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The Groundscraper.

Candilis-Josic-Woods' Free University Building, Berlin 1963-1973

A thesis submitted in partial satisfaction
of the requirements for the degree Master of Arts
in Architecture

by

Dina Kronic

2012

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ABSTRACT OF THE THESIS

The *Groundscraper*.

Candilis-Josic-Woods' Free University Building, Berlin 1963-1973

by

Dina Kronic

Master of Arts in Architecture

University of California, Los Angeles 2011

Professor Sylvia Lavin, Chair

The long design phase of Candilis-Josic-Woods' proposal for the Free University Building holds answers to questions regarding the social model the group proposed in their most published building. In this article, I discuss the development of Candilis-Josic-Woods' conceptual ideas of *stem* and *web*. I further elaborate how those concepts are unified, but also expanded and elaborated in the concept of *groundscraper*. The concept of *groundscraper* combines *stem* and *web* into a coherent architectural proposal. It also includes urban and environmental issues to this proposal which reveal the architects' intentions to instigate social-political change through their design. I elaborate on how Candilis, Josic and Woods work with these concepts as drivers of design, from the initial diagrammatic proposal, through the development of site strategy, to the building execution.

From inception to completion, the Free University project encouraged interdisciplinarity and exchange. This heterogeneous multi-level grid formation increases urban density across the site but also unifies multiple disciplines, provoking conversations across fields, encouraging negotiations and allowing change. By looking at the development and realization of the *groundscraper* in the Free University building, one may suggest that the conceptual intentions to marry *stem* with *web* culminated in a hybrid connection between ground and skyscraper, individual and society, architecture and urbanism, while simultaneously positioning the architect in a central node as a main mediator among relevant disciplines.

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2012

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The architectural office Candilis-Josic-Woods comprised of three architects: Georges Candilis, Alexis Josic and Shadrach Woods, whose work was relatively unknown in the North America until the recent acquisition of Woods' archives by Columbia University coordinated by prof. Mary McLeod. The acquisition included original architectural drawings, writings, personal notes and transcripts which were left in the possession of Shadrach Woods' wife after his passing. This acquisition, along with the acquisitions of the works from other Team 10 participants' also similarly unknown architectural practices of the period, inspired a wide academic curiosity regarding the avant-garde European architectural practices of the 1960.

The practice of Candilis-Josic-Woods which comprises mostly of affordable housing, educational institutions and book publications emerged in the thick of architectural structuralism of the 1960s. Similarly to Modernists, Structuralists suggest using architectural tools to socio-political goals. However, the Structuralists' socio-political agenda was never clearly stated in the literature, which leads me to believe that this area of research would be a significant contribution to the field of architectural history. Being an active part of Structuralism, Candilis-Josic-Woods' practice holds a direct key to illuminating Structuralisms' social relationships to architecture. In the midst of rethinking the project of modernity, it comes as no surprise that an increasing number of academics today are trying to understand this peculiar practice and their socio-political inventions.

Candilis, Josic and Woods' roots in Modernism and, simultaneously, their antagonistic relationship with it suggest a unique position of this group in the architectural history.

Neither followers of Modernism nor proponents of Brutalism or conceptual architecture, Candilis-Josic-Woods resists the categorization into the familiar architectural intellectual theories of that time. This research probes the evolution of Structuralism in architecture, both inside and outside of Candilis-Josic-Woods practice by utilizing the design of the Free University Building in Berlin (1963-1973) as the historical and contemporary bookend for this study. In addition, this study exposes previously unpublished primary documents of this organization.

Researching the collection of Shadrach Woods' architectural documents and drawings at the Avery Drawings and Archives at Columbia University, I found previously unpublished drawings, sketches and correspondence letters significant to this research. I integrated that archival research into the existing paper. In addition to discussing the archival findings, the scholarly angle of this article reflects a wide range of research material including publications, theoretical writings, interviews, as well as the empirical study of the realized building which I conducted in 2010. Among many important documents, I found three developmental site plan drawings dating from 1965-66: a site circulation diagram, a development site plan (1965), and a development site plan (1966). I focus this part of my research on exploring the intentions and innovations that govern the process of designing the Free University project from inception to construction completion. Previous scholarly research and publications on the Free University Berlin focus either on the competition scheme from 1963 or on the finalized building as it was completed in 1973. However, the ten years period from 1963-1973 during which numerous design changes to the original scheme were implemented, are rarely discussed in the existing literature. The drawings uncovered at the Avery Drawings

and Archives allow to elucidate Candilis-Josic-Woods hitherto unclear attitude towards environment and urbanism and with it towards society.

INTRODUCTION

The long design phase of Candilis-Josic-Woods' proposal for the Free University Building holds answers to questions regarding the social model the group proposed in their most published building. In this article, I discuss the development of Candilis-Josic-Woods' conceptual ideas of *stem* and *web*. I further elaborate how those concepts are unified, but also expanded and elaborated in the concept of *groundscraper*. The concept of *groundscraper* combines *stem* and *web* into a coherent architectural proposal. It also includes urban and environmental issues to this proposal which reveal the architects' intentions to instigate social-political change through their design. I elaborate on how Candilis, Josic and Woods work with these concepts as drivers of design, from the initial diagrammatic proposal, through the development of site strategy, to the building execution. These terms *stems*, *webs*, and *groundscraper* and how Candilis, Josic and Woods utilize these conceptual tools in their design process will be discussed in more detail later in the paper.

The Free University Building site drawings from 1965-66 demonstrate Candilis-Josic-Woods' attempt to develop their conceptual ideas of *stems* and *webs* to include the surrounding context and the existing transportation infrastructure while rethinking programmatic isolation. The organizational principle of *groundscraper* presented in the original proposal is a conceptual model that permeates both architectural explorations and urban planning proposal. The team was led by Shadrach Woods, whose interest in urbanism, streets and

cities dominated the discourse until his premature death in 1973.¹ It is therefore no surprise that the design of the Free University building devises an unprecedented urban model of incremental planning and zoning. The surprising part is that Candilis-Josic-Woods' conceptual diagram for the *groundscraper*, which was explicated in the original competition panel, was not, until now, explored by scholars. The *groundscraper* is another in the series of concepts that drove the development of Candilis-Josic-Woods' projects. Much like the other concepts, the *groundscraper* positions architecture and architects in the center drawing together different disciplines around a single aesthetic idea. Through this concept, Candilis-Josic-Woods mediate environmental, contextual, socio-political and other interests in the fast-growing and widely-spreading urban setting in Europe in the 1960s.

As is customary, the 1963 competition entry consists of sketches, site plan diagrams, plans and sections fronted by an architect's statement of intent. It also contains a storyboard diagram, where one finds the descriptive development of an idea that culminates in the concept of *groundscraper*. (see fig. 1) The original entry to the Free University competition could be described as an over-simplified, pure, diagrammatic, idealized version of complex architectural concepts. (see fig. 2) The final design was developed only later during a ten-year long elaboration and development of the design proposal.

¹ Both Georges Candilis and Alexis Josic attributed the Free University project to Woods. See Gabriel Feld, *Gabriel Feld interview with Alexis Josic*, Jan 01 1997, *Shadrach Woods Architectural Records and Papers*, Archival material, The Avery Drawings and Archives, Columbia University, New York.

Two years after they won the competition, the intermediate design proposal drawings from 1965-66 show that Candilis, Josic and Woods use the *groundscraper* as a site planning strategy to expand their architectural proposal. At that point, they include a new site planning proposal, vehicular and mass transit transportation and show how to integrate their proposal into the surrounding environment. Even though the architects did not explicitly elaborate on the subject of *groundscraper* after the initial competition proposal was submitted, the applied site planning strategy, the use of mobility to develop the proposal and to integrate it into the existing urban tissue, may be seen as an application of the organizational principles of *groundscraper* on the urban scale. Much as the *groundscraper* diagram describes, the urban proposal at this stage suggests no vertical density, no machine-assisted access to the site and no planes of isolation.

As the intermediate design drawings from 1965-66, the completed building in 1973 also supports ideas that are explicated in the *groundscraper* concept. Even though only about a quarter of the original proposal, the relatively small portion ultimately built exhibits the same qualities of the *groundscraper* diagram from the competition panel: it bridges floor levels with ramps and staircases rather than elevators, outdoor and indoor spaces flow seamlessly into each other and public spaces integrated in the circulation matrix loosely, but persistently, argue for an urban and social re-structuring where “greater possibilities of community and exchange are present.” (see fig. 1)²

² A part of the diagram in fig 1. See Shadrach Woods, *Candilis-Josic-Woods; Building for People* (New York: F.A. Praeger, 1968) 208.

Candilis-Josic-Woods' ten years long design process of implementing the *groundscraper* concept attests to the importance of conceptual thinking to this practice. Through *stems* and *webs*, Candilis-Josic-Woods explored architectural truisms of the time, whereas through the *groundscraper* they expanded the architectural scope of work to include urban, environmental and contextual explorations that to a greater extent explicate their attitude to affect society and human behavior.

From inception to completion, the Free University project encouraged interdisciplinarity and exchange. This heterogeneous multi-level grid formation increases urban density across the site but also unifies multiple disciplines, provoking conversations across fields, encouraging negotiations and allowing change. By looking at the development and realization of the *groundscraper* in the Free University building, one may suggest that the conceptual intentions to marry *stem* with *web* culminated in a hybrid connection between ground and skyscraper, individual and society, architecture and urbanism, while simultaneously positioning the architect in a central node as a main mediator among relevant disciplines.

My critical and intellectual contribution will further elaborate on the omissions in the hitherto existing literature to contextualize Candilis-Josic-Woods' work in the greater socio-political context through the inclusion of other disciplines.

HISTORICAL AND SOCIAL CONTEXT

The design of the Free University Building in Berlin has stood the test of time through the history of architecture as a model for educational and social restructuring. The building is a

memento to changing political and social agendas of the European educational institutions in the period preceding the student revolts of '68. As a consequence of socio-economic changes, rapidly growing population and dwindling institutional structures in the 1960s, European educational institutions were pressured to adjust. The increase in student enrollment and the need for greater communication between disciplines offered a platform for Candilis-Josic-Woods to depart from Modernism, which was the prevalent school of architectural thought of that time. Candilis-Josic-Woods did not only manage to respond successfully to the societal and university demands presented in the competition brief, but also proposed a disciplinary shift in architecture towards greater communication, wider interaction and urban densification. Candilis-Josic-Woods managed, as architectural historian Tom Avermaete describes, to combine mass culture and mass production of Modernism with the focus on everyday life of a man and his living habits characteristic of Humanism.³ Historians such as Avermaete, Frampton and Tafuri, use this building to explore the relationship between modernity and tradition. Other historians such as Chaljub, Kiem and Feld, frame the Free University building in the context of technological innovation, where the assembly-line production and the logic of Modernism are replaced with collaboration. However, by looking at the Free University's ten-years long design development process, one finds Candilis-Josic-Woods' attempt to position architectural discipline as a mediator between two divergent paths: the existing socio-political structures that resisted change and the scientific disciplines such as site and urban planning, social sciences, and engineering, which are based on the idea of change.

³ Tom Avararmaete, *Another Modern: The Post-War Architecture and Urbanism of Candilis-Josic-Woods* (Rotterdam: NAI, 2005) 15.

Candilis-Josic-Woods' concepts were great contributions to the architectural discourse as stimulators of discussion at Team 10 meetings. The Free University building brought technological innovations, such as Jean Prouve's flexible and interchangeable façade panels. However, their actual contribution to the discipline of architecture goes well beyond architectural concepts and devising a strong formal language based on the technological innovation. At the times when social programs and political structure were crumbling under the pressures of urban population growth, CJW replace the existing paradigm of Modernism of solving problems through repetitive building with a process of designing based on architectural concepts. Candilis-Josic-Woods includes architectural techniques of conceptual thinking and geometrical erudition to conduct architectural experiments that explored socio-political change. The making of the Free University building is as much an experiment in negotiation and mediation through the medium of architecture as much as a return of tradition or technological innovations. Even more, the Free University building expands the disciplinary limits to include urban planning, site planning, transportation and social planning within the scale of a building. While these disciplines were already included in the Modernist architects' scope of work, they were not hitherto simultaneously applied on the building as well as on the building's immediate surroundings. Candilis-Josic-Woods' process of design suggest that architects' can become initiators of change and negotiation in the shifting urban, social, and political context.

ARCHITECTURAL CONCEPTS OF *STEM*, *WEB* AND *GROUNDSCRAPER*

Writing about architectural ideas and inventing concepts seems to be as important to

Candilis-Josic-Woods practice as making drawing and constructing buildings. With a background in philosophy and literature, Shadrach Woods was the writer, lecturer and presenter in the group. His conceptual explorations explicate Candilis-Josic-Woods' theoretical and socio-political agenda in his quintessential articles on "Stem" and "Web." The concepts of cell, cluster, stem and web found interest among Team 10 participants as they embody an alternative to both traditional urban techniques as well as to those proposed by Modernists.⁴ Much like the Team 10's gatherings, Woods' concepts were precise and extensively elaborated but also flexible to interpretation. At that time, flexibility was on everyone's mind: Van Eyck's call to find a form for a society of great numbers, Bakema's search for a counterform, Alison and Peter Smithson's insurgency of relationships and Candilis-Josic-Woods' focus on activities, among others, advanced conceptual thinking ahead of any aesthetic or formal idea. However, the persistent search for the aesthetic language that describes these concepts is what differentiates Candilis-Josic-Woods' practice and the Free University project from other realized projects of the Team 10 participants. In the Free University, the main concepts of *stem* and *web* seem to blend together into a coherent whole, known as a mat-building, but also inspiring a birth of another conceptual organizational principle named by Candilis-Josic-Woods as the *groundscraper*.

⁴ *Cells* and *cluster* were additional concepts that Candilis-Josic-Woods' developed through projects. These were developed in drawings and diagrams of the housing in Aulnay Sous Bois, France (1960) and in their competition entry for semi-urban housing in Algeria (1960). Alison and Peter Smithson wrote about them in "Cluster City. A New Shape for the Community," *The Architectural Review*, Nov. 1957: 333-336. Since there is no writing that synthesizes cells and cluster as clear concepts by Shadrach Woods himself, we will treat them as intermediate concepts that led to the development of *web*.

Stem

According to the article “Stem” written by Shadrach Woods and published in *Architectural Design* in 1960, one of CJW’s main structuring elements of the urban realm is, as title would suggest, the *stem*. Mobility was of interest to architects of that time as a means to rethink the field of urban planning into “urbanism as the science responsible for the growth and development of the city.”⁵ Many Team 10 participants were faced with the challenge of finding an alternative to the ordinary street. Unlike Le Corbusier, who in “La Rue” in 1929 attacked the traditional street for being no more than a trench, a deep cleft, a narrow passage, and who, in the Athens Charter destroyed the outdated “corridor street,” Georges Candilis in 1962 held a plea to “re-establish the notion of the street.”⁶ He asked that the urban fabric be defined around the coherence of a linear void.⁷ Not a strange concept, when we look at traditional non-European streets displayed in the Bernard Rudofsky’s *Architecture without Architects* exhibit of 1964, but an innovative one coming from Le Corbusier’s apprentice. With the concept of the street, Candilis-Josic-Woods adopted mobility as the instigator of urban change and a mediator in urban growth.⁸ The *stem* was both a devise that structures dwelling and resulting form, as well as a diagram that structures urban development.

In the “Stem” article, Woods underlines that the *stem* concept is a criticism of the urban planning techniques prevalent in France at the time.⁹ Instead of outlining the building envelopes as a way of urban planning, Woods proposes a tool that would allow every

⁵ Avermaete 234.

⁶ George Candilis, “A la recherche d’une structure urbaine,” *L’Architecture d’Aujourd’hui*, no. 101. 1962: 51.

⁷ Candilis, “A la recherche” 51.

⁸ Shadrach Woods, “Stem,” *Architectural design* no 5. 1960: 161.

⁹ Woods, “Stem” 161.

extension of the city and add modification as an important parameter to urban planning. He insists on the embedment of urban design in real circumstances and new parameters which require flexibility and change. Woods suggests that urban forms should be analyzed and understood through the multifarious notions of mobility and the culture of modification. Candilis-Josic-Woods' *stem* is an attempt to capture the formal characteristics of a street in a new concept for urban design, which would allow urban modification and growth.

Web

Not long after Caen-Herouville (France 1961), Asua Valley Bilbao project (Spain 1961), Toulouse-Le-Mirail (France, 1961), and Fort-Lamy (France 1962), all of which elaborated on the *stem* principle, Woods published another important article titled "Web" in *Le Carre Bleu* in 1962. In this article, Woods introduces the most encompassing structuring concept for the urban realm: the *web*. As the alternative to traditional urban tissue, the web concept invokes the shift in Candilis-Josic-Woods' thinking from geometries to activities, evoking another detachment from the traditional formal architectural principles. Woods marries architecture and planning when discussing the organization of places contingent on establishing activities and a system of relationships, which only in the end achieve formal expression. According to Woods, *web* is an environmental system, non-centric initially, poly-centric through use after individual action ascribes local centers. "It is a way to establish a large-scale order which, by its existence, makes possible an individual expression at the smaller scale."¹⁰

¹⁰ Shadrach Woods, "Web," *Le Carre Bleu* no 3. 1962: 4.

Team 10 participants faced rapid urbanization and building for great numbers. For them, ordering systems were a necessity, which neither the uniform Modernist grid nor the war-compromised urban centrality would satisfy. In the post-war society, the idea of urban centrality became a subject of rapid modification, and the known instruments achieving urban centrality had to be revised.¹¹ The Modernist grid did not allow for flexibility and mobility that was necessary in the rapidly growing society. Woods' *web* was an investigation into designing a system that allowed different practices and programs to be woven into a continuous patch without limits. It was a system more homogeneous than the *stem*, "stem to the next degree," permitting limitless development of an area that was unified by a network of activities, circulation and auxiliary program. The *web* was primarily a total system, which holds at all scales, from man in general to each particular man, but also provides flexibility in planning for a range of functions over time.¹² To assure its longevity, the *web's* very realization is to be spread out and subjected to revision over time. Explored in projects such as Toulouse-le-Mirail project (France, 1963) and Frankfurt-Romerberg (Germany, 1963), Candilis-Josic-Woods' *web* concept found its physical form somewhere between a three-dimensional grid and a network of circulation paths.

Groundscraper

By 1963 when the competition for the Free University building took place, the *stem* and the *web* were well-known concepts among Team 10 participants. Through their writings and in Team 10 meetings, Candilis-Josic-Woods brought many Modernists ideas under scrutiny,

¹¹ Woods, "Web" 4.

¹² Avermaete 302.

such as the street, the urban organization and the grid. Even though concepts such as *stem* and *web* provoked ample criticism from planners, architects, politicians and sociologists, they were merely formal and conceptual architectural provocations that did not directly challenge the urban scale. Zoning regulations, urban density models, transportation and social structuring, largely inherited from the Modernist era, were still intact.

As the result of the CIAM conferences, the scope of architecture in general was broadened to include urban planning, where the problems of the city inherently became the problem of architecture.¹³ Much like other CIAM and Team X members, Candilis-Josic-Woods inherited the city as the model of re-conceptualizing the built form and the public sphere as in the Greek polis.¹⁴ Unlike their contemporaries, Candilis-Josic-Woods placed emphasis on articulating the public and private domain by including landscape as the active element for creating these connections. In the Free University proposal, Candilis, Josic and Woods introduce ground, a forgotten part of the Modernist architecture, as an element that brings greater possibilities for creating a public sphere, without compromising privacy. The vertical skyscraper integrated with the ground maintains the density of the skyscraper but loses the planes of isolation while encouraging activity, mobility and integration. Candilis, Josic and Woods named this new socio-political concept of structural organization the *groundscraper*.

¹³ Starting with CIAM(Congres International d'Architecture Moderne) IV on Functional City and continuing with CIAM V, VIII, IX, X, participants looked at how architecture can address problems of the city. In these conferences, the scope of architecture was broadened to include urban planning.

¹⁴ Polis, according to Habermas, is an old model of the city where the public life takes place, which is no longer a valid model because the public is no longer related to a location. See Jurgen Habermas, *The Philosophical Discourse of Modernity: Twelve Lectures* (Cambridge, Mass.: MIT Press, 1987) 3.

“In a *groundscraper* organization, greater possibilities and community and exchange are present without necessarily sacrificing any tranquility,” was written on the competition panel for the Free University (see fig. 1). Unlike Candilis-Josic-Woods’ previous concepts, the *groundscraper* questioned many existing urban planning conjectures: social integration, density, transportation and zoning. Besides explicitly stating the advantages of the *groundscraper* as the model for social re-structuring in the competition panel, this concept also presented an alternative to vertical skyscrapers thought to be the only model to make provisions for the growing population. Candilis-Josic-Woods attempted to capture the spatial and functional principles of the traditional European city within the urban density of a skyscraper, without producing vertical separation. Mechanical transportation systems that allow vertical expansion, such as elevators and escalators, were made obsolete in this concept, as if to remove Modernist dependency on machine mobility and to encourage a more simple pedestrian mobility to thrive. The zoning division with the *groundscraper* concept was neither related to the ground it occupied nor to the use it contained, but to circulation paths, which unify zones both vertically and horizontally. These and other ideas about the urban scale are evident as much in the initial diagram of the *groundscraper* as in the intermediate design drawings of 1965-66, and finally in the completed building.

The *groundscraper* is the development of Woods’ *web* concept and the natural successor in the series of Candilis-Josic-Woods’ conceptual propositions. Alison Smithson attributed the Free University building’s success to Candilis-Josic-Woods’ ability to formalize a mat-building concept. Alison Smithson wrote her text “How to recognize and Read Mat-Building. Mainstream Architecture as It Developed towards the Mat-Building” in 1973, immediately

after the Team 10 meeting at the completed Free University building, where she proposes the metaphor of the ‘mat’ to describe the newly completed masterpiece. In her article, Smithson points out that the dense overlay of urban and architectural figures is an essential characteristic of the web concept. The concept epitomizes two different tendencies: one being the move of architecture in the direction of urbanism, and the other the increasing importance of the architectural interior.¹⁵

As the meaning of the English word mat reads: “A flat article, woven or plaited;...any dense or twisted growth...a matrix,” the Free University Building has every quality to be described as a textile and discussed as the architectural interior as Smithson did.¹⁶ However, it is questionable if the architects’ intentions were the same as portrayed by Smithson since Woods was no longer present to elaborate on Candilis-Josic-Woods’ design. Shadrach Woods, the conceptual thinker of the group who wrote about Candilis-Josic-Woods’ intentions missed the opening of the Free University building due to illness and passed soon after. One may wonder what Woods’ response would be to Alison Smithson’s metaphoric association of the Free University with the mat-building. The *groundscraper* concept from the competition diagrams 1963 and the developmental site drawings (1965-66) hold the key to suggest that Smithson’s interpretation of the Free University as an architectural interior is less important than the design’s motion outwards in which Candilis, Josic and Woods intend to connect architecture with other disciplines and expand into the urban context.

¹⁵ Alison Smithson, “How to Recognize and Read Mat-Building; Mainstream Architecture as It Has Developed Towards the Mat-Building,” *Architectural Design* no. 9 Sept. 1974: 573-590.

¹⁶ “Mat,” *The New International Webster’s Comprehensive Dictionary of the English Language* (Naples, FL: Trident Press International, 1996).

THE CONCEPTS OF *STEM*, *WEB* AND *GROUNDSCRAPER* IN THE COMPETITION ENTRY DRAWINGS (1963)

The Free University was the subject of a competition launched by the Senate of Berlin-West in 1963. The Free University intended to house 3600 students and multiple departments, including philology, literature, and history to add, to the arts and science faculties on a thirty acre site. The mayor of the city described the building as “giving Berlin-West university symbol of freedom, flexibility and openness.”¹⁷

The team led by Woods consisting of Georges Candilis, Alexis Josic, Shadrach Woods and the German architect Manfred Schiedhelm won the competition. They explored the theme of “the University for Greater Numbers,” and advanced their previously established concepts of *stem* and *web*, subjects on which Woods wrote shortly before the competition took place.

The Free University in Berlin was based on the previously realized *stem* proposal for Toulouse de Mirail (France, 1961), and a previous unrealized *web* competition scheme for the city center in Frankfurt-Romerberg (Germany, 1963) (see fig. 3). The limits of the *stem* proposal, discovered in the Toulouse de Mirail project, were that stems had equal importance that created private spaces with universal character and gave the overall proposal a non-centric organization. To advance the *stem* concept and to initiate the discussion on the grids in a 1963 Team 10 meeting, Woods presented the Frankfurt-Romerberg Centre

¹⁷ Veneta Charlandjeva, “Parenthood of an utopia” *Le Carre Bleu* no 1. 1999: 4.

Competition project, which was based on a three-level grid, or what he later named the *web*. This project was Candilis-Josic-Woods' quest for balance between the formal naiveté and the intellectual sophistication which the Modernist grid suggests. Even with the conceptual and intellectual framework of the web, the Frankfurt-Romerberg proposal's awkward connection to the adjacent existing structures exposed the formal naiveté of this three-dimensional grid (see fig. 4). In the Free University proposal the awkward connections disappeared, as the neutral setting of the almost flat Berlin site allowed for intellectual sophistication of the three-leveled grid to flourish and the rigidity of the three-dimensional grid to diminish. Woods describes the web of primary and secondary circulation in the Free University building as "not a mega-structure but rather a minimal structuring organization" that allows the project to grow and change.¹⁸ At the Seminar in Berlin in 1964, Woods spoke of the Free University project's three-level grid system similar to the one used in the Frankfurt Competition, however, this time, because of no difficult integration into the city core, the circulation grid as an organizational system persevered by easily connecting to the pedestrian circulation across the site.¹⁹

Besides having the flexibility to expand, the Free University proposal puts in action the concepts of stem and web simultaneously with the *groundscraper* organization as the connecting tissue. The *groundscraper* not only provides for greater density of the grid and a faster access to different planes, but it also allows the scheme to continue without finalized

¹⁸ Shadrach Woods, "Berlin – Freie Universität Competition," Professional Paper, Sept, 1963, *Shadrach Woods Architectural Records and Papers, 193-2008*, Department of Drawings & Archives, Avery Architectural and Fine Arts Library, Columbia University, New York, NY 3.

¹⁹ Giancarlo de Carlo in O. M. Ungers, et al. "BFU/Nine Evaluations," *Architecture Plus* Jan.-Feb. 1974: 50.

and predictable outcomes (see fig. 1). In Woods' description of the competition entry, this lack of perfection allows "the unstable state of becoming."²⁰ The *groundscraper* seems to unite without limiting the potential to grow and change, finally satisfying the goals that were present in Woods' writings on both *stem* and *web*.

To respond to the interdisciplinary character of institutions, the Free University integrated numerous functions and users. Candilis, Josic and Woods worked under the premise that the principal function of the university is "to encourage exchange and intellectual regeneration between people in different disciplines, so as to enlarge the field of human knowledge and increase man's control over his collective and individual activities."²¹ This interdisciplinary approach to universities as a reaction to the contemporaneous problem of departmental disconnect was no less considered than the multifarious use of spaces which could be used but individuals or groups (see fig. 1). The grid acted as a *groundscraper* in order to give minimum organization providing maximum opportunities for contact, exchange and feed-back without compromising the tranquility of individual work. Most public program, such as exhibition spaces, auditoria, large lecture halls, lounges, cafes, shops and some libraries, lecture rooms and seminars, are located along the "four main servicing spines" and connected by secondary ways that hold offices and smaller classrooms. Program was allocated vertically on the basis of efficiency and frequency of activity. Principle building services are underground for easiest vehicular access. The ground floor contains most activities. The upper floor houses smaller classrooms, work rooms, libraries and offices. The

²⁰ Woods, "Berlin – Freie Universitat Competition"1.

²¹ Woods, "Berlin – Freie Universitat Competition"1.

fourth floor was intended for accessible roof tops and housing. At this stage of the design, the automobile parking was not accounted for, according to Woods, as it has become clear that “the exigencies of the auto are incompatible with the economics of building.”²²

The winning design was praised for its principle of flexibility, in which the university demands for the multiplicity of possibilities in the unpredictable future use were met.²³ The flexible use of proposed spaces assured different functional and programmatic organization, from collective spaces for the public to intimate spaces for different departments and their annexes. Candilis, Josic and Woods propose direct pedestrian connection with the existing university, as well as, with a green zone which corresponds to the regional character (see fig. 5). The low-rise height of the design and the circulation pathways connecting the building to the existing public transportation system allude to these regional qualities in the Free University’s competition entry. The utopian drawings contain very little context and could be easily sited anywhere in the world. The initial scheme satisfies “some inner notion of perfection, seated in the bed of architects’ formation,” as described by Alison Smithson (see fig. 6).²⁴ The formal perfection of the proposal admired in numerous publications of the project’s winning entry became ten-year-long urban and interdisciplinary explorations.

²² George Candilis, Alexis Josic, and Shadrach Woods. Project for the Free University of Berlin, Excerpt, *Shadrach Woods Architectural Records and Papers, 1923-2008*, Department of Drawings & Archives, Avery Architectural and Fine Arts Library, Columbia University, New York, NY.

²³ “Concours pour L’Universite Libre de Berlin,” *Le Carré Bleu* no. 1. 1964: XLIV.

²⁴ Alison Smithson in Ungers, “BFU/Nine Evaluations” 47.

THE CONCEPTS OF *STEM*, *WEB* AND *GROUNDSCRAPER* IN THE
INTERMEDIATE SITE PLAN DRAWINGS (1965-66)

As Brian Richards stated in regards to the Free University “ten years is a long time to sustain an idea and only really worthwhile ideas when realized over this period appear up to date.”²⁵

The Free University’s initial entry to the competition is no less intellectually relevant than the interim stages of their design. The long design process, from winning the competition to the building execution, is riddled with mystery as documents are scarce and unorganized. The available site plan drawings from 1965-66 show Candilis-Josic-Woods’ site planning strategies for the Free University institutional complex and answer questions regarding their socio-political attitudes evident only in the urban scale drawings.

As Tom Avermaete points out, in the case of the Free University Berlin the integration into the existing context of Berlin Dahlem seems, at the first glance, to be rather absent.

However, Avermaete claims, the initial competition drawings suggest a different reading: they illustrate how the Free University relates to the existing structure of roads within the suburban environment.²⁶ There may be some indications of how Candilis-Josic-Woods’ intended to connect the Free University building to the roads and the existing university structures in the site circulation diagrams on the competition entry panel, but, as the 1965-66 intermediate site drawings suggest, Candilis-Josic-Woods attempted to expand their conceptual ideas into an urban proposal only much later. The intermediate design drawings illustrate the importance of the ground and site integration with the Free University building.

²⁵ Brian Richards in Ungers, “BFU/Nine Evaluations” 47.

²⁶ Tom Avermaete, *Team 10: 1953-81, in Search of a Utopia of the Present*, ed. Max Risselada and Dirk Heuvel (Rotterdam: NAI, 2005) 311.

In these drawings, Candilis-Josic-Woods not only expand their concept of the *groundscraper* to include the densification of the whole neighborhood, but they suggest an alternative urban model explicating ground as an active and integral part of the *groundscraper*.

Candilis-Josic-Woods did not believe in a suburban model.²⁷ The location of the site for the Free University building, significantly outside of the old Berlin city center, placed their building in the middle of the suburban neighborhood. The central location of the new university in West Berlin suggested that the Free University could be the new center of the divided Berlin. Between the suburban model that dominated the neighborhood and the future city center discussion, it is of no surprise that a *groundscraper* was on Candilis-Josic-Woods minds. Increased density allowed them to move beyond the traditional detached-building development model of the surrounding area and, at the same time, the low-rise proposal would blend into the existing urban context of single family houses.

The site plans diagram done in 1965-66 is one of the key drawings that explicate Candilis-Josic-Woods' urban and contextual ideas as they existed beyond the built form (see fig. 7). In this drawing, Candilis, Josic and Woods show the grid of newly proposed

²⁷ In this lecture he states: "My premise is that urbanism as we know it in Europe and North America is a stupendous hoax in global terms...When our predecessors, in the first third of the century, were re-inventing architecture and urbanism, they were also occasionally, and rightly, presenting themselves as being exemplary of social consciousness in their time...However, in most Europe and al of America, inequality, exploitation, waste and poverty did not too much intrude upon their area of concern, which was usually essentially esthetic, that is, an abstraction of the total scene. It was at this time that the esthetics of social concern were invented; these considerations grazed but did not penetrate (even within the white world) the real problems of social and economic disparity. It was, in a way, like being against war, but only because one found the flags and the uniforms to be somehow overstated." See Shadrach Woods, Lecture "The Incompatible Butterfly," Eight Gropius Lecture at Yale University, May, 1968, *Shadrach Woods Architectural Records and Papers*, Archival material, The Avery Drawings and Archives, Columbia University, New York, 1-2.

pedestrian paths and the boundaries of the site as they perceive them. The boundaries that Candilis, Josic and Woods delineate are places where the ground meets the artificial urban program such as suburban housing, circulation paths, streets and parking. Establishing limits is already a different strategy than as seen in the competition plans and sections, which elegantly but idyllically “float in space.” However, this does not mean that this diagram is less conceptual than the competition entry. Their proposed pathway system resembles Peter Smithson’s ‘Play Brubeck’ ideogram with its overall shape of the site, but also with the use of nodes, the crossing and re-crossing of road structures (see fig. 8). Much like Peter Smithson’s ideogram, which shows points in space connected by a multitude of intersecting lines without any obvious hierarchy, Candilis-Josic-Woods’ site plan diagram suggests a web-like constellation of parts where patterns can emerge. In the case of the Free University, those patterns are the patterns of human actions that define their own circulation paths as they move between the proposed programs. As described in the *groundscraper*, the site plan diagram extends the idea of horizontally overlapping planes by allowing circulation pathways to connect the site and nodes to promote interactions.

Even though buildings are absent from the site diagram, density seems to be of main concern regarding the distribution and division of the land. Instead of invisible lot-lines that usually demarcate parcels on paper, Candilis-Josic-Woods proposes pedestrian pathways that delineate boundaries between individual sites, silently implying future growth across the whole site. Pathways and nodes define pedestrian activity, but also, much like streets, declare physical boundaries that separate the inconsistently sized lots of land. It is evident in the site diagram that the subdivision strategy prioritizes densely spaced low-rise buildings. As the

size of parcels decreases and the number of nodes increases at the northern end of the site, it is easy to see how the parcels become too small to accommodate even an ordinary residence. One can only imagine the shape of those structures that would fill out the smallest parcels as they have to bridge across a dense grid of pedestrian pathways in order to unite and make inhabitable spaces. With no direct street access to the site and by ignoring the problem of the car, these 'lots' also suggest a dense living condition of a traditional city, where the car access was undesirable and sometimes forbidden in order to protect the great number of pedestrians on the streets.

As if the skyscraper section has been laid onto the ground, the planes of isolation drawn in the competition diagram became adjacent planes as distributed across the site. Much like the *groundscraper*, this allows fast and easy crossing in between these zones. Without showing the location of the Free University building, this diagram defines the zones of different sizes and shapes, as if to suggest that the whole field will be built and absorbed with human activity. Pathways with loose ends, seeping off the page into oblivion, suggest further development of this neighborhood through these simple division makers. Towards the boundary of the site, the pedestrian pathways continuously grow as they bridge across vehicular roads or join the existing pedestrian circulation system. Both stems of expensive growth and webs of connectivity, these pedestrian paths fuse the *groundscraper* concept with the complexity of lot-division, suggested density, and variable land form.

Some variations between the site diagram and the site plan drawings further illuminate Candilis-Josic-Woods' attitude towards the environment, ground and found urban condition.

Two development plans from 1965-66 found at the Avery Drawings and Archives attest to Candilis-Josic-Woods' persistence to institute the striated lot division and an even inhabitation of the whole site (see fig. 9 and 10). Much like the site diagram, no buildings were actually drawn in the site plan drawings. These site drawings contain only textual descriptions of the program to be assigned to each lot, clearly demonstrating that their priority is to remove the Free University project from the formal division of building and ground. This denial of the built form suggests that the driving force behind the design is the activity allowed for by the program distribution and directed with the pedestrian circulation. The program distribution encourages greater activity across the site as similar programs are connected within the field but also across the main pathways. Instead of staying within their lots, associated disciplines connect laterally. For example Physics I and IV share the same lot and are separated from Physics II and III by a main pedestrian pathway (see fig. 10).

Candilis-Josic-Woods finally overcame the resistance to integrate the car into their design at the moment when site planning took hold. This change of heart could possibly be attributed to the pressure from university officials, but even if that were the case, Candilis-Josic-Woods' intentions to expand and maintain their horizontal organization of the *groundscraper* persisted. Since Candilis-Josic-Woods made every attempt to increase density without relying on machines to bridge the gap, the car was brought into the site plan with skepticism. The vertical circular parking structures in the 1965-66 site plans are large nodes connecting the existing vehicular transportation system of roads and the web of pedestrian pathways. When Candilis-Josic-Woods brought a car into their design, they proposed lots of circular skyscrapers along the edge of the site which would house the parking. Candilis-Josic-Woods

minimized the imprint of the parking garages to occupy the least amount of the Free University site. They placed parking garages along the edges of the site as if to keep the car as far away from human activity as possible. As the number of circular parking structures between 1965 and 1966 increased, the suburban houses were removed. (see fig. 9 and 10) The car might be a part of the suburbia that Candilis-Josic-Woods disapproved of, but it brought the desired density of the *groundscraper* onto the New Berlin city center. The presence of multiple parking garages facilitated access of a greater number of people onto the site, as well as increased the pedestrian circulation across the site as they move from the parking garages towards the buildings. This suggests that Candilis-Josic-Woods desire to replace a machine-based society with a mobile society based on human interaction.

THE CONCEPTS OF *STEM*, *WEB* AND *GROUNDSCRAPER* IN THE BUILT STRUCTURE

Filled with the areas of tranquility, Free University's *groundscraper* in its built form reverberates with small town intimacy (see fig. 11). Intimate spaces, narrow corridors, private housing units, small courtyards and green roofs with individual seating attest to Alison Smithson's interpretation of the Free University building as the architectural language based on architecture as an interior. As she points out, the fact that "the 'same' panels of the Maison du Peuple can be used to make a building that can bend and go up and down to modestly follow its interior streets, as the elements of the language of classical architecture in Bath were made to serve a new sort of town-fabric and a new sensibility, is the F.U.'s

achievement.”²⁸ Nevertheless, the Free University building is a social experiment that defines Candilis-Josic-Woods’ work and their particular place in the Team 10 group through neither the architectural interior nor the urbanism. What is evident in the scheme actually built is the persistence of stems, webs and *groundscraper* density, even when much of the connection to the existing university buildings, roads and metro stations were omitted, and the fourth floor, which contained housing. The Free University has a ground that is mediated by ramps and staircases, primary and secondary streets, ambitiously dense program, constant perceptual connectivity with the outside, roof access to the green roof and the growth along the east-west axis that connects with the original university buildings from the 1948. All these elements attest to the *groundscraper* organization system that persisted and managed to preserve the integrated model of low-rise densification that would foster human mobility, activity and interaction.

The Free University building can hardly be described as a building in a traditional sense.²⁹ Bryan Richard describes it as “a city in microcosm and the ideas in it are ideas for cities.”³⁰ Serge Chermayeff as “an open-ended grid system accommodating omni-directional growth in three dimensions.”³¹ Candilis-Josic-Woods described it as “a system where individuals and groups may determine desirable relationships.”³² Neither of these statements adequately prepares the audience to what the visitor encounters when seeing the Free University building in Berlin in person, when describing what was finally built in the suburbs of West

²⁸ Alison and Peter Smithson quoted in George Candilis, Alexis Josic, and Shadrach Woods, “The Free University and the language of modern architecture,” *Domus* 534 Mar. 1974: 1.

²⁹ Ungers, “BFU/Nine Evaluations” 46.

³⁰ Bryan Richards in Ungers, “BFU/Nine Evaluations” 47.

³¹ Serge Chermayeff in Ungers, “BFU/Nine Evaluations” 48.

³² O. M. Ungers, “BFU/Nine Evaluations” 46.

Berlin in 1973. The street-like circulation, leading into linearly aligned offices and gathering spaces randomly placed along the avenues, resembles more a city organization than a singular built object.³³

Strolling down the pedestrian sidewalk from the Dahlem U-Bahn metro station, one approaches the newly expanded building of the Free University, originally built by Candilis-Josic-Woods in 1973 and restored by Foster + Partners in 2005. Continuing along Thielallee Street, the series of entrances immediately reveals the complex city-like formation of this undulating building that has one, two or three levels at times. The easily accessible ground floor contains most activities. Many ramps and staircases lead to upper levels, where more private program such as offices and small classrooms are. Extending onto the accessible roof, the third level was initially intended to incorporate housing units, but now holds offices, roof gardens and a memory of the architects' intention to bring residential activities to the university building. The underground level hides private meeting spaces, storage spaces and auxiliary services allowing seamless functioning of the city above ground.

As one approaches the building, four entrances and two egress exists hide within the panelized façade, reminding us of Candilis-Josic-Woods' *groundscraper* diagram, where the ground swiftly meanders between inside and outside. As in the site diagram where pedestrian pathways almost ignore the presence of the building to ensure that movement is continuous

³³ "Hence, for Candilis-Josic-Woods the design of a city or a university was not solely a matter of the design of collective space, but rather of the installation of a basis that could accommodate varied and nuanced relationships between the individual and the collective realm. A university or a city consists of 'places for individual – places for group, tranquility and activity, isolation and exchange.'" See Avermaete 318.

and paths cross often, the entrances and exits punctuate through the building as often as possible (see fig. 11). Façade elements are as varied as the massing of the single, two or three-story parts of the building. The flat ground of the Berlin's southwest suburb is the only stable element on the site where Candilis-Josic-Woods left nothing undisturbed. One swiftly slips through the pixilated building boundary that separates the Free University building's dynamic interior streetscape from the flat and bucolic Dahlem's suburban neighborhood.

Street-like circulation pathways, *stems*, weave across the Free University building's interior landscape (see fig. 12). They are more than the natural setting brought in the interior of the building. Stems are the landscapes of individual and collective experiences. For a visitor, the first contact with the Free University building is this maize of stems. Two systems of circulation pathways define the stem network: primary and secondary. Primary stems are main circulation streets that lead directly to public places such as auditoriums, exhibition spaces, lounges, libraries, lecture halls, cafés, etc where collective gathering take place. There are four primary stems that are two-hundred feet apart and parallel to each other.

Conceptualized as wide, axial corridors that accept large groups of students and serve the most active zones within the building, these streets are inhabited with ramps, stairs, seating and signage. Like dynamic traffic arteries during rush-hour, the primary stems allow for the overflow of activities to expand into the exhibition and café spaces. The primary stems filter masses through the building not only horizontally but also vertically, replacing the elevator as the main transportation mode for pedestrians. The occupational intensity of the primary stems varies between two extremes: over-flown and empty. During the universally imposed ten minute break each hour, they become hallways for the efficient distribution of the

student body between classrooms. During class times, they are slow, abandoned, silent mementos of immanent action. Abandoned objects such as floating stairs and ramps attest to those dynamic periods of rapid mobility. Random seating along the edge of primary stems allow the lucky few who manage to escape the Free University's imposed rhythm to take a privileged break during class time in this vast infrastructural landscape.

The secondary system of pathways runs perpendicular to the primary stems. From the main corridors, one enters into the secondary *stem's* circulatory network, narrow and intimate but filled with activity nevertheless.³⁴ The secondary stems are one hundred feet apart and parallel to each other and connect places that require privacy such as offices and smaller classrooms. These narrow corridors that lead the traveler to tranquil areas of solitude and exclusion also span between the primary stems and unify the fast and the slow movement in a web of motion.

Candilis-Josic-Woods' intent was to "use the plural because we do not see one ideal society, but rather a number of societies in a state of becoming."³⁵ In the Free University building, they defined a multitude of possibilities and experiences as one moves through the circulation network comprising of primary and secondary stems. Along the way, ramps and three kinds of stairs are vertical connectors between the planes of isolation. In the primary stems, the ramps and staircases are centrally positioned to ease the transition between the flat and sloped surfaces. The single-directional staircases run along ramps and assume participatory, catwalk-like spaces central within those wide corridors (see fig. 13). In the

³⁴ Architects' Statement. Gabriel Feld. *Architectural Association: Exemplary Projects 3: Berlin Free University: Candilis, Josic, Woods, Schiedhelm* (London: AA Publications, 2004) 25.

³⁵ Shadrach Woods, *The Man in the Street: a Polemic on Urbanism* (Middlesex: Penguin Books, 1975) 25.

secondary stems, egress stairs and outdoor spiral stairs diffuse the transition between the indoor space and open spaces, gardens and roof gardens. The switchback egress stairs are enclosed, fitting the monastic atmosphere of the secondary stems. The spiral stairs lessen the distinction between inside and outside as they rotate the view and disorientate the viewer (see fig. 14). As if they were the diagrammatic, dashed lines from the *groundscraper* diagram, these vertical, spiral elements allow continuous mobility of various speeds and frequencies. This fast, efficient movement in the primary stems and the slow, experiential movement in the secondary stems, define the web of possible interactions within them and also at nodes where they cross.

Candilis-Josic-Woods included parks, courtyards, green roofs and terraces throughout the Free University building. The outdoor spaces seem as important as the indoor spaces as the observer freely moves between enclosed and open space. The presence of ground in the Free University building is not only experienced while moving through those green spaces, but also via visual connection as windows along the stems open up vistas to indoor courtyards, green roofs and parks surrounding the Free University. The *groundscraper* not only connects the plans of isolation into a unified environment and allows communities to form, but predicts areas where “individual and group may determine desirable relationships.”³⁶ As if to declare that the outdoor space is a space where human activity flourishes, the Free University building’s green elements assume the most loose, unrestricted and playful arrangements. The *groundscraper*’s city-like density, in combination with landscape elements that weave the ground through the crowded program and connect through a web of streets

³⁶ A part of the diagram in fig.1. See Woods, *Candilis-Josic-Woods; Building for People* 208.

might not be of the scale that Candilis-Josic-Woods initially envisioned, but it still carries the principles of urban densification in the low-rise structure that encourages greater and unexpected human mobility and activity. I may dare say that the process leading up to the actualization of the Free University was a process of exploring a vision for a society where negotiation and interaction of course facilitated by an architect.

One leaves the maze of the Free University's circulation network like leaving the hustle and bustle of a big metropolis, with a memory of stems, webs and the ground. Conscious of the modes of oppression and domination already present in the project of modernity, after the Free University's completion and upon his return to New York, Woods stated that "In fact generally, in northern and western countries we do not practice democracy, nor do we live in an open society, but rather we hold these up as ideals to be revered, while going about the sordid business of getting and spending; a business which seems to rely entirely upon economic or financial oppression of one class by another."³⁷ The Free University building seems to suggest a model of open society where the pedestrian mobility in a dense urban setting. In this building, Candilis-Josic-Woods offers the ordering principles of the *groundscraper* to actualize their social model. The Free University building's integration of landscape brought privacy and exclusion to the Modernists' grid and facilitated the articulation of public and private sphere within the open web of pedestrian pathways where the action and interaction takes place.

³⁷ Woods, *The Man in the Street* 11-13.

CONCLUSION

At a time when architects tackled the mass urbanization and perpetual motion of mass production, incorporating technology and city planning into their architectural language, Candilis-Josic-Woods invented concepts of *stem*, *web* and *groundscraper*. Possibly the first architects to use the architectural diagram in the process of design, CJW based their buildings on concepts and ideas. In the Free University project, their final and most published work, the concept that determined the design process and the socio-political agenda of the group was the *groundscraper*. The natural progression from stems and webs, the *groundscraper* is a proposal for urban densification through low-rise development. This urban proposal carries Candilis-Josic-Woods' socio-political agenda to make possible an open society through human activity and interaction, facilitated by free pedestrian circulation. The Free University building is a continuously expanding landscape that has a density of activities equivalent to the city center but feels like an open field that during its building process brought many disciplines together and questioned architectural and urban rules, but more so, actualized a built concept of *groundscraper*. The *Groundscraper* was presented as a diagram in the initial proposal in 1963, expanded to include the urban planning in the site plans and diagram of 1965-66, and finally built into the physical space in 1973.

More than a building, Free University attests to the role of architecture and architects in changing social environments of the 1960s in Europe. Candilis-Josic-Woods' position in the world of architecture is marked by concepts that carry socio-political attitudes of how people are to live, move and interact. The *groundscraper* in the Free University proposal mediates architectural, environmental, contextual, socio-political interests and places the architect in the central stage as the mediator between the static socio-political institution and the

dynamic social conditions requiring change. As they grouped Team 10 around the concepts of *stem* and *web*, Candilis-Josic-Woods gathered separate disciplines around the concept of a *groundscraper* during the Free University design process.

And now as Woods' famously declared:

“Enough pretentious verbiage & fraud & perversity.

A modest recommendation: When next in Berlin, go and SEE the university.”³⁸

³⁸ Shadrach Woods in Ungers, “BFU/Nine Evaluations” 51.

ILLUSTRATIONS

Articulation of Public and Private Domains
Die Artikulation öffentlicher und privater Bereiche
Articulation des domaines public et privé

- 1. THE IDEA OF UNIVERSITY:**
 THE NEED FOR AND EXCHANGE OF
 GENERAL AND SPECIAL INFORMATION.

IDEA OF UNIVERSITY
- 2. THE UNIVERSITY IS COMPOSED OF
 INDIVIDUALS AND GROUPS, WORKING
 ALONE OR TOGETHER, IN DIFFERENT
 DISCIPLINES. WHEN INDIVIDUALS
 WORK TOGETHER THEY TAKE ON
 NEW CHARACTERISTICS AND DEVELOP
 NEW NEEDS.**

$- + \vee / = \Delta$
 $) + (= \circ$
 $- + | = \square$
 $\vee / = X$
 DISCIPLINES
 INDIVIDUALS GROUPS
- 3. THE UNIVERSITY AS IT SEEMS TO BE:**
 BUILDINGS CONTRIBUTE TO THE
 ISOLATION OF SPECIFIC DISCIPLINES.

ATOMICIZATION OF THE IDEA OF
 UNIVERSITY
- 4. BUT THE REMOVAL OF BUILT BARRIERS
 AND THE MIXING OF DISCIPLINES
 IS NOT ENOUGH.
 THE GROUP IS MEANINGLESS WHEN
 THERE IS NO PLACE FOR THE
 INDIVIDUAL.**

GROUP IS EVERYWHERE
- 5. THE RELATIONSHIP OF GROUP AND
 INDIVIDUAL MUST ALSO BE CONSIDERED.
 AREAS OF QUIETNESS AND AREAS OF
 TRANQUILITY MUST BE PROVIDED.
 IF THE GROUP IS EVERYWHERE, THERE IS
 NO GROUP BECAUSE THERE IS NO
 INDIVIDUAL.**

PLACES FOR INDIVIDUAL - PLACES FOR GROUP
 TRANQUILITY AND QUIETNESS
 ISOLATION AND EXCHANGE
- 6. THE EXTERNAL EXPRESSION OF
 DIFFERENCES IN FUNCTION (ARE
 THESE AS IMPORTANT AS THE
 SIMILARITIES?) AND NOSTALGIA
 FOR REPRESENTATIVE FORM ALSO
 TEND TO SEGREGATE THE UNIVERSITY
 INTO SPECIALIZED DISCIPLINES ONLY.**

DISSOCIATION
- 7. WE SEEK RATHER A SYSTEM GIVING
 THE MINIMUM ORGANIZATION
 NECESSARY TO AN ASSOCIATION OF
 DISCIPLINES. THE SPECIFIC
 NATURES OF DIFFERENT FUNCTIONS
 ARE ACCOMMODATED WITHIN A
 GENERAL FRAMEWORK WHICH
 EXPRESSES UNIVERSITY.**

ASSOCIATION
- 8. IN SKYSCRAPER TYPE BUILDINGS
 DISCIPLINES TEND TO BE SEGREGATED.
 THE RELATIONSHIP FROM ONE FLOOR
 TO ANOTHER IS TENUOUS, ALMOST
 FORTUITOUS, PASSING THROUGH
 THE SPACE-MACHINE LIFT.**

PLACE OF ISOLATION
- 9. IN A GROUNDSCAPER ORGANIZATION
 GREATER POSSIBILITIES OF COMMUNITY
 AND EXCHANGE ARE PRESENT WITHOUT
 NECESSARILY SACRIFICING ANY
 TRANQUILITY.**
- 10. TENTATIVE USE OF A MINIMUM
 STRUCTURE SURELY WHERE INDIVIDUAL
 AND GROUP MAY DETERMINE
 DESIRABLE RELATIONSHIPS.**

Fig 1: Competition Free University Berlin 1963, explanatory diagrams of building concept. Shadrach Woods, *Candilis-Josic-Woods; Building for People* (New York: F.A. Praeger, 1968; 208).

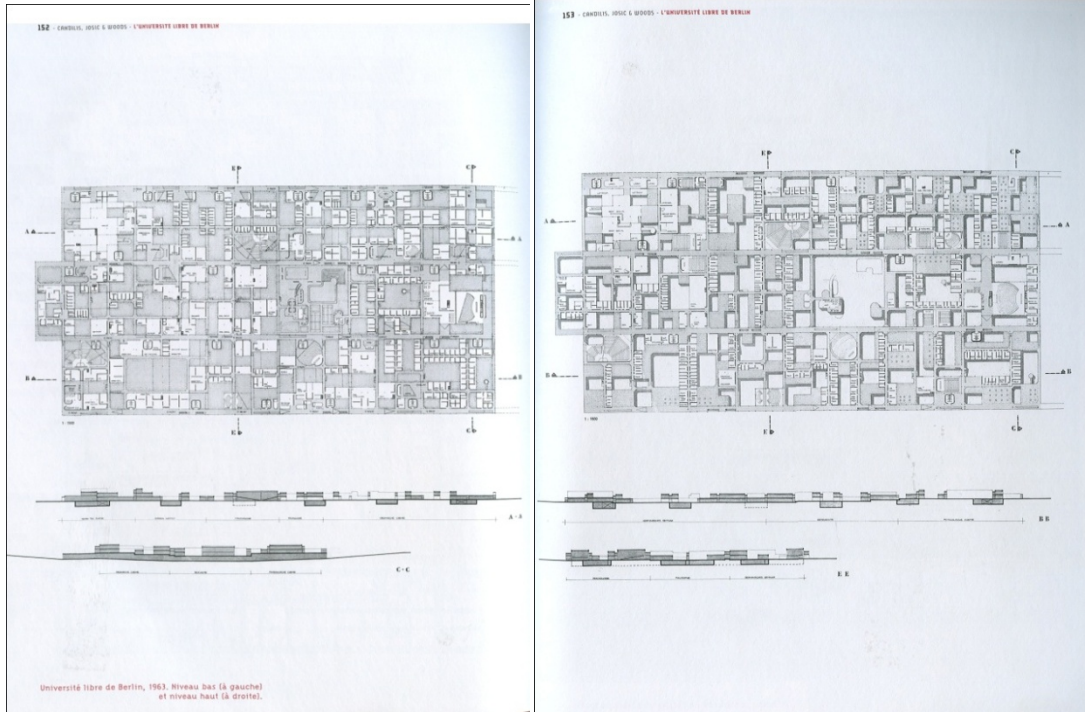


Fig. 2. Candilis-Josic-Woods Free University Berlin Competition entry 1963. Bénédicte Chaljub, *Candilis, Josic, Woods* (Gollion; Paris: Infolio; Patrimoine, centre des monuments nationaux, 2010; 152-153).

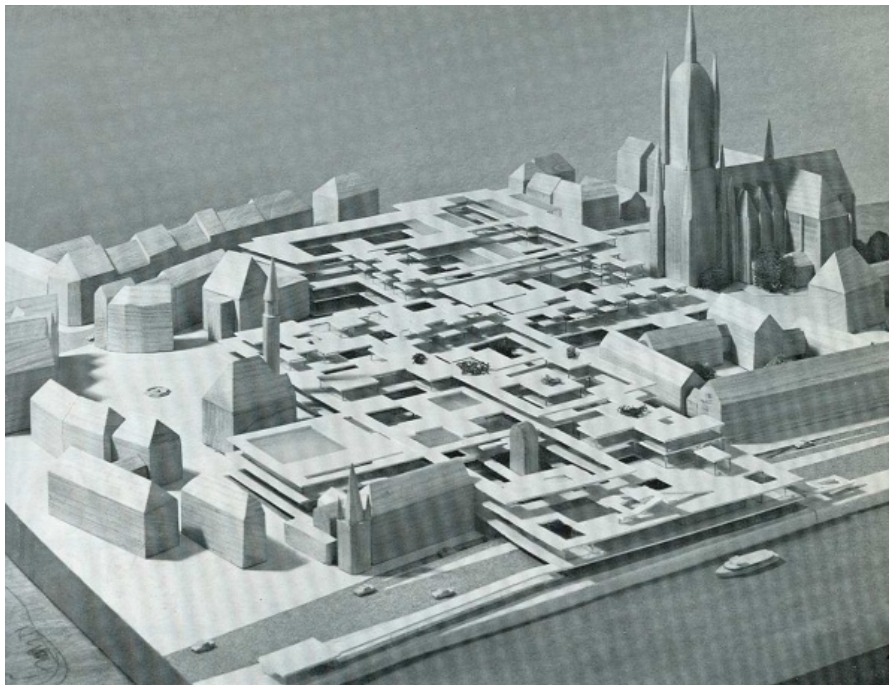


Fig 3. Model of the Frankfurt-Romerberg competition entry, 1963. Shadrach Woods, *Candilis-josic-woods*; *Building for People* (New York: F.A. Praeger, 1968; 205).

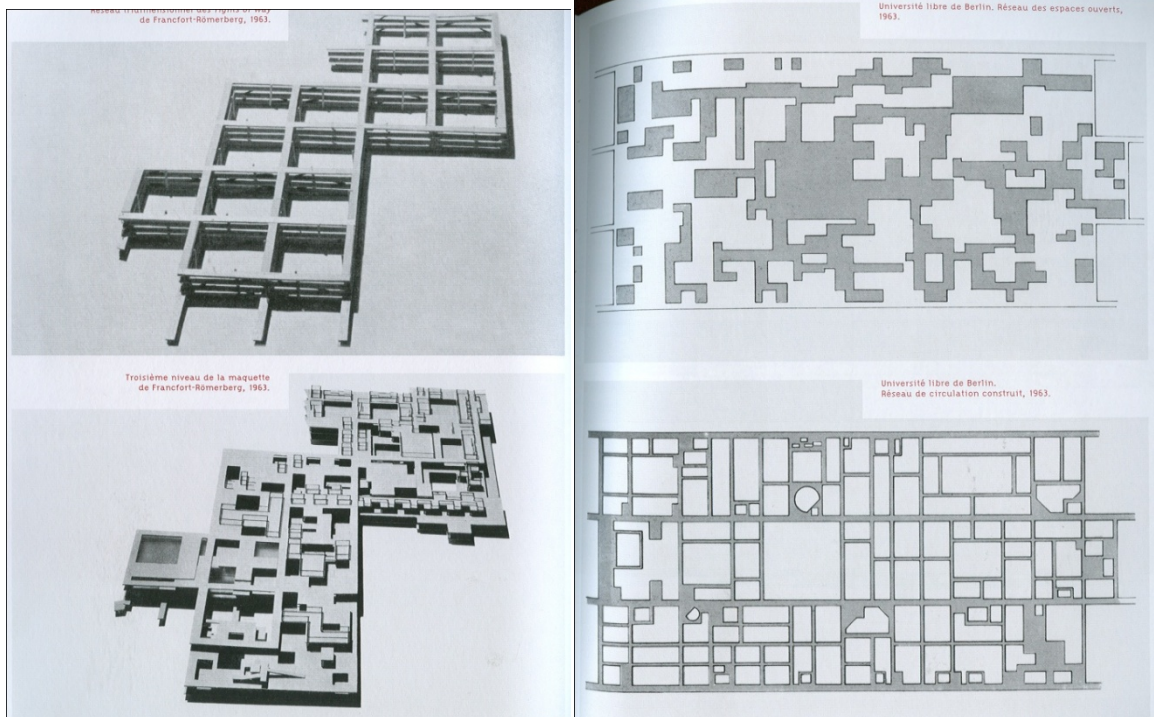


Fig. 4. Circulation and open spaces in the Frankfort-Romerberg, 1963 (left) and Circulation and open spaces Free University, 1963 (right). Bénédicte Chaljub, *Candilis, Josic, Woods* (Gollion; Paris: Infolio; Patrimoine, centre des monuments nationaux, 2010; 158)



Fig. 5. Candilis-Josic-Woods, Circulation Diagram for the competition entry 1963 (Shadrach Woods Architectural Records and Papers, 1923-2008, Department of Drawings & Archives, Avery Architectural and Fine Arts Library, Columbia University, New York, NY; DR 19).



Fig.6. Candilis-Josic-Woods. *Berlin Free University* (Competition site plan), 1963 (Shadrach Woods Architectural Records and Papers, 1923-2008, Department of Drawings & Archives, Avery Architectural and Fine Arts Library, Columbia University, New York, NY).

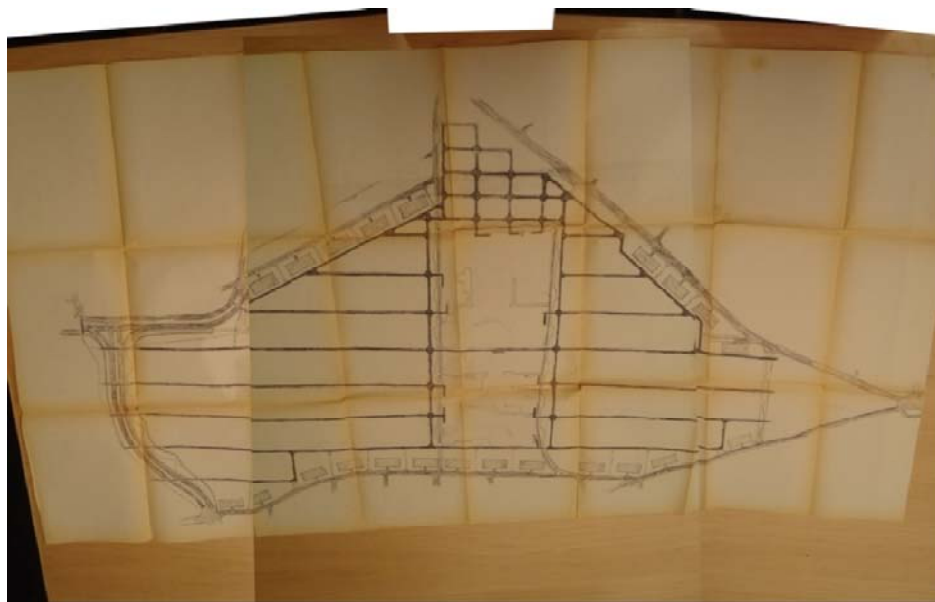


Fig 7. Candilis-Josic-Woods, *Berlin Free University* (site diagram), 1965-66 (Shadrach Woods Architectural Records and Papers, 1923-2008, Department of Drawings & Archives, Avery Architectural and Fine Arts Library, Columbia University, New York, NY; Temp. Box 6).

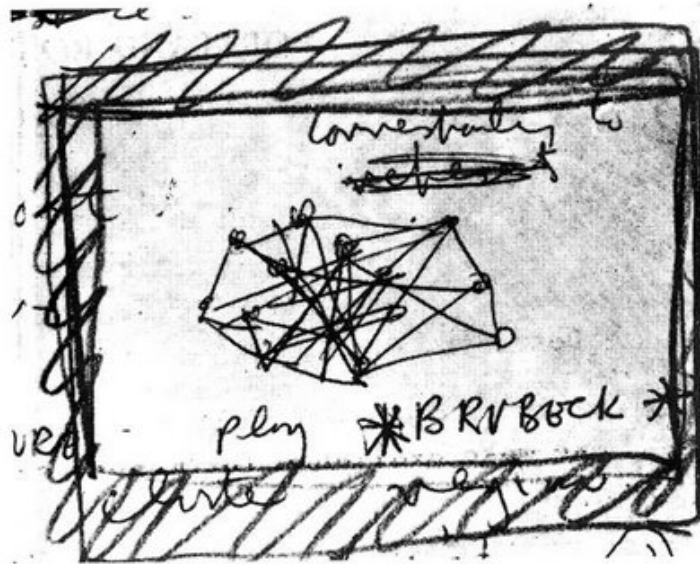


Fig. 8. Peter Smithson's 'Play Brubeck' published in *Team 10 Primer* with the caption "Ideogram of net of human relations." Alison Smithson, *Team 10 Primer* (Cambridge: MIT Press, 1968; 79).

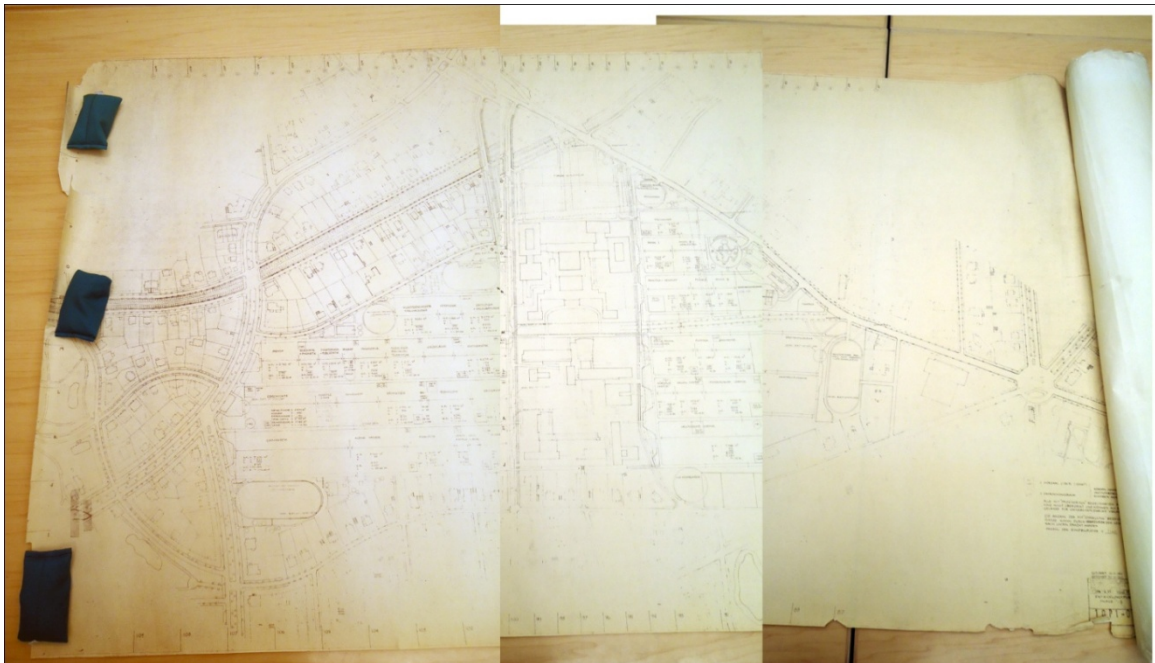


Fig 9. Candilis-Josic-Woods, "Berlin Free University, master plan (Entwicklungsplan)," (developmental site drawing), 1965 (Shadrach Woods Architectural Records and Papers, 1923-2008, Department of Drawings & Archives, Avery Architectural and Fine Arts Library, Columbia University, New York, NY; Roll A0008.11).



Fig. 10. Candilis-Josic-Woods. *Berlin Free University, master plan (Entwicklungsplan)*, (developmental site drawing), 1966 (Shadrach Woods Architectural Records and Papers, 1923-2008, Department of Drawings & Archives, Avery Architectural and Fine Arts Library, Columbia University, New York, NY; Roll A0008.11).



Fig 11. Aerial view of Berlin Free University, soon after the construction completion, 1974. Gabriel Feld, and Peter Smithson. *Free University, Berlin : Candilis, Josic, Woods, Schiedhelm. Exemplary Projects, 3* (London: Architectural Association, 1999; 16).

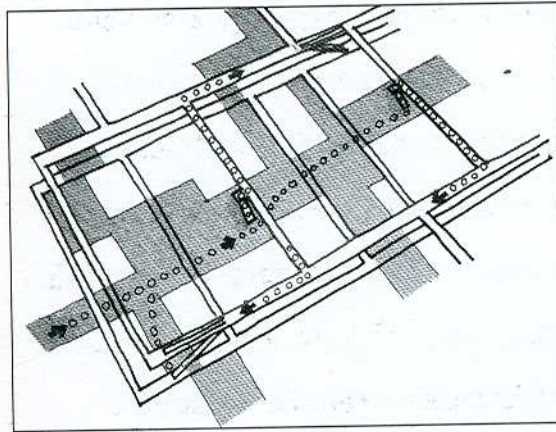


Fig. 12. Competition diagram showing circulatory patterns, primary and secondary stems. Gabriel Feld, and Peter Smithson. *Free University, Berlin : Candilis, Josic, Woods, Schiedhelm. Exemplary Projects, 3* (London: Architectural Association, 1999; 20).



Fig. 13. Ramp within the primary Stem. Gabriel Feld, and Peter Smithson. *Free University, Berlin : Candilis, Josic, Woods, Schiedhelm. Exemplary Projects, 3* (London: Architectural Association, 1999; 83).



Fig. 14. Spiral staircases in the small courtyards and the Cor-ten covered façade with shading mechanisms. Gabriel Feld, and Peter Smithson. *Free University, Berlin : Candilis, Josic, Woods, Schiedhelm. Exemplary Projects, 3* (London: Architectural Association, 1999; 77).

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