20. Field House
21. Athletic Field
22. Parking Lot

**Other Relevant Structures in the Area**

23. Huber & Huber Motor Exp.
24. Mandel Residence
4.32 Hilberseimer’s study for the residential expansion of Mies’s IIT campus Master Plan beyond State St., c.1944.

While Hilberseimer’s earlier proposal exceeded the limits of IIT campus Master Plan by the date (no.4), it came to fit those later adopted by the South Side Planning Board (SSPB) Redevelopment Plan for Chicago South Side. Taking for granted the clearing of the slums in the blocks to the north of IIT campus properties — later reserved by the SSPB for Chicago Housing Authority (CHA) Dearborn Homes (no.2) —, Hilberseimer had proposed green areas (no.3), delimiting the campus north border from new facilities between 32nd and 33rd Streets — already under study and labeled here as ‘future affiliated organizations,’ though not in its final location yet (no.4) — and the south border — later occupied by CHA Stateway Gardens.

The design was structured in bands going from north to south, trying to minimize the impact of the elevated train crossing the campus (highlighted in red) by means of proposing longitudinal blocks for fraternities and other communitarian facilities (nos.5-6), completed with a large residential area in the shape of low-density detached houses extended from 29th to 33rd Streets (no.7).
4.3  Hilberseimer’s IIT Residential Expansion Plan

Since his early contacts with the Chicago Plan Commission (CPC), dating from 1944, the public presence of Hilberseimer had grown. Through these contacts, CPC had been aware of the progress of Mies’s campus Master Plan, to whom they asked advice concerning a modern urban planning, as “(...) during the war period, with private development mostly inactive, some Chicago architects could be interested in preparing drafts embodying their ideas about large-scale reconstruction for the post-war period. This would be a valuable contribution to the general public thought. Not only it would stimulate the popular understanding of modern design for better neighborhoods, but it would also accelerate the beginning of private building when the war is over (...)”.

Such concern about the involvement of architects for a modern redevelopment of large-scale areas of the city surely strengthened contacts between CPC and Mies and Hilberseimer, which further increased in view of the positive results of IIT redevelopment program so far completed. This could have motivated the urban studies developed by Hilberseimer —supported by A. Caldwell since 1944— concerning the opportunities for an expansion of IIT campus to the east of State Street. In his study, Hilberseimer tested the feasibility of his ‘Settlement Unit’ as model to extend the approved campus Master Plan to a “superblock of, say, an area of two square miles” its surroundings, in order to adjoin IIT residential facilities at Michigan Ave. [Fig. 4-3].

Significantly, the development of the study was contemporary to a conference that, under the title of ‘The City: Organism and Artifact’ [Fig. 4-3], took place the same year. The event paralleled an homonym exhibition, hosted at the AIC, organized by IIT Department of Architecture and the Chicago Chapter of the AIA, where numerous personalities from the city met. Hilberseimer’s diagram of his ‘Settlement Unit’ scheme (bottom). Hilberseimer’s study for the extension of IIT campus beyond State St. (opposite page) shared a strong formal sameness with his low-density communities, that found public relevance by then (top). His urban scheme was interconnected by metropolitan-scale distribution and transportation infrastructures dividing working areas and residential areas. Although Mies’s architecture remained as the spatial and organizational mean through which urban order was constructed, his interest in the landscaped urban settlement, with nature and infrastructure as structuring elements of a decentralized urbanism, foreshadowed it.

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62 Chicago Plan Commission (CPC), Letter to Mies van der Rohe, Aug. 3rd, 1944 [Hilberseimer Papers collection, series 2, box ffl.10 (Ryerson & Burnham Archives, AIC)] [emphasis added, not accessed by the author]. Note the calculated ambiguity in the use of ‘reconstruction’ instead of ‘renewal.’

63 In his study, Hilberseimer apparently complemented his Settlement Unit scheme with landscaping criteria—even if in a schematic way—inspired in the Chicago Prairie School by influence of A. Caldwell, as argued in Llobet i Ribeiro, X. (2007), «Reurbanización del Campus de IIT», in Hilberseimer y Mies. La metrópoli como ciudad jardín (Barcelona: Fundación Caja de Arquitectos), part III: «Estructuras», ch. 6, p. 230, ill. 296.


65 The conference took place at the AIC, between Oct. 10th and Dec. 19th, 1944. It included lectures by J. Nef, J. Hudnut, M. Adler, or R. Hutchins, among others. Although
“Chicago Looks Ahead,” plans for the extension of the rapid transit facilities (left), and expressways and major thoroughfares (right).

Since the last years of the war period, the increasing demand created by the suburban expansion of the city had led the CPC to promote several plans to expand the transportation system as a way to create investment opportunities in the city. In fact, by the time the Elevated Train Station at State and 33rd Streets in 1943—just beside IIT campus properties—opened to the public, Chicago’s public transportation system (CTA) had reached a peak (left). Such circumstance motivated the planning of a comprehensive system of expressways and thoroughfares (right). According to these, a major expressway—later, Dan Ryan Expressway—was to be opened all along the west side of IIT South Side campus.

Berlin and Caldwell’s joint participation66 was mainly dedicated to the material the former had developed in his new book The New City, that incorporated his ‘Settlement Unit’ theoretical model as a logical conclusion of the development experienced by urban planning in history.67 Their defense of a planned urban landscape was received as an attainable development model for the city, against an increasing suburbanization already detected by the CPC [Figs. 4.34–4.35].

Probably motivated by its success, other organizations located in the Chicago South Side—hesitant to relocation due to the large investments already made in their existing facilities—decided to assume expansion plans similar to IIT Master Plan. The result was the establishment in 1945 of the South Side Development Association, later renamed as the South Side Planning Board (SSPB). The

__Notes__


A survey made in 1942 by CPC, originally focused in studying and cataloging Chicago residential areas, described most of South Side as “blighted and near blighted”, to be “rebuilt” in the immediate future (top). More than ten years later, this was turned by Hilberseimer into a more general “status of the city” map (bottom) in order to justify his Redevelopment Plan, in positive assumption that all existing structures—not just residential ones—shared the same diagnosis then. Due to their generic nature, Hilberseimer’s urban theories were developed mainly on a formal basis. These were always presented in a visual way, sometimes at the expense of their correlation to a specific reality, and often far from any possibility of actual implementation.

As one of the first large-scale urban plans deliberately adopting a modern image in the U.S., SSPB redevelopment plan for Chicago South Side “paved the way for federal slum clearance, redevelopment, and urban renewal legislation” in a model of urban intervention that, under the denomination of “cooperative federalism”, was developed by the late 1940s and would be applied during the next decade. As a result, “(...) federal, state, and local governments (...) joined forces

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69 Ibid., p. 647
with corporate capitalists, civic leaders, architects, and real-estate developers under the powerful umbrella concept of ‘cooperative federalism’. Urban planning, traditionally a realm of aesthetic ordering (...), was slowly supplanted by urban policy or legislation.” 70

These programs would finally provide institutional support for the implementation of its Master Plan, particularly amidst the generalized optimism once the war was over. This was simultaneously favored by the fact that, by the late 1945, IIT owned most of the land required for the completion of the academic buildings [Fig. 4.36]. Consequently, a coherent strategy was devised for a future “Technology Center”, where “the postwar building boom hastened the passage of the slums”. 71 According to it, “(...) when the Administration and other buildings near 32nd and Dearborn streets began to supplement the Metallurgy and Chemical Engineering quarters, the wisdom of the over-

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70 Ibid., p. 647.
71 Illinois Institute of Technology (ed.), «Technology Center 1943: A Look into the Futures», Illinois Tech Engineer and Alumnus, 10 (4):22, 19 (May, 1945) [University Archives (Paul V. Galvin Library, IIT)]. The article, published with no illustrations, described the future construction of the Student Union and the Library and Administration Buildings, a Faculty Club at Wabash and 34th Streets — later, the Commons Building — and several apartment and fraternity houses.
all plan began to be evident (...) Now the Technology Center group ranks as one of the truly American contributions to university buildings” (Fig. 4.37).22

4.37 “Technology Center of Tomorrow,” (above); Mies’s Master Plan design for IIT campus, in its urban context, by the year 1945 (opposite page). IIT campus Master Plan definitely extend from 35th to 43rd Streets, and from Michigan Ave. to the Rock Island railroad.

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**Key**

<table>
<thead>
<tr>
<th>Buildings in Mies van der Rohe &amp; Hilberseimer’s IIT Campus Master Plan Design</th>
<th>Building</th>
<th>7 Library &amp; Administration</th>
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</thead>
<tbody>
<tr>
<td>Heating Plant &amp; Services</td>
<td>8 Association of American Railroads (AAR) Research Building</td>
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<tr>
<td>Metals Research Building</td>
<td>9 [AAR?] Research Laboratory</td>
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<tr>
<td>Armour Research Foundation (ARF) Engineering Research Building</td>
<td>10 [AAR?] Research Laboratory</td>
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<tr>
<td>Student Union &amp; Auditorium Building</td>
<td>11 Institute of Gas Technology</td>
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<tr>
<td>Electrical Engineering &amp; Physics Building</td>
<td>12 ARF Research &amp; Administration Building</td>
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<td>Civil Engineering &amp; Mechanics</td>
<td>13 Architecture &amp; Applied Arts</td>
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<td>14 Mechanical Engineering</td>
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<td>15 Liberal Studies Building</td>
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<td>16 Chemistry Building</td>
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<td>17 Metallurgical &amp; Chemical Engineering Building</td>
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<td></td>
<td>18 Alumni Memorial Building</td>
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<tr>
<td></td>
<td>19 Field House</td>
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<tr>
<td></td>
<td>20 Apartment Building (60-story)</td>
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<td></td>
<td>21 Apartment Building (3-story)</td>
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<tr>
<td></td>
<td>22 Dormitory</td>
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<td></td>
<td>23 Row Houses</td>
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<tr>
<td></td>
<td>24 Recreation</td>
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<td></td>
<td>25 Commons Building</td>
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<td></td>
<td>26 Community Building</td>
<td></td>
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<td></td>
<td>27 Parking Lot</td>
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<td></td>
<td>28 Tennis Courts</td>
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</table>
Let's imagine the university as the city planners imagine the city—as a growing organism whose form lies partly in the past, partly in the future. Our university will never be completed.¹

5.1 Transformation of Campus Planning after World War II

The rapid increase in student enrollments after the end of the war produced an unprecedented demand for a kind of campus, “more capable of growth and change than the traditional concepts of campus form”, urging expansion upon existing facilities [Fig. 5.1].


Not in vain, IIT had a “prewar enrollment of 2,500 and a present enrollment of 7,000”, as pointed in Whitcomb, M.E., «Campus Design: An interview with Mies van der Rohe», College and University Business, 6 [4]: 13 [Apr., 1949].
5.2 Views of a model of a later stage of Mies’s IIT campus Master Plan design ([1st version] into its urban context, c. 1943-46.

Preserved images of the model showed that it was visibly divided in three parts: a first part (no.1) extending from 30th to 52nd Streets, including recreational facilities (on the left of the image); a second part (no.2) from 32nd to 34th Streets, including the main buildings of the campus (on the center of the image); and finally a third part (no.3) from 35th to 37th Streets, dedicated to research and infrastructural buildings (on the right of the image). Presumably, these three sections corresponded with different phases initially considered for the implementation of IIT Master Plan.

But doubts about the immediate economical prospects once war was over and the production needs decreased, forced a more realistic approach to the planning of large-scale interventions.

Taking advantage of the federal diagnosis of keeping public intervention in the private sector to prevent the return of the Depression, numerous schools saw an opportunity to obtain economical support for the expansion of their campuses. But, conceived to maintain a stable economical cycle, such pre-war initiatives were often limited and independent of the particular interests of private institutions. This circumstance made impossible or inconvenient the traditional approach to campus planning.

3 Whiting has argued that this position was actively supported by CIAM members as S. Giedion, who “turned to Keynes to bolster his argument that more civic centers needed to be built. The construction and operation of civic centers can “keep the economic machinery going”; Giedion claimed, echoing the economist’s claim that large-scale expenditures are necessary in order to circulate money and to maintain employment,” (quoting Giedion, S., «The Need for a New Monumentality», Zucker, P. (ed.) (1944) New Architecture and City Planning: A Symposium (New York: Philosophical Library), p. 366), quoted in Whiting, S. (2001), «Bas-Relief Urbanism: Chicago’s Figured Field,» in Lambert, Ph. (ed.) et al. (2001) Mies in America (Montreal/New York: CCA/WMAA), p. 688, note 4.
in America as a significant “unified grand composition”, seeking a relevant and prestigious presence in the city.

As a matter of fact, traditional campus planning commonly had produced “a unified design, specific in its overall form and architectural character,” no matter if it was “a conception for an entirely new campus [Fig. 5.4] or a ‘development plan’ for an existing one.” Yet, the size and complexity of modern programs implanted after World War II—as well as a certain disenchantment of administrators toward formal design—promoted a critical revision of the ongoing master plans, often found unrealistic, whenever not directly impossible to be fully executed. Such approach revealed unpractical, as

“(...) every attempt to bind [universities] to a pattern laid out in advance has failed-and ought to have failed (...). We must set them free to develop their environment in whatever way may best suit their existing needs (...). The task to be performed in university buildings and the methods by which they are built constantly change. Their nature tomorrow cannot be predicted. No program is possible which extends beyond a dozen years (...).

If we make a master plan then, it must be in such general terms as will admit of new interpretations and unexpected development. We can take nothing for granted. Those facilities which have endured the longest may be the first to disappear.”

This situation was only solved by reviewing plans in smaller, feasible sections, sometimes extending just a to a few buildings, to be progressively developed in a mid-term. Such strategy forced to divide plans in different phases [Figs. 5.3-5.5], where each of their buildings was now designed with a character of its own and a more flexible relation to the whole. Indeed, this approach offered a especially convenient alternative for institutions established in urban areas—as it was the case of IIT—usually urged to erect new facilities in a limited space, and for whom aesthetic considerations of unity or spatial composition often appeared as merely secondary problems.

Fiercely debated among traditional planners, who saw such approach as “an open invitation to aesthetic chaos and expedien-
As a consequence a new professional context for the architect emerged, more favorable for singular interventions where “new forms of architecture could be embraced with no apologies.” All across the nation, colleges and universities made new plans to fill the vacant spaces on their aged campuses, where large and unconventional structures for an increasing number of students —student unions, libraries or dormitories— were now accepted “without having to try to disguise them” or conform them to the generally traditional existing buildings.

Accordingly, the architect acting as a planner,
“(...) let no building depend for its character upon its relation to another, nor let any of the open spaces be of such absolute proportions that new construction built into them will destroy them.”

Indirectly, this new approach came to suit IIT, whose new campus extension at Chicago South Side was still far from completed by then [Fig. 5.6]. Whether the tradition of integral master

5.5 Different views of a partial model of Mies’s IIT campus Master Plan design (2nd version), c.1947.

The model displayed only the central part of the approved section of Mies’s 1940 campus design, extending from 32nd to 34th Streets, and already included the Art Minerals and Metals Research Building as built. Singularly, other buildings already under construction, such as the Metallurgy and Chemical Engineer Building, were here resembled in a simplified volumetric way. In addition to this, other were as well simplified — although keeping its final proportions —despite the fact that their design was already almost finished by the time, as it was the case of the Library and Administration Building, or the Auditorium and Student Union Building.

plans for university campuses was to be inevitably abandoned or not, a less ambitious—but more feasible—approach emphasizing the establishment of principles for future growth seemed more realistic. In a sense, the process of planning and administration of the constructed facilities became more important than the final form of the campus, where the new buildings came to play a relevant role by themselves for directing this process.

Key

<table>
<thead>
<tr>
<th>IIT Buildings*</th>
<th>14</th>
<th>27</th>
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<tbody>
<tr>
<td>1 IIT Armour Mission Building</td>
<td>South Union Building (Temporary Building No. 4)</td>
<td>IIT Metallurgy &amp; Chemical Engineer Bdg. (Perlstein Hall)</td>
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<tr>
<td>2 IIT Main Building</td>
<td>IIT Classrooms &amp; Laboratories</td>
<td>IIT Chemistry Building (/Whisnicker)</td>
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<td>3 IIT Buildings &amp; Grounds Storage Building</td>
<td>Temporary Building</td>
<td>Vendoze Storage Building</td>
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<td>5 Chapin Hall</td>
<td>AEF Ice Lab</td>
<td>AEF Laboratories</td>
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<td>6 Parking Lot</td>
<td>AEF Explosives Test Cell</td>
<td>IT Fraternity Row</td>
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<tr>
<td>7 AEF Minerals &amp; Metals Research Building</td>
<td>AEF Laboratories</td>
<td>Graduate Hall</td>
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<tr>
<td>8 IIT Transformer Vault (Central Electrical Vault)</td>
<td>IIT Machinery Hall (Mechanical Engineering Building)</td>
<td>Other Relevant Structures in the Area</td>
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<tr>
<td>9 IIT Civil Engineering Bldg. (Temporary Building No. 2)</td>
<td>IIT Armour Laboratory (Gas Dynamics Lab)</td>
<td>Huber &amp; Huber Motor Exp.</td>
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<tr>
<td>10 IIT Boiler Plant (Heating Plant) (Section 1)</td>
<td>IIT Economics-Mechanics Bldg. (Temp. Bldg. No. 2)</td>
<td>Mandel Residence</td>
</tr>
<tr>
<td>11 AEF Mechanical Engineers Research Building (Units 1, 2, &amp; 3)</td>
<td>Armour Research Foundation (AEF Magnetic Recording Lab)</td>
<td>Chicago Housing Authority (CHA) Dearborn Homes</td>
</tr>
<tr>
<td>12 Library (Temp. Bldg. No. 3)</td>
<td>Ogdens Field (The Bog)</td>
<td>&quot;The Mecca&quot; Flats</td>
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<td>13 AEF Life Science Research Bldg.</td>
<td>Gymnasium (Temp. Bldg. No. 5)</td>
<td>Keith Public School</td>
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* Structures in red designed by Mies van der Rohe

5.6 IIT campus buildings in their urban context (opposite page), 1947.
5.7 “Heart of Illinois Institute of Technology campus”

This photomontage illustrated a press report about the campus expansion plans. The article emphasized how “graphically highlighting the sharp contrast of gaslight college facilities with modern atomic era [sic] structures, buildings (...) show the outmoded physical plant, being replaced in a long-range modernization and building program”, to become “the world’s most modern college campus” when fully completed.

5.1.1 Negotiation of Space in an Urban Environment

Given these circumstances, it did not seem necessary that the architect acting as city planner had to take into account the inextricable reflection of that underlying order from within preceding urban conditions. Indeed, Mies’s principles for his IIT campus design, set since his early designs for AIT — where building were considered as a medium in which different urban spaces would interrelate by their own structural organizational logic — seemed now certainly unusual. Mies’s own stance, expressed in his own words, was based in the assumption that “city planning means (...) therefore, the ordering of things in themselves and in their relationship to each other”\textsuperscript{11}, i.e., the set up of a general framework for emergent organizations in which each fragment can develop properly and interact orderly with preceding ones [Figs. 5.7-5.8].

Not only allowing its different uses to take place in comfort and dignity, it was nonetheless the diversity of the transforming spatial relations between these that would be capable to mediate a future development of unpredictable uses or new ways of living.

But even considering the ultimate practical efficiency of IIT campus building process, distance between Hilberseimer and Mies's rhetorical agendas was manifest. In later statements, Hilberseimer implicitly criticized the lack of control over the results of such a fragmentary execution process, claiming that

“(...) all these new things needed can be made piecemeal, without consideration as to how they may affect each other, without regard for the good of the region or the nation. Piecemeal reconstruction is no reconstruction at all.”

Hilberseimer insisted on the need for a “comprehensive planning in which all the many and different necessary undertakings are fitted together to establish a framework for a better life.”

Perhaps trying to conceal Hilberseimer's polite submission to his design, Mies spoke up for him, stating that

13 Ibid.
5.9 Alumni Memorial Hall steel structure under construction (bottom), c.1946.

Completed during the spring of 1946, Alumni Memorial Hall was the only finished building at IIT before Mies’s monographic exhibition took place at the MoMA, New York, which Mies took care to exhaustively document under construction. These images describe the constructive solutions used at other buildings of the campus, almost identical, where the whole steelwork of its supporting structure provided itself an image very similar to that of the finished building.

“[Hilberseimer] realizes that the material and spiritual conditions of the problem are given, that he can exercise no influence on these factors in themselves, that they are rooted in the past and will be determined by objective tendencies for the future.”14

Characteristically enough, Mies’s resolution assumed existing context not as a restrictive determination, but rather as a given fact that enables a true experience of the contemporary city by means of the assumption of the pragmatic forces that shape it.

In addition to this, the implicit difficulty of this situation would have been accentuated by the condition of exile of both Mies and Hilberseimer,15 a circumstance that most probably influenced his attitude and expectations towards the actual possibilities of design to transform reality. Maybe too generously, Mies nonetheless granted Hilberseimer that “he understands that the forms of cities are the expression of existing modes of living, that they are inextricably bound up with these, and these, are subject to change”.16 His warning was clear —present given conditions considered transitional, their public significance could be modulated, favored, or obstructed by design.

14 Ibid.
15 As an exile, Mies was “much too good a German, far too closely linked with the cultural traditions and the language of [his] country, for the thought of an exile lasting years, if not a lifetime, not to have a grave, fateful significance for [him]”, quoted in Riley, T. (2003) «Making History: Mies van der Rohe and The Museum of Modern Art», in Riley, T., Bergdoll, B. (eds.) et al. Mies in Berlin (New York: MoMA), p. 22.
5.2 Implementation of IIT Campus Master Plan Buildings

Coherently, the generic envelope expressly designed for the campus buildings enabled a certain quotation of its structural principles, turning it into something much more relevant and — paradoxically — essential. The modular clarity which Mies adopted fit in with the ordering principle of the three-dimensional grid of the IIT campus layout, whereas its structural bay established a regular modulation within which the needs of similar and dissimilar functions could be accommodated with optimum ease and a possibility of future change. The adopted structural scheme of the generic steel skeleton frame seemed to facilitate the whole IIT campus Master Plan implementation — its assembly from different generalized constructive systems provided a typical application of the constructive solution for the buildings that recalled the overall geometric order of the campus. Already present in the working drawings for the different buildings of the campus — and therefore, part of their structural design — this duality in the role of the constructive elements seemed clear from the very moment in which the first buildings of the campus were erected [Figs. 5.9, 5.10].

In fact, steel skeleton frame construction had been generalized as an affordable and effective structural type since the early 1940s, impulsed by new welding technologies developed during the war years. This came to offer an practical solution to solve rigid knots without bolts, reducing the amount of steel used and, therefore, material and labor costs. Consequently, structural design could be concentrated in the knots, whereas its solution granted feasibility for the whole structure.  

17 Actually an effect of the development of new calculation standards such as the ‘moment-distribution’ method, by Professor Hardy Cross of University of Illinois at Urbana-Champaign, published in Cross, H., «Analysis of Continuous Frames by Distributing Fixed-End Moments,» in Proceedings of the Annual Convention of the American Society of Civil Engineers (1923), July 9th-11th, 1930 (Ohio, Cl.: xxi), pp. 409-458 (May, 1930), later reprinted in Transactions of the American Society of Civil Engineers, 96 (6): 1-20, 193-236 (Jan., 1932).

Well-established in building practice by the late of 1940s its deep impact did not limit to structural analysis, but also led to major changes in professional practice where structural design soon integrated into large and mid-size architectural firms. On this regard, see Cross, H. (1936) «The Relation of Analysis to Structural Design,» in Tras-
Hence, Mies transposed this structural typology —originally developed for high-rise construction— as its use in low-rise structures offers far more freedom in determining the structural bay, inasmuch as “limitations which result from multiple vertical repetition and accumulative weight being absent, greater spans may be economically feasible and —because of the different type of occupancy— functionally desirable.” Subsequently, “such conditions can produce a more varied spatial character and an altogether looser plan assembly” as “the interior areas, free of the high-rise building’s extensive elevator and mechanical service cores, are opened up as much as possible.”

5.2.1 Contradictions Between the Different Architectural Scales

The buildings were enclosed by a skin consisting of exposed steel components, steel sash, clear plate glass and solid brick panels. Its construction acquired its own logic when these local detail solutions were set in dialogue with the general order of its structural system. Mies’s personal desire to keep structure as a representative element of the building image led towards its exposure, moving it forward to the facade line [Fig. 5.11 (a)], so the steel skeleton frame —encased in concrete throughout by means of fire protection— was revealed externally. The enclosing skin was “separately defied from the stressed members, leaving no doubt...”

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