

CONTEMPLATING A NEW *DANWEI* URBANISM

by
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AUTHOR'S DECLARATION

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

ABSTRACT

Market-driven Capitalist urbanization is no longer a viable option for China as it has produced increasingly monotonous and segregated cities that deny culture, history, ecology, and human connection. Cultural efficiencies generated from the interconnection and proximity of distinct entities found in traditional and Socialist-Era Chinese urbanisms have been overlooked in favor of market-oriented efficiencies from Western urbanization patterns. The thesis argues that China needs to develop a post-Capitalist Socialist urbanism in which efficiency is based on a shift in orientation from formulaic compositional systems to open-ended layered systems that encompass the dialectical complexity of the city. Socialist-Era *Danwei* Urbanism is revisited for its potential to facilitate efficiencies from the sharing of resources between various parts of daily life existing in the same urban block. The *danwei* (work unit) is a walled community containing the workplace, subsidized employee housing, and social amenities within an urban block. Many *danwei*, however, have moved some housing and amenities into areas far from the workplace rather than densifying the existing site. A New *Danwei* Urbanism builds density in a process of disintegration and formation, gives presence to absent ecologies, and establishes collectivity with a network of covered spaces while respecting autonomy at the local level. It embraces a dialectical reading of the city as a unity of contradictory yet interdependent systems. These layers present an alternative approach in which the *danwei* facilitates informal social and intellectual exchanges in the urban block.

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INTRODUCTION

“Truly, the Viennese have something against economizing. It is a real mania, the way they are constantly changing their apartments, acquiring something new, rearranging things, dashing from one architect to another. This chaos is a sign of our times and anyone who can help bring a little calm to our architecture will be doing a public service.”

—Adolf Loos, 1924¹

“The wren that builds a nest in the deep forest occupies only a single branch; the mole that drinks from the river takes only a bellyful.”

—Zhuangzi, 3rd century B.C.E.²

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- 1 Adolf Loos, “On Thrift,” in *On Architecture*, trans. Michael Mitchell (Riverside, CA: Ariadne Press, 2002), 180-81. Originally published as “Von der Sparsamkeit,” *Wohnungskultur*, no. 2/3 (1924).
 - 2 Rongpei Wang, trans., *Zhuangzi*, 2 vols. (Beijing: Foreign Languages Press; Changsha: Hunan People’s Publishing House, 1999), 9.

Contemporary Chinese urbanism is in a state of hysteria, predominately alternating between two extremes of either denial or conservation of historic urban formations. In the first case, a hyper-urbanization concentrated in the Eastern and Southern coastal regions and gradually spreading into the less developed interior, has supplanted the horizontality of China’s traditional low-to-mid-rise urban centers with a verticality of monotonous highrise and large-scale commercial developments. This is driven by the intensity and speed of construction in the past few decades with the import of foreign capital, expertise, technology, and urbanization patterns from developed Western nations since Deng Xiaoping’s 1978 Open Door Policy reforms and has modernized the Chinese city into a version of the western-style utopia modeled after North American cities built on *tabula rasa* conditions rather than European cities built from historic or ecological context. Market-driven privatization in post-Reform urban China has diminished the effects of Soviet-influenced central planning from the 1950s aimed at rebuilding, densifying, and expanding the self-sufficiency of existing city cores with the addition of administrative offices, state-owned enterprises, and urban amenities for daily use.³ Contemporary urbanization in China has responded primarily to abstract market mechanisms that promote the unrestrained dispersion of new highrise communities at the edge of the city as opposed to the meticulously planned conversion of existing urban cores to produce a more compact modern expansion. Soviet

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- 3 Victor F.S. Sit, *Chinese City and Urbanism: Evolution and Development* (Singapore: World Scientific, 2010), 266-69.

planning experts, most notably M.G. Barannikov in his proposals for the redevelopment of Beijing, recognized the economic and cultural efficiencies of revitalizing the historic city center. Locating new buildings within the old city center was considered more efficient than building new urban areas on the city edge as it allowed the reuse of existing amenities of cultural and historical significance, thereby accelerating the development of the new city in embedding it within the old urban core rather than abandoning artifacts of the existing city to a static state of museum-like preservation.⁴ However, in accordance with the legacy of Liang Sicheng as one of the foremost proponents of preservation in 1950s Socialist China, various conservation policies have been established since the early 1990s to maintain the integrity of the “historical, cultural city”⁵ with its gardens, waterways, palaces, temples, laneways, walled entities, and symbolic visual axes. While these elements do perpetuate the close association of natural and cultural constructions in traditional Chinese urbanism, they are also often revered or imitated stylistically in contemporary Chinese architectural practices as a continuation of the past dynastic grandeur. Preservation and imitation are, in reality, a denial of the cultural vibrancy of the old city and are unable to engage in transformative processes relevant to contemporary daily urban life. Neither extreme modernization through denial and erasure of historic urban formations nor complete perpetuation of the traditional city has generated a cohesive yet varied lifestyle in the contemporary urban setting. A new form of Chinese

4 Jun Wang, *Beijing Record: A Physical and Political History of Planning in Modern Beijing* (Singapore: World Scientific, 2011). 104-7.

5 Jianfei Zhu, *Architecture of Modern China: A Historical Critique* (Abingdon, Oxon: Routledge, 2009), 203.

urbanism is necessary to explore the middle ground that mediates between new urban facilities and preserved parts of the old city with cultural, ecological, or historical value in the process of urbanization.

Historically, there has been a problem of excess in urban architecture within the perpetual cycle of replacing old entities with the new. Adolf Loos had recognized this at the onset of modernism in the early 1900s when he suggested a minimalist approach to architectural longevity in response to the wasteful ornamentation and accumulation of the Vienna Secession. Chinese cities have been marked by a Capitalist tendency towards excess driven by the blind pursuit of economic prospects, not by the aspiration towards a fulfilling human lifestyle or culture. This can be felt in the alienation of humanity from the physical urban setting with the widening of local roads, crisscrossing of elevated highways, repetitive building of generic highrises, and demolition of historic city fabric. These developments have all but crowded out the potential for new social and ecological amenities at the urban scale and encourage the isolation of the various parts of city life rather than their integration. Isolation is also manifest in the increasingly polarized society, in which a disadvantaged drifting population—namely the young, inexperienced, rural, poor, or unconnected—struggle to find enough stability to enter the ever-wealthier urban middle class. City dwellers, especially those belonging to the post-90s generation, fail to appreciate the intelligence of the traditional lifestyle that allows for a harmonious relationship between nature and humanity. While such a living has sustained the country for thousands of years, it is generally thought of as too plain, backwards, or unsophisticated to resolve the problems of modernity.

The modern city has become increasingly standardized, abstracted, and

segmented. It lacks a profound sense of humanity and denies culture, especially in its relation to nature as ecological constructions within the city. Such characteristics are symptomatic of a state of hysteria resulting in Capitalist *architectures of excess* in the modernization and subsequent urbanization of Chinese society. Architectures of excess are defined by perpetual additive and formulaic constructions during the urbanization process resulting in over accumulation or densification, insensitivity to spatiality at the pedestrian and neighborhood scales, dispersed cosmetic plantings of negligible productive ecological mass, and segregation between and monotony within urban blocks or districts. Chinese city-makers have largely overlooked the ills of such a system in the eagerness to catch up to the developed Western world. They have focused on the productive economic efficiency of Western urbanization patterns in terms of standardization, highrise densification, and transportation flow to promote exchange of goods and people but have largely disregarded the cultural efficiencies generated from the interconnection and proximity of various human activities and ecological constructions found in traditional and Socialist-Era Chinese urbanisms. In the Capitalist Era, there is a need to look beyond an excessive tendency in architecture to generate extreme urban conditions as it jeopardizes the physical and psychological livability of the contemporary Chinese city.

The problem with Capitalism is that it is inherently dependent on unchecked competition that results in exploitative growth patterns rather than benevolent ones. It is fueled by constant growth yet produces internally contradictory crisis patterns leading to social problems manifest through an obsession with speedy accumulation often over quality, capital

profit over labor freedoms, and alienation of lifestyle from the workplace.⁶ This creates an unbalanced society and urban development in which the parts of city life are separated rather than integrated, segregating urban blocks based on societal function or degree of wealth rather than integrating a mosaic of different urban functions within the same block. Furthermore, the Capitalist tendency towards unlimited growth has accelerated a global ecological crisis based on the over-consumption or exploitation of energy and natural resources. In the process of modernization over recent years, China has contributed the majority of the world's increase in energy and resource consumption. Despite the fact that China contributes this majority, the country's per capita energy consumption is still much less than leading Capitalist societies.⁷ This can only be alarming if China continues to urbanize in the Capitalist tendency towards architectures of excess.

Two basic ideas form the theoretical foundation for the thesis: (1) The first is Li Minqi's assertion that the rise of China in the twenty-first century will shift the global socio-economic system into a post-Capitalist phase based on a new form of Socialism in which profit is reallocated to serve socially-enriching agenda rather than increasing the wealth of privileged private entities or the state. It should be noted that Li differentiates between pre-Reform Maoist Socialism, in which the surplus or profit is redistributed by the state, and post-Reform or post-Capitalist Socialism, in which societal needs of the general public has some form of direct influence in the reallocation of funds. Capitalism requires limitless

6 David Harvey, "The Urban Process Under Capitalism: A Framework for Analysis," *The International Journal of Urban and Regional Research* 2, (1978): 101-4.

7 Minqi Li, *Peak Oil, Climate Change, and the Limits to China's Economic Growth* (Abingdon, Oxon: Routledge, 2014), 9-10.

- Employee Housing
- Canteen
- Workplace Offices
- Social Amenities (nursery, school)
- Central Heating Plant

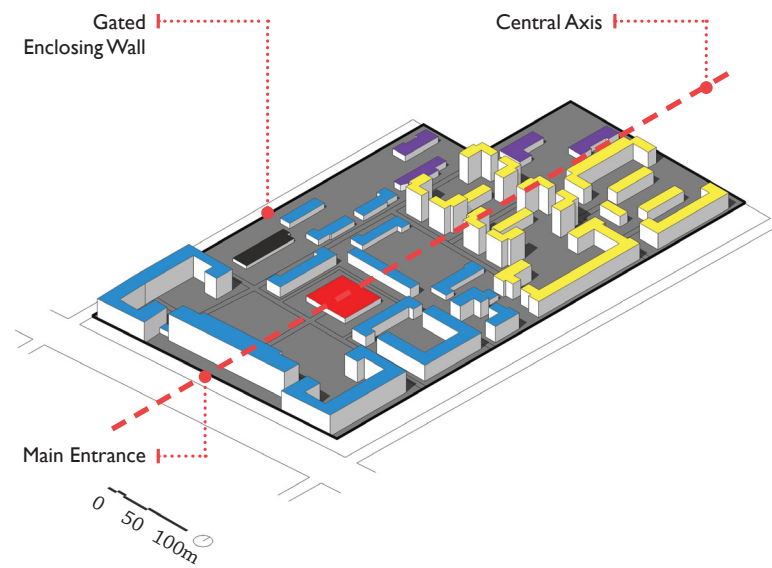


fig. 0.1 Single-entry *danwei* compound based on small-scale office in Beijing

growth and exploitation of natural and human resources and is no longer ecologically, socially, or economically viable, especially in the case of China given that it accounts for a large proportion at the global scale.⁸ A post-Capitalist Socialism requires a new architectural orientation, both in theory and in practice. (2) Yung Ho Chang's theorization of the complexity of Chinese architecture as an "incomplete system" has the potential to provide an architectural response to this condition of post-Capitalist Socialism, or what he calls "Post-Euphoria Architecture." He advocates an incomplete approach to design that embraces banality and open-endedness as the key to recovering the livability of the modern Chinese city.⁹

In a post-Capitalist Socialist system, abundance and growth are redefined in terms of thrift and resourcefulness that comes from the collectivity of distinct entities rather than profit. Architecturally, this requires a shift in attitude from a complete architecture based on rigid and formal compositional design to an incomplete architecture based on open-ended interference and flexibility at the local level, without the loss of an overall legibility. Revisiting *Danwei* (work unit) Urbanism from the Maoist Socialist Era allows for experimentation with such relationships in the existing urban context. *Danwei* Urbanism is a distinct urban organizational model originating from China's pre-Reform Socialist Era, and has been deeply established in the consciousness of the Chinese city ever since. Typically, it takes the form of a walled community that houses a state-run enterprise in which workers benefit from the proximity between their homes and the benevolent support of their workplace. As

8 Ibid., 168-76.

9 Yung Ho Chang, "The Necessity of Banality: Plans for a Post Euphoria Architecture in China," *Volume Special Issue Ubiquitous China: Craft the Agenda for the World to Come* 8, no. 2 (2006): 84-89.

an all-encompassing entity within the urban block, the *danwei* workplace is responsible for meeting the needs of its employees by providing social and welfare functions—including subsidized housing, daycare, canteens, and healthcare—in addition to employment. The vision for the work unit combines various aspects of city life into a holistic integration of home, identity, and workplace in the basic belief that productivity is achieved through a dynamic collective consciousness. These conditions are reflected by a compositional approach to design and planning within the *danwei*. A central axis is established by the primary workplace building acting as the formal face at the main entrance. It is then flanked by a series of secondary workplace buildings that comprise the work zone. Zones containing operational services, social amenities, and workers residences are separately grouped at the periphery or rear of the work zone and are accessible via gated side entrances. A wall enclosing the entire *danwei* property, the grouping of buildings in courtyard configurations, and a circulation system of roads and pedestrian paths provide connection between these various zones of daily life.

As a left over architecture from the Socialist Era planned economy, the *danwei* is no longer able to dominate the urbanization process in the current market-driven economic system since state-run enterprises have been subjected to the pressures of privatization and competition.¹⁰ The privatization of workplace housing due to diminished funding for subsidization from the state is one of the main factors affecting the *danwei* in post-Reform China. In most cases, subsidized housing is no longer offered, so employees have to purchase from new private developments in

10 Steven N.S. Cheung, *Economic Explanation: Selected Papers of Steven N.S. Cheung* (Beijing: China CITIC Press, 2012.), 82.

other areas of the city. Also, as the population within the workplace grew, housing could no longer be contained within the walls of the *danwei*. To accommodate the expanding employee population, many *danwei* developed nearby walled housing compounds separated by a major road or purchased available land in other parts of the city on which gated employee communities could be established. These transformations to the *danwei* have jeopardized the cultural efficiencies through the segregation of housing from the workplace and subsequent loss of the collective lifestyle that is fueled by the concentration of various urban activities within or adjacent to the same site. The following problems need to be addressed for the emergence of a New *Danwei* Urbanism:

- (1) The enclosing wall fails to create a diverse and engaging streetscape for commercial and social activity. How can the concept of a wall be expressed by variations of liminal space rather than a clear division between interior and exterior?
- (2) The arrangement of existing buildings does not provide enough density to meet the needs of a growing urban population. There are a significant amount of wasted undeveloped open spaces in the *danwei* that can be either densified with buildings or defined into spaces containing an intensity of urban social and ecological activities. How can interference patterns between existing and new buildings produce incomplete systems that increase the livability of the city?
- (3) A non-compositional approach needs to be introduced to subvert the authoritarian and rigidly hierarchical nature of axial symmetry.
- (4) Meaningful and productive ecological systems are missing

in a purely cosmetic planted landscape. This encourages the separation of natural and cultural systems.

- (5) The *danwei* contains a single primary cohesive circulation network of paved roads flanked by dispersed paths or sidewalks. Pedestrian and bike traffic frequently spills onto these roads. Walking and biking, as activities that increase the potential for outdoor social exchange, can be encouraged through an autonomous circulatory network.
- (6) Covered spaces should be distributed throughout the *danwei* rather than concentrated in residential buildings to activate places for informal outdoor socialization that are relatively undisturbed by rapid fluctuations in weather or seasonal variations.

This thesis focuses on the transformation of the *danwei* as an architectural configuration of integrated lifestyle that has the potential to be incomplete, at once whole as a mosaic of urban activity within a self-sufficient city block and open-ended in its flexibility to accommodate the expansion and contraction of distinct layers of micro-urbanism. It does not focus on the *danwei* as a centrally controlled administrative mechanism for urban socio-political order.

The first chapter contemplates a theoretical and philosophical basis for a New *Danwei* Urbanism as three dialectical layers of transformation. It develops a Theory of Incomplete Architecture in a post-Capitalist Socialist setting for China and argues that incompleteness comes from the dialectics of the empty and the full in architecture. This is achieved through three layers of incomplete architecture as both states of emptiness and states of fullness: (1) conversion of the physical fabric as

disintegration and formation, (2) ecology of interstitial spaces as absence and presence, and (3) socialization of covered spaces as autonomy and collectivity. Together, these three layers define the principles for a New *Danwei* Urbanism based on micro-scale relationships and are also used in subsequent chapters as an analytical tool to distill guiding design concepts and strategies.

The second chapter uses these three layers to distill strategies for a New *Danwei* Urbanism against the historical and typological trajectory of Chinese urbanism and contemporary Western-influenced urbanization patterns, concluding with a brief discussion of post-Capitalist architectural practice in China. It illustrates the typological and historical context for urban China in relation to the three layers of incompleteness and is structured as a set of typological diagrams with supplementary text and statistics. They form the overarching contextual framework for the design exercise.

The third chapter establishes precedents for campus design that have the potential to be applied at the scale of New *Danwei* Urbanism in a post-Capitalist Socialist setting. A conceptual parallel is made between the *danwei* and modern urban campus planning. This is supplemented by discussion of a series of campus designs through the three layers of incompleteness: Wang Shu's Xiangshang Campus of the Chinese Academy of Art, José Luis Sert's Guelph University, Riken Yamamoto's Saitama Prefectural University, and Ludwig Mies van der Rohe's Illinois Institute of Technology. The chapter concludes by establishing a connection between the new *danwei* and the campus.

The final chapter contemplates a New *Danwei* Urbanism on the site of an

existing university campus *danwei*. It begins with an introduction of the site, a university campus *danwei* embedded within the urban context in the city of Xi'an, Shaanxi Province. This involves a discussion of the site conditions, the effect of its location in interior China, and the potential for a campus *danwei* to address the needs of a post-Capitalist Socialist urban China. Livability and longevity of the contemporary Chinese city is at risk from the trend towards Capitalist architectures of excess. Amelioration of the current urban setting requires a shift in orientation from complete compositional systems to incomplete layered systems that encompass the dialectical complexity of post-Capitalist Socialist urbanity. These layers comprise an alternative approach to the campus *danwei* as the facilitator for informal social and intellectual exchanges.



fig. 1.1 *Dreaming of Immortality in the Mountains* by Tang Yin, this painting demonstrates the traditional Chinese concept that natural, cultural, and spiritual systems are interconnected

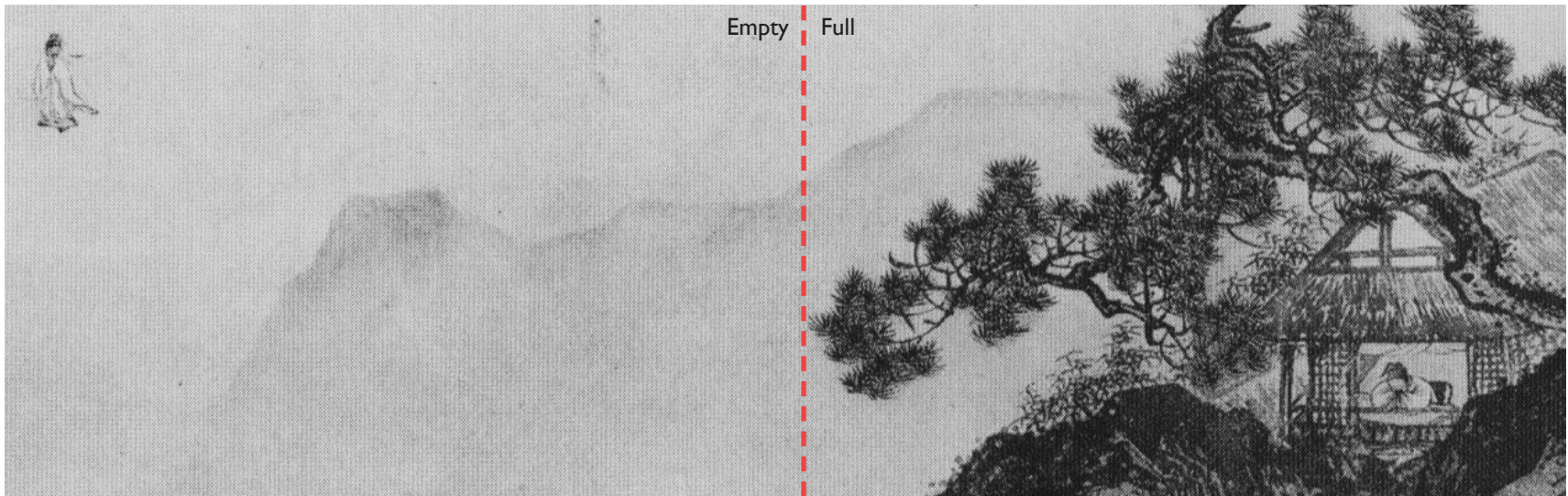


fig. 1.2 Detail of *Dreaming of Immortality in the Mountains*, the balance of states of emptiness and states of fullness in traditional spatial composition

CHAPTER I: A THEORY OF INCOMPLETE ARCHITECTURE

“There are no more than five tones in music, yet their combinations give rise to countless melodies. There are no more than five primary colors, yet in combination, they produce innumerable hues. There are no more than five flavors, yet their blends produce endless varieties. In military tactics, there are only two types of operation, qi and zheng, yet their variations are limitless. They constantly change from one to the other, like moving in a circle with neither a beginning nor an end. Who can exhaust their possibilities?”

—Sunzi, *The Art of War*, 6th century B.C.E.¹¹

“Contradiction is present in the process and development of all things; it permeates the process of development of each thing from beginning to end. This is the universality and absoluteness of contradiction...”

—Mao Zedong, “On Contradiction,” 1937¹²

11 Wusun Lin, trans., *Sunzi: The Art of War* (Beijing: Foreign Languages Press; Changsha: Hunan People’s Publishing House, 1999), 31-33.

12 Tsetung Mao, “On Contradiction” in *Selected Readings from the Works of Mao Tsetung* (Peking: Foreign Languages Press, 1971), 95.

I.1 DIALECTICS OF THE EMPTY AND THE FULL IN CHINESE PHILOSOPHY

A tendency towards incompleteness in the conceptualization and practice of architecture in China can be better understood in parallel with a dialectical reading of the world in traditional Chinese philosophy. According to the *Dao De Jing* from the sixth century B.C.E., “the world is a spiritual vessel and cannot be controlled.”¹³ Its chaotic nature is accepted, even embraced, in contrast to a clear, precise, or coherent ordering found in increasingly regulated contemporary cities. Only in the acceptance of this chaos can there be acknowledgement of incomplete systems as “the interchangeability and uniformity of things.”¹⁴ Interchangeability refers to the futility of making distinctions between opposing forces because they are seen as complimentary or contingent in nature and are, therefore, in uniformity:

Everything in this world has its “that side”; everything in this world has its “this side”. What is ignored from “that side” may be perceived from “this side”. Therefore, it is said that “that side” comes from “this side” while “this side” is derived from “that side”—which means that “that side” and “this side” give rise to

13 Lao-tzu, *Tao Te Ching*, trans. Stephen Addiss and Stanley Lombardo (Boston: Shambhala, 2007), 29.

14 Wang, *Zhuangzi*, 25-27.

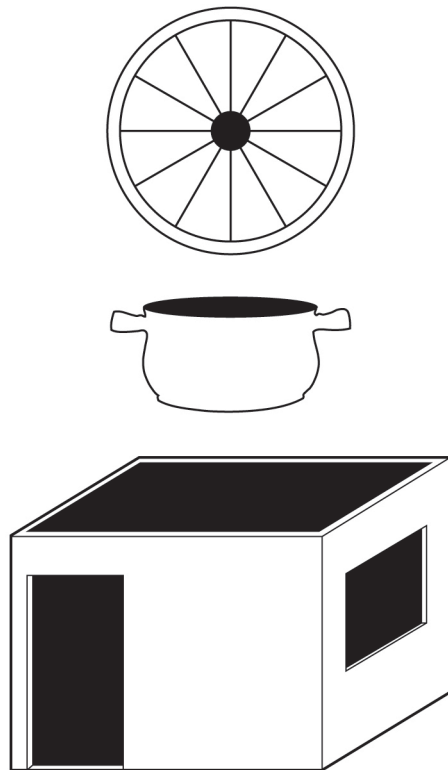


fig. 1.3 The use of emptiness in Chinese philosophy

each other.¹⁵

Uniformity is an inherent state of being. Zhuangzi terms it as “the natural” or “ordinary course” of things. What is the uniformity or enduring pattern of things in architecture?

If architecture is seen not merely as a construction of solid objects in space, but also as a vessel or parameter for volumes, then it can be perceived as *the dialectics of the empty and the full*. It is a force, a pushing and pulling between states of emptiness and fullness. Architecture fluctuates from being “secondary to the space it contains”¹⁶ to being central to the space that surrounds it. The Chinese philosophical tradition emphasizes the framing of negative space rather than a focus on a central mass:

Thirty spokes join one hub.
 The wheel’s use comes from emptiness.
 Clay is fired to make a pot.
 The pot’s use comes from emptiness.
 Windows and doors are cut to make a room.
 The room’s use comes from emptiness.
 Therefore, having leads to profit,
 Not having leads to use.¹⁷

A contemporary Capitalist city finds utility in the fullness of architecture

¹⁵ Ibid., 21.

¹⁶ Laurent Gutierrez and Valérie Portefaix, eds., *Yung Ho Chang / Atelier Feichang Jianzhu: A Chinese Practice* (Hong Kong: Map Book Publishers, 2003), 18.

¹⁷ Lao-tzu, *Tao Te Ching*, 11.

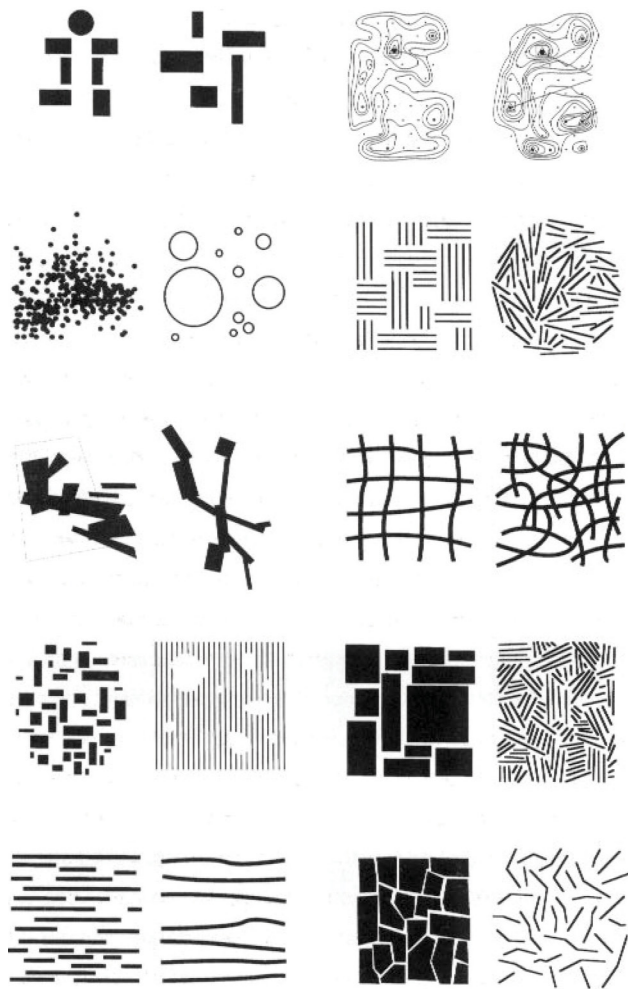


fig. 1.4 Plan Diagrams of Field Conditions

as the monumental object in the middle of a plane. There is a clear separation between newly built masses of monumental or vertical nature and existing context of a finer horizontal grain. Also, as monumentality in architecture often occurs on blank, flat ground that is easily controlled by built form, there is a deliberate clearing of ecology from the city. Post-Capitalist Socialism reintroduces a city of voids in which utility is also generated through states of emptiness. Contained spaces, ecology, and shadow as elements of void are rendered volumetrically. In other words, they can also exert a force and obtain a presence or mass.

When things are in uniformity, they are equivalent and can be used interchangeably. Architecturally, this may exist as field conditions in which collectivity is achieved through uniformity of the parts that have the flexibility to expand or contract locally without disrupting the overall legibility of the urban formation.¹⁸ A field condition does not generate architecture that is compositionally inclined toward rigid hierarchical relationships between various parts. Instead, it generates collective forms thorough diverse spatial sequences that are consistent yet changeable. They are empty in the sense that architecture becomes a vessel for linkage and full in that these linkages produce areas of intensity in the evolution of an overall form. Contemporary architecture is not based on this interchangeability and uniformity, but on the distinction between the empty and the full. Peter Eisenman observes that “traditionally, processes of architectural design have used what can be called on/off procedures, of choosing between two alternatives, solid/void, figure/ground, etc., rather than operating where the two conditions are possibly embedded within

¹⁸ Stan Allen, “Field Conditions,” in *Points and Lines: Diagrams and Projects for the City* (New York: Princeton Architectural Press, 1999), 92-94.

one another.”¹⁹ This often produces complete architectures defined by exaggerated or extreme designs for distinctive shock-value rather than a subtle embedding of incomplete architectures as interconnected systems within an existing context. Architecture in post-Capitalist Socialist China will increasingly include complex conditions of ambiguity.

1.2 INCOMPLETE ARCHITECTURE

A shift in attitude from a complete architecture to an incomplete one is needed following the traditional dialectics between the empty and the full in Chinese philosophical-spatial tradition. Perhaps at the scale of a singular building, completeness in architectural concept can be applied, but at the urban scale in which the design involves a field of buildings embedded within a contextual fabric, there is the need for an incomplete architecture that goes beyond the bounds of a single concept. The urban setting needs an architecture that can grow and recede as part of a larger whole and, thus, is innately incomplete in character. An incomplete system is a dialectical methodology that views the world as a series of opposing yet interconnected forces. It is also an ecological methodology in which design is achieved through the layering of various systems and their resultant forms.

Incomplete urbanism can be achieved through the layering of three opposing yet interconnected processes: conversion of the physical fabric as disintegration and formation, ecology of interstitial spaces as absence and presence, and socialization of covered spaces as autonomy and collectivity. Together these processes transform and intertwine the physical, ecological,

and social elements of a spiritually fulfilling and culturally productive urban lifestyle in the post-Capitalist Socialist setting. The following are three layers for incomplete architecture as both states of emptiness and states of fullness.

Conversion of the Physical Fabric as Disintegration and Formation

It can be said that no city starts from scratch. Even the formation of primitive villages requires a demolition of sorts—to the ground it sits on, to the space it encloses, to the ecology it inhabits. Every project that deals with existing context requires demolition. It is a most obvious act of regenerating the city but is also most often neglected. The path of least resistance has been to erase and build upon nothing.

This is problematic since a significant part of the Chinese identity is derived from the unity of culture and nature found in existing architecture evolved over time. Historically, China has contained a large proportion of agrarian population. The rural population has gradually urbanized from 80% of the total population in 1981 to just under the 50% mark in 2011 and is currently at 46% as of 2014. In comparison, Canada’s rural population has only reached 24% and 18% in 1981 and 2014 respectively.²⁰ If the relationship between the people and the land is lost with the demolition of the existing built condition, then Chinese society will truly become a “floating population” with no sense of place or identity. On the other hand, efforts to preserve elements of traditional Chinese urbanism with conservation policies only perpetuate past urbanities that fail to deal

19 Peter Eisenman, *Written into the Void: Selected Writings 1990-2004*, (New Haven, CT: Yale University Press, 2007), 53.

20 “Rural Population,” The World Bank, accessed February 24, 2016, <http://data.worldbank.org/indicator/SP.RUR.TOTL.ZS/countries>.

with the need for a new urban identity in the contemporary setting.

The thesis seeks an alternative methodology to either the systematic clearing and denial of existing historical conditions in contemporary Chinese cities or to the imitation and preservation of traditional urban elements. Progressive urbanism in a post-Capitalist Socialist China will require a more robust integration of old and new through conversions of existing physical urban fabric rather than a straightforward demolition and rebuilding. In this case, demolition should not be an act of destruction. Rather, it is an act of creation through disintegration and formation. In the *Zhuangzi*, a central text of Daoism, destruction and creation are rendered as opposing yet complimentary acts in nature. “When something falls into disintegration, some new entities are formed; when some new entities are formed, something must have fallen apart. But for things in general, there is neither disintegration nor formation—there is always the interchangeability and uniformity of things.”²¹

Destruction as an act of creation can be applied architecturally to the existing urban condition as an incomplete subtraction of the old and a new formation through insertions. A curated demolition of existing buildings creates a new resultant spatial order. Then, an insertion of new buildings transforms this order into architecturally defined urban spaces. Existing forms accumulate cultural significance as modifications evolve according to changes in their particular situation in the city. New forms are quite often doomed to remain meaningless unless they are related to these old forms. An accelerated cultural integration or contextualization occurs when new constructions are added in relation to retained existing formations.

21 Wang, *Zhuangzi*, 23-25.

This does not imply a simple erasure and rebuilding but, rather, utilizes the transformative processes of disintegration and formation to convert existing urban fabric into something new.

Newly inserted building typologies are deployed across the site as an architectural field in which the spacing between and distribution of buildings is relatively even. In “Field Conditions (1996),” Stan Allen defines the architectural field as “any formal or spatial matrix capable of unifying diverse elements while respecting the identity of each.” Defining characteristics include consistent local spacing between forms, lack of axial or hierarchical geometries in the overall composition, repetition of basic units, and creation of intensity through amassed layers.²² Furthermore, various programmatic functions should be assigned to the added buildings to achieve a mixture or mosaic of diverse building uses across the site.

Ecology of Interstitial Spaces as Absence and Presence

Intensity can be achieved in Allen’s architectural field through either moments of accumulated thickness or mass present in the overlap of surfaces²³ or, inversely, from a thinning or absence of mass forming interstitial spaces in the field. The Incomplete Theory of Architecture focuses on the latter condition as a form of “negative planning” developed by Chinese landscape architect Yu Kongjian for the selection of appropriate sites for urban intensity based on resultant voids in the overlap of landscape ecology layers.²⁴ An incomplete architecture will

22 Stan Allen, “Field Conditions” in *Points and Lines: Diagrams and Projects for the City* (New York: Princeton Architectural Press, 1999), 92-102.

23 Allen, “Field Conditions,” 98.

24 William S. Saunders ed., *Designed Ecologies: The Landscape Architecture of Yu Kongjian Yu* (Basel, CH: Birkhäuser, 2012), 201-2.

give mass or presence to the ecology of these interstitial spaces in the architectural field. This is achieved by implementing ecological mass in an architectural manner, as simplified geometric shapes with clearly-defined planes and edges that can apply tectonic pressure or resistance, not as unstructured and free-flowing organic surfaces and textures.

In the context of hyper-urbanization in contemporary China, nature has been applied as a surface treatment, sparsely planted for *mianzi* (face value).²⁵ It is a manicured status symbol, not a productive system with the capacity to ease stresses on the city. Nature is truly void and separate from the daily functions and activities on site. Culture and nature are seen as opposing rather than complimentary. On the other hand, the Chinese spatial tradition recognizes the utility of the void²⁶ and values the subtleness of shadow over the clarity of light.²⁷ Perceived in this way, ecology is no longer seen as planted decorative voids in the city but is utilized as part of the urbanization process to enhance the experience and function of daily life. Returning to this traditional Chinese notion that nature and culture can be complimentary can help alleviate some of the stresses of hyper-urban development on the environment.

Nature will be present as active ecological processes that reinforce the urban socio-spatial order in a post-Capitalist Socialist China. This is based on James Corner's distinction of nature as a "cultural construction"

25 Kongjian Yu and Mary Padua, eds., *The Art of Survival: Recovering Landscape Architecture* (Mulgrave, Australia: The Images Publishing Group, 2006), 21-25.

26 Yinong Xu, *The Chinese City in Space and Time: The Development of Urban Form in Suzhou* (Honolulu: University of Hawaii Press, 2000), 196.

27 Junichiro Tanizaki, *In Praise of Shadows*, trans. Thomas J. Harper and Edward G. Seidensticker (Stony Creek, CT: Leete's Island Books, 1977), 10-11.

that uses ecological language to form a human comprehension of the chaotic wilderness beyond our grasp. To him, "nature and culture are constructions, woven together as a network of relationships"²⁸ The thesis proposes a characterization of the void to give it presence. Characterization means re-establishing an association between ecology and cultural activities occurring in daily life. Ecology can be an active participant in this process if it has accumulated mass or volume and, therefore, can exert or resist pressure in space. In his article "Representation and Landscape," James Corner has observed that massiveness is a quality of landscape that gives it the ability to envelop or penetrate physical and mental space.²⁹ Urbanization has resulted in the fragmentation of ecological systems, making them no longer functional.³⁰ Productive ecological systems usually have a definite mass. They are hardly sparse in the manner of occupying space and this gives them a presence or fullness architecturally.

When ecology has presence on a site, it can divide the space into a series of scenes or episodes. This design principle originates from the spatial organization of the classical Chinese garden. Division is a method used in the Chinese garden of re-creating the variety of nature through the articulation of spaces that are adjacent yet distinct from one another. The overall composition is not hierarchical or axial but, rather, creates a

28 James Corner, "Ecology and Landscape as Agents of Creativity" in *Projective Ecologies*, eds. Chris Reed and Nina-Marie Lister (Cambridge: Harvard University Graduate School of Design; New York: Actar Publishers, 2014), 43-55.

29 Simon Swaffield ed., *Theory in Landscape Architecture* (Philadelphia: University of Pennsylvania Press, 2002), 146.

30 Wenche E. Dramstad, James D. Olson, and Richard T. T. Forman, *Landscape Ecology Principles in Landscape Architecture and Landscape Planning* (Cambridge, MA: Harvard University Graduate School of Design, 1996), 19.

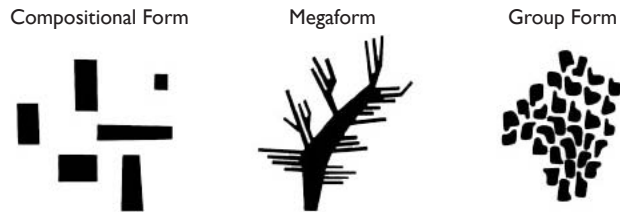


fig. 1.5 Diagrams of Maki's Collective Forms

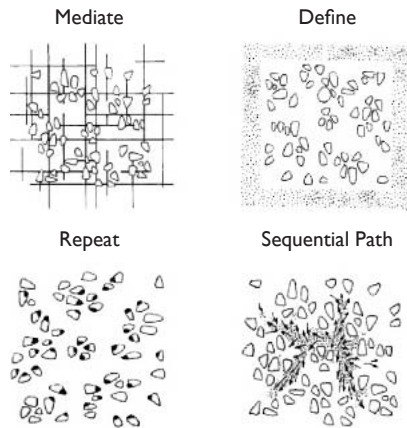


fig. 1.6 Linkages defined by Maki

succession of individual spaces unraveling, like a scroll painting, from one scene to another.³¹ Division also creates an illusion that small spaces are larger than in reality as the viewer never senses the whole site all at once.³² Layering of these scenes contributes a sense of depth of view to the site. The thesis uses ecological association with cultural activities to divide the site and restores the notion that ecology and culture, nature and cities, are complimentary.

31 Bianca Maria Rinaldi, *The Chinese Garden* (Basel, CH: Birkhäuser, 2011), 45-61.

32 Maggie Keswick, *The Chinese Garden: History, Art, and Architecture* (Cambridge, MA: Harvard University Press, 2003), 138-140.

Socialization of Covered Spaces as Autonomy and Collectivity

The third layer of the empty and the full in architecture is autonomy and collectivity. Autonomy is a state of emptiness as it encourages dispersion or separation resulting in areas of less intense urban activity. Collectivity is a state of fullness as the tendency to amalgamate or concentrate high intensity urban activity. Urbanism, in a broad sense, is the dialectics between individual or distinct constructions and their connection to context. In contemporary urban architectural theory, this is either informed by the space between adjacent volumes or by direct physical connections between varying elements. Post-capitalist Chinese Socialism should cultivate collectivity without jeopardizing a degree of autonomy at the micro-urban scale.

Fumihiko Maki's "Investigations in Collective Form" (1964) deduces three methods for the creation of collectivity in architecture: composition, structure, and sequence. These three methods correspond with three types of collective architectural forms: compositional form, megastructure or megaform, and group form. Maki, like Stan Allen, is critical of the compositional method conventionally used by architects because it emphasizes autonomy, a hierarchical arrangement of individual elements, rather than collectivity, the inter-connection of associated forms. Megaforms, while able to unify diverse parts of the city into a single structure, have more potential to address swift changes in contemporary cities as related "independent systems" that can grow and recede at



fig. 1.7 Laundry yangtai in danwei housing enclosed by sliding windows



fig. 1.8 View from one yangtai to another fig. 1.9 Sliding door leading to yangtai



fig. 1.10 Loggia used by Lacaton & Vassal to extend living spaces in existing social housing



fig. 1.11 View from yangtai of sparse cosmetic danwei planting and lawn

different rates without disrupting one other. Group forms develop over time as a successive duplication of architectonic units and the spaces between them.³³ Maki's description of megaforms and group forms evokes the concept of the field condition, but he also takes one step further to classify the following strategies of physical linkage between distinct units: "to mediate" with physical or spatial connections, "to define" by enclosure, "to repeat" similar elements across the entirety or part of a site, "to make a sequential path" as constructions that direct the flow of activities in a particular order, and "to select" a site location beforehand based on a unity provided by an existing feature.³⁴ While Maki's theory categorizes and evaluates the mechanics of linkage between built forms in the city, it does not address the potential for intermediate spaces of connection between indoor and outdoor activities.

Autonomous indoor spaces can be connected with collective outdoor spaces through an intermediate armature of covered spaces in the *danwei*. Covered spaces promote informal social gathering by providing ventilated shade from heat, dryness from rain, and barriers against winds and are particularly useful in temperate climates in which all seasonal variations of wind, rain, snow, and sun are present.

There are two historical precedents for the extensive use of covered spaces in China: (1) the kitchen and laundry *yangtai* (balconies or loggia) of Socialist *danwei* housing and (2) the continuous network of covered walkways, paths, bridges, and pavilions connecting halls in classical

33 Fumihiko Maki, *Articulating Dreams: Collected Essays on Architecture and the City* (Cambridge, MA: The MIT Press, 2008), 46-51.

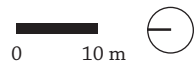
34 *Ibid.*, 62-66.

Chinese gardens. In the first case, the *yangtai* projected outwards beyond the exterior walls of midrise housing units in the *danwei*. They contained the kitchen and laundry areas, which were separated from the main heated or air-conditioned living spaces by large sliding glass doors. Often times, an optional wall of sliding windows wrapping around the *yangtai* would be added to form an enclosed covered space protected against extreme weather while allowing for natural ventilation in a breathable facade. This provided a sense of flexibility in the way spaces could either be extended or closed off according to the positioning and transparency of sliding partitions. *Yangtai* in Chinese buildings, as projected connectors mediating between indoor and outdoor activities, are comparable to loggia in Western buildings. French architects Druot, Lacaton and Vassal have applied loggia as extensions of indoor space for socialization to revitalize post-war social housing in Paris. The loggias they design, like Chinese *yangtai*, are comprised of glazed and sliding partitions, not small window cutouts in walls. They are critical of the minimization of living space within and the increased isolation of apartments in these social housing blocks. Therefore, they apply the concept of *Plus*, of always adding to improve the quality and generosity of space in existing buildings. *Plus* acknowledges that the process of modernizing the city is incomplete because it is never finished and suggests that existing buildings can be renovated or appended instead of demolished.³⁵ Similarly, the thesis inserts loggia into the cutouts created by the partial demolition of existing buildings but also differs from this strategy by connecting them as an armature of un-insulated covered spaces in the city that can be expanded and contracted easily as an independent structure while giving a sense of unity to the site.

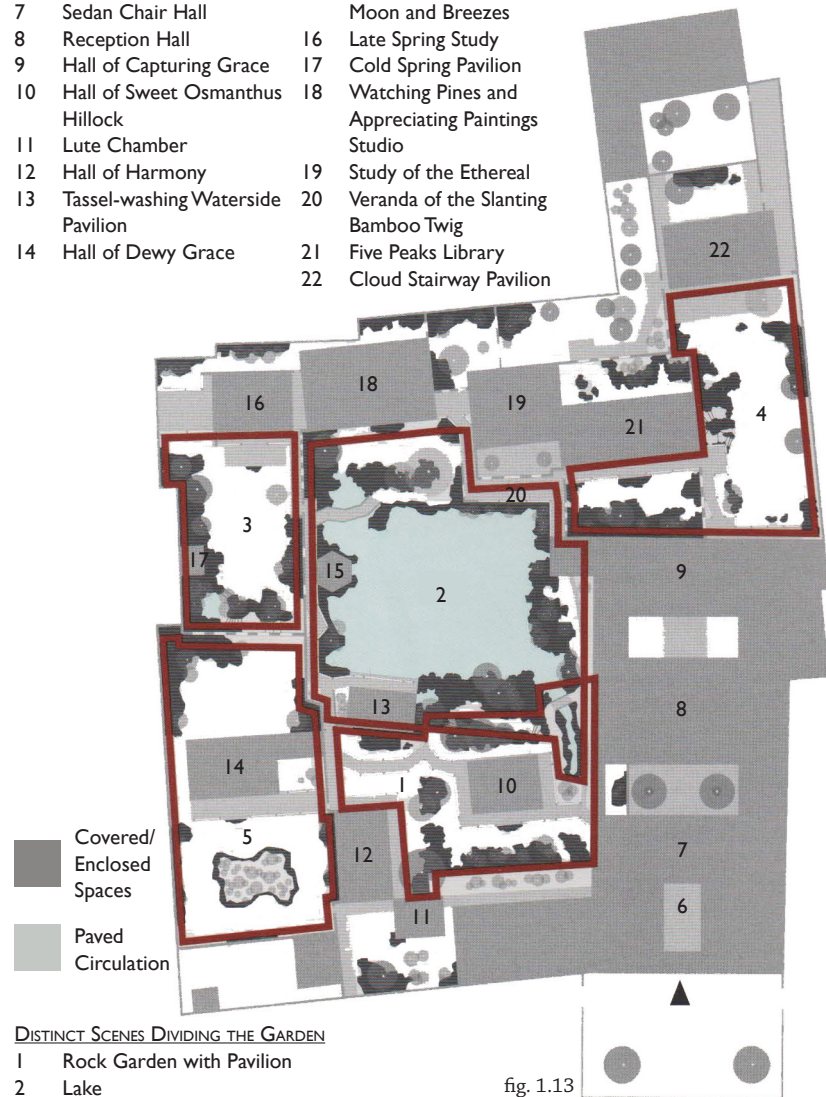
35 Frédéric Druot, Anne Lacaton, and Jean-Philippe Vassal, *Plus: Large-Scale Housing Developments: An Exceptional Case* (Barcelona: Editorial Gustavo Gili, 2007), 15-23.



fig. 1.12 Continuous covered circulation in Lion Grove Garden (*Shi Zi Lin Yuan*), Suzhou



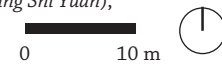
- | COVERED OR ENCLOSED SPACES | | | |
|----------------------------|-----------------------------------|----|---|
| 6 | Main Entrance | 15 | Pavilion Welcoming the Advent of the Moon and Breezes |
| 7 | Sedan Chair Hall | 16 | Late Spring Study |
| 8 | Reception Hall | 17 | Cold Spring Pavilion |
| 9 | Hall of Capturing Grace | 18 | Watching Pines and Appreciating Paintings Studio |
| 10 | Hall of Sweet Osmanthus Hillock | 19 | Study of the Ethereal |
| 11 | Lute Chamber | 20 | Veranda of the Slanting Bamboo Twig |
| 12 | Hall of Harmony | 21 | Five Peaks Library |
| 13 | Tassel-washing Waterside Pavilion | 22 | Cloud Stairway Pavilion |
| 14 | Hall of Dewy Grace | | |



DISTINCT SCENES DIVIDING THE GARDEN

- 1 Rock Garden with Pavilion
- 2 Lake
- 3 Paved Court with Rocks and a Spring
- 4 Sequence of Small Courts
- 5 Flower Garden

fig. 1.13 Scenes in Master of the Nets Garden (*Wang Shi Yuan*), Suzhou



Today, there is isolation of not just single apartments but also of interior activities of an autonomous nature from exterior activities of a collective one. The physical projection of *yangtai* from inside to outside reinforces the idea that parts of individual family life within the home can be exhibited in the *danwei* community outside. Gail E. Henderson and Myron S. Cohen give a first-hand account of this feeling of projection while living in hospital *danwei* housing during the Socialist Era in China:

The public display of private life is increased by the physical structure of the *danwei* housing. Each day he (the cook) would stand at our second-floor kitchen window, and when acquaintances came by he would talk to them as he cooked. Sometimes it seemed as if the people outside were right in our apartment. It was the same when we did our laundry. Every Sunday morning, one of us would scrub the week's clothes on a small washboard in the kitchen sink. Children playing outside the window would watch us and comment on our efforts. Friends passing by would say hello. As we hung up our clothes on the line that stretched across our balcony, we drew comments from passerby. Imperceptibly the way we did our wash began to change, and we were happy when it looked like everyone else's, turned inside out, pants hanging down with pockets flapping.³⁶

The passage above indicates that the use of *yangtai* results in a blurring of individual and communal experiences in urban life and hints at a downside in the eventual conformity to a societal norm. At that time, society was

too communal. Now, the problem may be that it is not communal enough. Contemporary Chinese cities have become increasingly disjointed in an unstructured and chaotic crowding of various historical and contemporary typologies within the urban block. Polarization between opposing parts of the city, competing for limited resources or convenient locations, has been amplified. The prevailing method of resolving this has been to rapidly replace existing conditions with a monotony of western-style commercial and highrise developments. This sterilizes the vibrancy of the city as a constructed mosaic of diverse elements and activities. At the same time, younger generations have increasingly sequestered themselves inside buildings, limiting opportunities for random exchanges of knowledge that primarily occur in open spaces of the city. Future generations need to be outside, not only to build connections with others, but also to gain immunities in the body through physical contact with the natural world. Connections between indoor and outdoor activities must be made to solve these problems in a post-Capitalist Socialist Chinese society.

In the second case of historical use of covered spaces in China, classical Chinese gardens, particularly the private urban gardens of Suzhou, incorporate covered walkways, bridges, paths, and pavilions into a continuous circulation network connecting major outdoor courtyards with indoor halls. There is the potential of walking around the site and enjoying the open-air without worrying about inclement weather. These protected covered spaces are intensely occupied at the pedestrian scale with a variety of autonomous and collective activities, including playing musical instruments, writing calligraphy, conversing over tea or a meal, or pausing to enjoy a scenic view along a leisurely stroll. Such activities of sauntering and contemplation are central to the traditional Chinese lifestyle in which covered outdoor spaces are intensely inhabited, often times, even more so

36 Gail E. Henderson and Myron S. Cohen, "The Individual and the Institution" in *The Chinese Hospital: A Socialist Work Unit* (New Haven, CT: Yale University Press, 1984), 41.

than indoor rooms or halls.

For the most part, this intermediate condition that bridges indoor and outdoor activities has been neglected under contemporary Chinese hyper-urbanism. A system of covered spaces can be re-introduced to provide the mediation between indoor and outdoor urban life and provides a framework for unity while accommodating the distinct parts of the city. Insertion of an intermediate linkage layer negotiates between interior and exterior constructions, connecting buildings to the public space of the city and to penetrations of ecological mass. This intermediate layer acts as an armature, or megaform, of covered spaces for social collection and connection in the city. The armature consists of covered walkways, massive spanning roofs, enclosed loggia, and greenhouse atria. Post-Capitalist Socialist China will re-establish the space of socialization in the city as covered places of intense collective activity.

1.3 INCOMPLETENESS AND THE *DANWEI*

Incompleteness in urbanism can be achieved through a layering of states of fullness and emptiness in architecture across a given site. This operates at the scale of the urban block, which coincides with the scale of the *danwei*. The first layer is conversion of the physical fabric as disintegration and formation and can be applied to the *danwei* to densify and activate the wasted undefined open spaces, replace the enclosing wall with structured streetscape and public squares, and supplant the hierarchical composition of buildings by inserting new typologies in a relatively even spread across the site. The second layer is ecology of interstitial spaces as absence and presence to replace cosmetic plantings in the *danwei* with productive ecological mass linked to cultural urban activity. This association divides the *danwei* into a series of distinct scenes that unfold

to bring forth a varied vibrancy or collective consciousness to public outdoor spaces for social, intellectual, and commercial exchange. The third layer is socialization of covered spaces as autonomy and collectivity. This activates places of socialization by mediating indoor and outdoor activities between buildings as well as along pedestrian paths and public open spaces autonomous from car traffic. Complexity comes from the overlap of these layers on a site and areas of intensity occur in the resultant defined open spaces.

CHAPTER 2: TYPOLOGICAL AND HISTORICAL CONTEXT

This chapter uses the three layers of incomplete architecture as a way of analyzing the historical and typological transformations in China from the Dynastic Era to the present and into a post-Capitalist Socialist future. The thesis does not focus on the details of the *danwei* itself but, instead, attempts to create an understanding of the *danwei* through a historical trajectory of Chinese urbanism. It allows the *danwei* to be compared and understood against this context. This method is derived from Zhou Rong's summary of Chinese urbanism as a succession of three utopias: (1) the Ancient Ideal City with highly regulated urban life marked by symbolic axial symmetry, street-grid system, and social hierarchy, (2) the Grand Socialist City dominated by a top-down national authority with the tendency for monumentality and hierarchical axial symmetry at the expense of individuality, and (3) The Modern Utopia generated from a systematic denial of traditional Chinese urban culture with a monotony of widened roads, elevated thruways, and highrises. He criticizes these three utopias for creating an alienating urban setting in which the physical, ecological, and social needs of the average city dweller are overlooked in favor of abstract market mechanisms and symbolic gestures of hierarchical control. In response, Zhou argues for a non-utopic future Chinese urbanism based on micro-scale relationships that focus on enriching and fulfilling the needs of daily urban life.³⁷ The three layers of incomplete architecture operate as forms of this micro-urbanism.

³⁷ Rong Zhou, "Upon the Ruins of Utopia." *Volume Special Issue Ubiquitous China: Craft the Agenda for the World to Come* 8, no. 2 (2006): 44-47.

TRADITIONAL COURTYARD HOUSE

Dang Jia Village, Loess Plateau, Shaanxi Province

SITE STATISTICS

Density (F.A.R) = 0.7-1.4

Building Height (storeys) = 1-2

Lot Area (sq. m) = 100-430 (260 average)

LOT COVERAGE

Built Footprint = 70%

Greenspace = 11%

Paved Surface = 19%

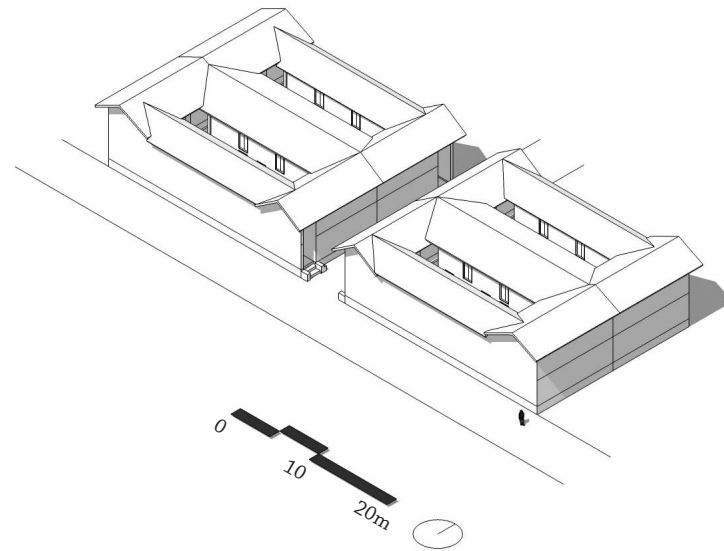


fig. 2.1 Ming and Qing Dynasty courtyard houses in *Dangjia* Village, Shaanxi

2.1 DYNASTIC ERA

Chinese urbanism in this era attempted to generate conditions of stability within a chaotic setting. A Confucian inclination toward hierarchy and absolute order influenced the spatial compositions of the courtyard house and walled city. Human orientation within the *Dao*, the mysterious workings of the chaotic world, was essential in selecting the location of cities based on stability provided by natural landscape features.

2.1.1 The Courtyard House and Traditional Laneway Village

The typology of the courtyard house was the basic urban unit. Vernacular laneway villages in the countryside were produced through the repetition of courtyard houses [fig. 2.1].

Dangjia Village in Shaanxi Province

This is a village of traditional Ming and Qing Dynasty courtyard houses on the Loess Plateau northeast of Xi'an. It is located in a ravine between two ridges that are 40 meters in height. *Wenxing* Pagoda is the dominant vertical landmark breaking the horizontality of the village. It provides an opportunity to view the surrounding landscape and was built to spiritually fill in the physical gap in the two ridges protecting the village from dust storms that frequent the area [fig. 2.2]. Two families with surnames *Dang*, a group of administrator-scholars, and *Jia*, a group of merchants, inhabited the village.³⁸ Social hierarchies were formalized within the family as the primary unit of socio-spatial importance. The principle of filial piety supported reverence for the elderly and ancestors who were responsible

38 Ronald G. Knapp, ed., *Chinese Landscapes: The Village as Place* (Honolulu: University of Hawaii Press, 1992), 129-137.

for guiding the younger generations through a deep understanding of the workings of the world. Confucian social hierarchy deeply informed the way in which spaces and buildings were configured in the courtyard house. There was a direct link between room occupied and social status within the family. The courtyard typology of the family unit formed intimate laneway neighborhoods sheltered by dramatic landscape elements at the macro-scale and walled enclosures at the micro-scale [fig. 2.3].

Unlike the cosmetic application of nature in existing *Danwei* Urbanism, the traditional village was formed from the close association between cultural constructions, including the pagoda, with the surrounding natural landscape. This interconnectedness between nature and culture found in traditional villages should be re-established in a post-Capitalist Socialist urbanism. A design implication for the new *danwei* is that highrises should not be repetitive objects with little relation to context, but rather can be conceived, like the pagoda, as a landmark with external circulation providing a visual connection between the main elements of the site, both urban and ecological.

2.1.2 Ancient Walled City

The walled city developed to establish a tightly controlled order following a period of instability and anxiety caused by constant warfare. Cities contained four tiers of walls within walls. First, the outer wall formed fortifications for the entire city. Inside this, an inner wall separated the Imperial and Palace City, or Inner City, from the Outer City where the general public resided. Walls entirely enclosed city blocks, or *fang*, in the Outer City. Finally, walled courtyards enclosed homes, temples, guilds, and gardens within the *fang*. Each walled enclosure was gated and guarded to control access and, subsequently, the flow of people to and from one area



fig. 2.2 Traditional laneways and pagoda in *Dangjia* Village, Shaanxi

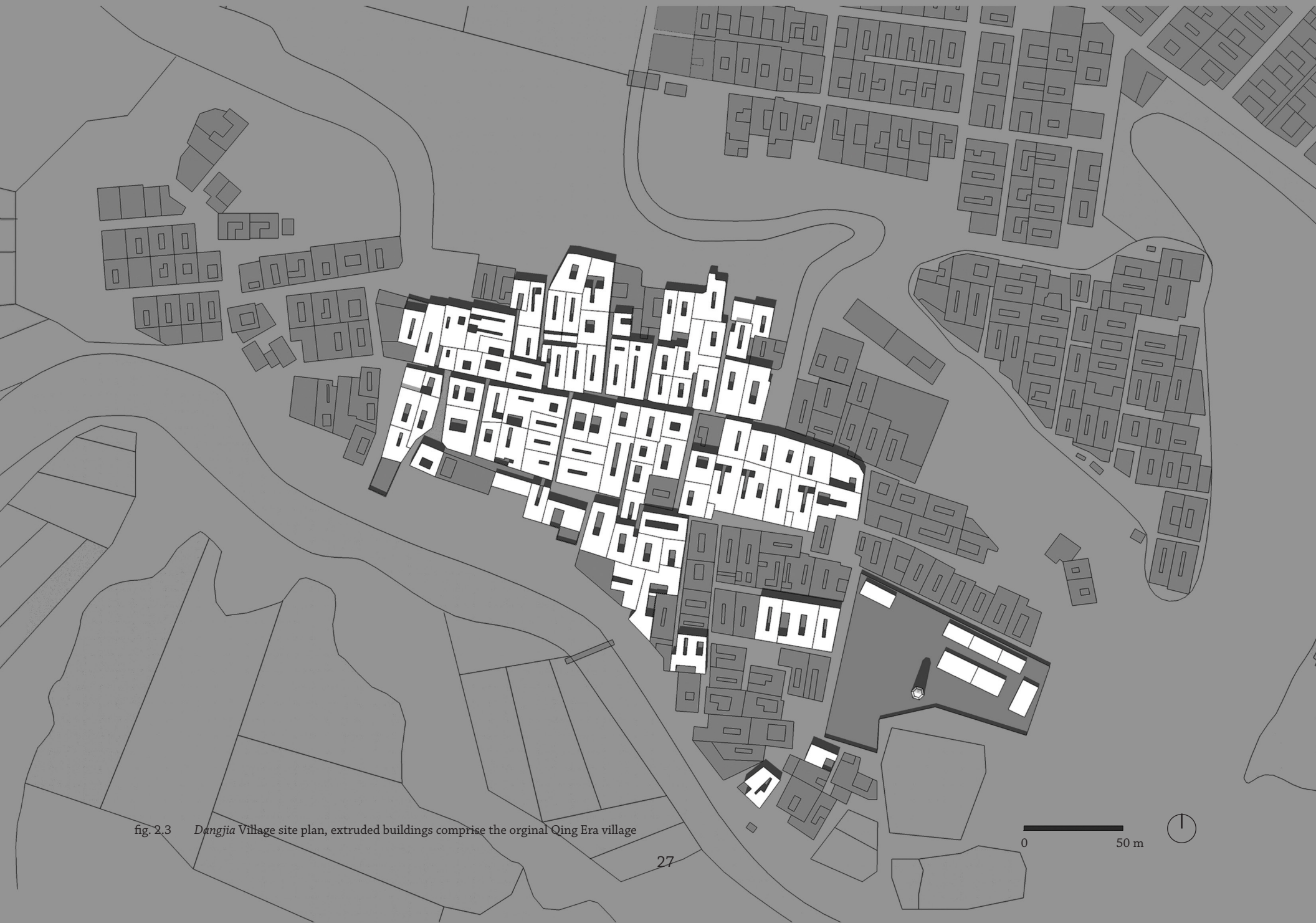


fig. 2.3 *Dangjia* Village site plan, extruded buildings comprise the original Qing Era village

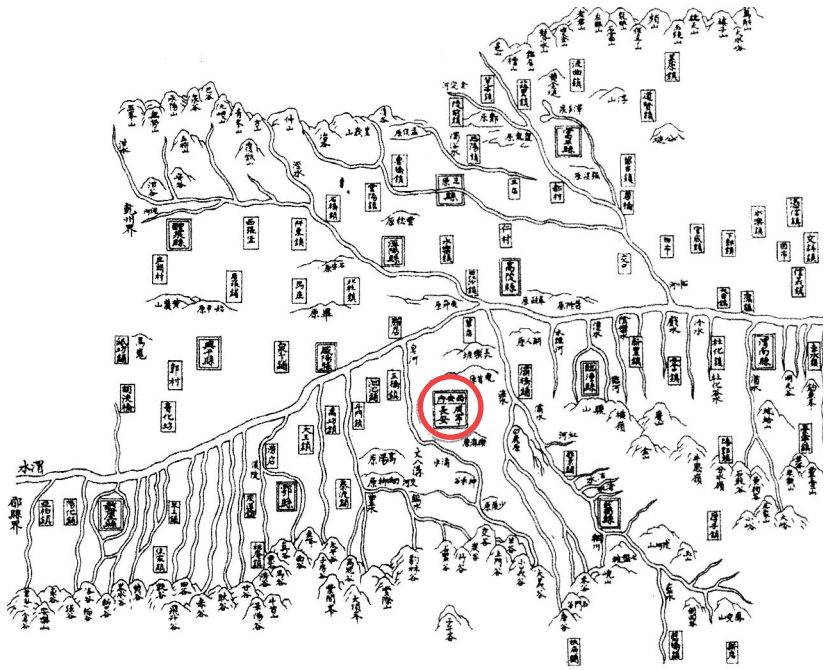


fig. 2.4 Xi'an surrounded by water and mountains for stability

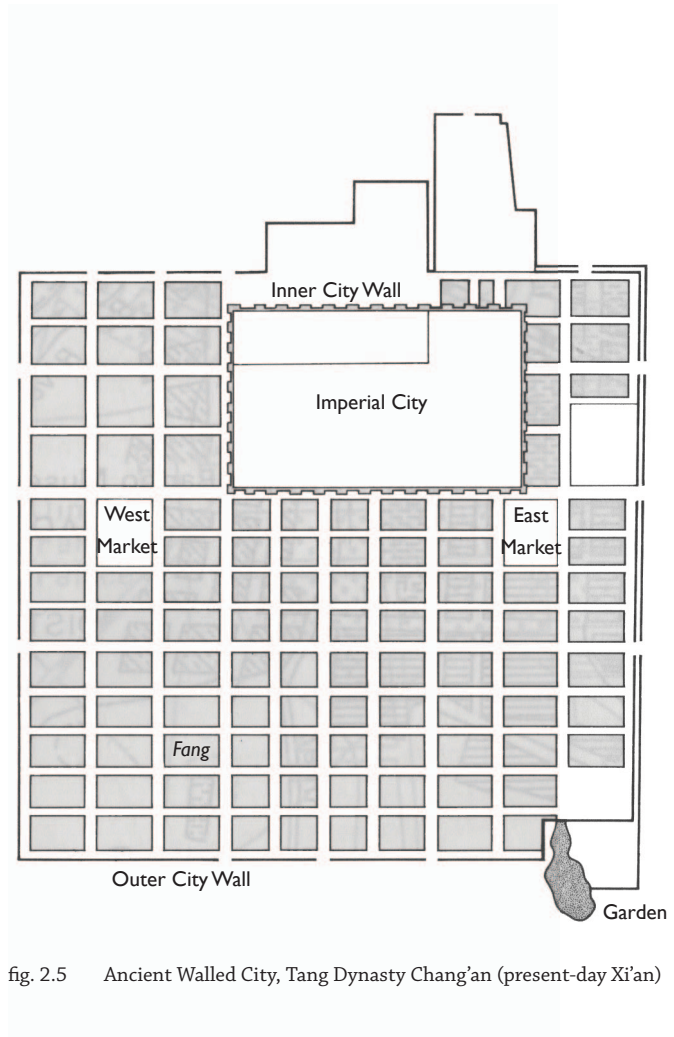


fig. 2.5 Ancient Walled City, Tang Dynasty Chang'an (present-day Xi'an)

of the city to another. Walls did not define public spaces of freedom in the city, but rather, formed highly controlled spaces through multiple levels of embedded enclosure. Walled cities also provided orientation for humans against the *Dao*, the unfathomable chaos of the natural world. *Fengshui* principles dictated that cities would ideally be backed by mountains and fronted by water.

Tang Dynasty Chang'an (present-day Xi'an, Shaanxi)

Chang'an was the largest city in the world in the 6th century B.C.E. with a population of over a million people³⁹ and was the starting point for the Silk Road. It was located between the Qinling Mountain Range to the south and the Wei River to the north on a plain surrounded by eight rivers and streams [fig. 2.4].

Planners conceived the city as a walled utopia following the principles of hierarchy, regularity, and regulation. This was a structure for stability within chaos. Hierarchical composition reinforced imperial authority by placing the Inner City in the central axis with the main north-south street extending from its middle, and flanked by markets to the east and west in the Outer City [fig. 2.5]. Pagoda breached the horizontality of the city to mark and reinforce main visual axes of authority. Use of an absolute street (*li*) and block (*fang*) grid system provided a strict sense of regularity. *Fang* averaged a size of 955.5 by 477.75 meters with 6,000 inhabitants.⁴⁰ Regulation was achieved through complete enclosure using high, gated walls that controlled access between *Fang* and various parts

39 Jun Jiang, "Controlled by Chaos," *Volume Special Issue Ubiquitous China: Craft the Agenda for the World to Come* 8, no. 2 (2006): 22-24.

40 R. Stewart Johnston, *Scholar Gardens of China: A Study and Analysis of the Spatial Design of the Chinese Private Garden* (Cambridge: Cambridge University Press, 1991), 13.

of the city. Commercial and social activities were limited to patrolled markets, the only open public urban spaces, and regulated areas within walls. This produced inward-looking spaces with no relation to the street. Furthermore, the city observed a curfew to stifle street activity at night.

Disintegration and Formation: Activating the Street

Later, during the Song Dynasty, the curfew and walled *fang* with no windows open to the street were removed. Buildings with direct access replaced walls in defining the street edge. This activated the street from its earlier negation. Richness of commercial and social activity shifted from patrolled markets and behind walls into the street.⁴¹ *Danwei* are a reiteration of *fang* in that gated walls enclose the entire urban block as a denial of the street. The thesis proposes a new way of activating the street by varying and breaking-up the edge condition instead of providing a consistent fence or blank building frontage with no windows or entrances.

Absence and Presence: Ecological Mass and Public Space

No penetrations of large ecological mass were associated with the creation of open, public spaces in the city. Plantings were linear or scattered, forming tree-lined streets and sporadic, paved landscape gardens and courtyards. Two, 3 meter-wide canals flanked the 150-155 meter-wide central north-south road that led from the Palace to the main gate of the outer wall.⁴² Open public spaces were limited to two markets as urban centers for commercial activity and a garden surrounding a large lake in the southeast corner of city, which was a royal retreat only open to

41 Jiang, "Controlled Chaos," 22.

42 Michele Pirazzoli-t'Serstevens, *Living Architecture: Chinese*, trans. Robert Allen (London: Macdonald, 1972), 45.

VERNACULAR RURAL VILLAGE

Xu Jia Zhai Village just west of Chang'an District south of Xi'an city center

SITE STATISTICS

Density (F.A.R) = 0.5-1.4

Building Height (storeys) = 1-2

Lot Area (sq. m) = 490 average

LOT COVERAGE

Built Footprint = 70%

Greenspace = 21%

Paved Surface = 9%

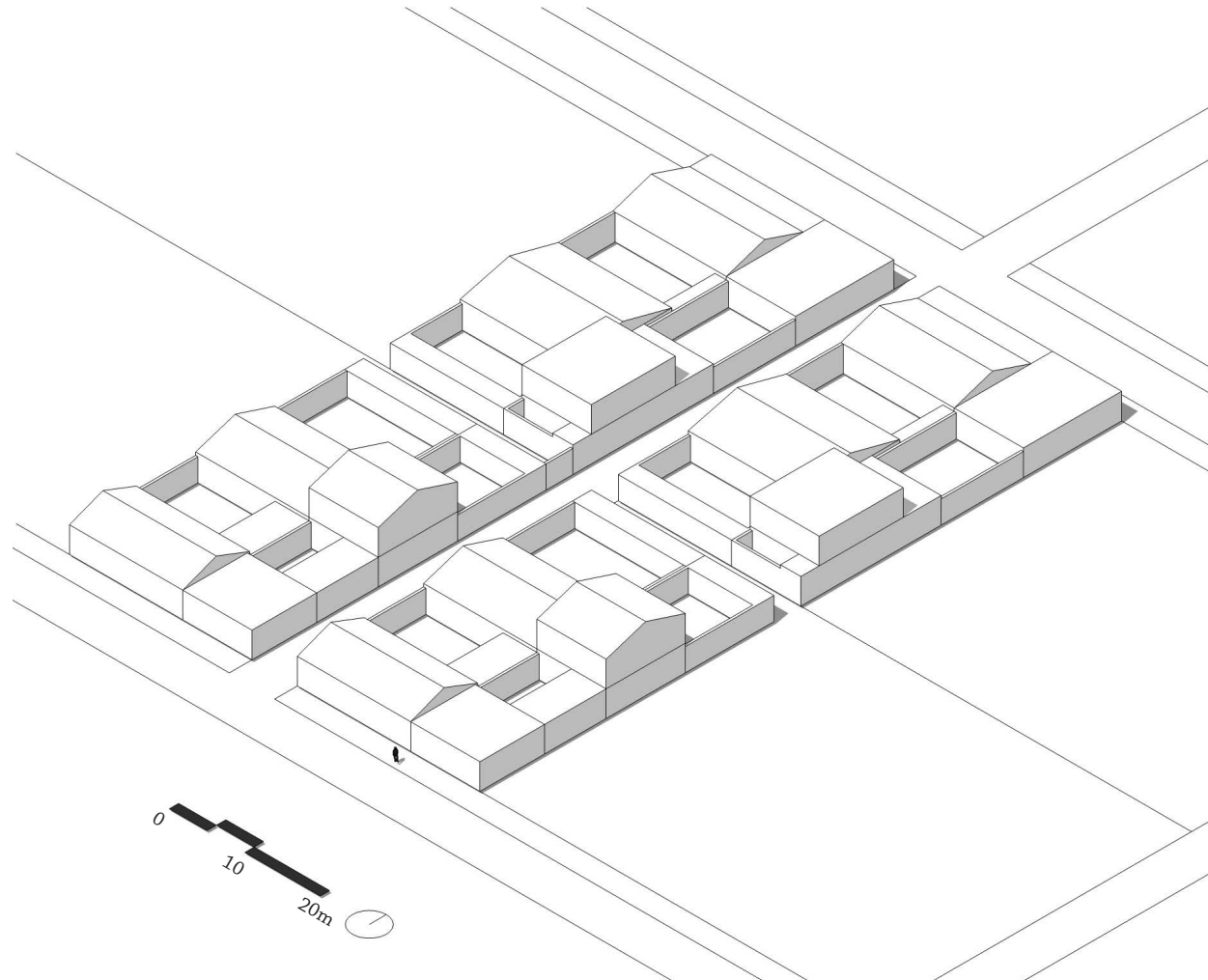


fig. 2.6 Typical farmer's housing in *Xu Jia Zhai* Village

the public for special festivities. Ecology in the *danwei* is treated in a similar manner, with trees lining internal streets or sparsely planted for decoration. The thesis is critical of this approach and accumulates volume and mass in ecological systems on the site to reinforce the development of defined yet distinct open public spaces for cultural activities.

Autonomy and Collectivity: Breaking the Hierarchy

The composition of the city was dominated by an axis centered on the Imperial Palace, or Inner City, as the seat of administration and authority. It is symmetrical and almost perfectly square. A clear hierarchy existed between an exclusive Inner City and the general public in the surrounding Outer City. Blocks comprising the Inner City were much larger than the *fang* of the Outer City. The *danwei* is also a hierarchical composition that uses axial symmetry originating from a main workplace building as the seat of administration. Breaking this hierarchical composition as a denial of the Confucian order is necessary in a contemporary society based on connections between distinct elements.

2.2 RURAL AND URBAN RECONSTRUCTION (1920s Republic)

The Republican Era under the Guomindang (GMD) was marked by the increasing influence of Western development methods in China. Chinese leaders in rural and urban settings implemented Western standards for the modernization of society, including unification and education of the masses in the countryside and the provision of efficient and sanitary cities with open public spaces.

2.2.1 Vernacular Rural Village

During the Republic, scattered village clusters amid farmland, ranging

in population from less than 200 to exceeding 1,000,⁴³ dominated rural China. The Rural Reconstruction Movement was aimed at modernizing, educating, and unifying rural Chinese communities, which contained 85% of the country's total population at the time.⁴⁴ Development of the countryside could not be ignored in the modernization process for China, so efforts were made to stabilize the masses by stimulating the rural economy and improving living standards. There were two primary experiments in rural reconstruction: one conducted in Zouping County, Shandong Province led by Liang Shuming and another in Ding Xian, Hebei Province led by Y.C. James Yen. Yen's Ding Xian Experiment implemented the following four methods for rural reconstruction: literacy and cultural education, economic cooperatives that trained farmers in efficient farming and business practices and provided access to financial resources, systemization of a tiered health network for access to medical care, and cooperation with government institutes to shape the political regulation of rural communities.⁴⁵ Whereas Yen took a top-down systematic and educational approach to reconstructing the countryside, Liang wanted to root the process of modernization in a bottom-up continuum of the Chinese culture. His method, like Li Minqi's definition of post-Capitalist Socialism mentioned in the Introduction, depended on the ability of the collective community to make the right judgments to initiate change. He promoted cooperatives with collective ownership of capital to unify and increase productivity in rural areas, updated old farming techniques to modern standards, gathered forces for defense from bandits, and set up

43 Knapp, *Chinese Landscapes*, 19-20.

44 Y.C. James Yen, *The Ting Hsien Experiment in 1934* (Peking: Chinese National Association of the Mass Education Movement, 1934), 7.

45 *Ibid.*, 23-50.

schools teaching basic knowledge needed in rural development.⁴⁶ As noted by Guy S. Alitto in his book *The Last Confucian*, these experiments, in common with Maoist beliefs in the subsequent Socialist Era, were based on “a peculiarly Confucian faith in the influence of the human environment and the efficacy of intimate group contact in moral and intellectual improvement” and would result in a benevolent public consciousness “which would solve China’s economic and political backwardness and, at the same time, avoid the dehumanization of urban bourgeois society”⁴⁷ that is also problematic in the contemporary capital-driven economic system. Historically, the Chinese have believed in the integrity of the individual moral character in relation to collective society organized according to a strict Confucian social hierarchy with little room for flexibility. This is an idealistic theory in which the individual adopts a benevolent attitude towards the needs of society at the expense of personal gain or exploits. One of the reasons why experiments in Rural Reconstruction were not successful in lifting the masses out of poverty may have been that the village leaders did not, in reality, make their choices based on an intellectual and moral ability to see the broader implications for their decisions. They were shortsighted by direct personal implications rooted in the moment. Maoist Socialism in the following era also failed in part because of the lack of individual incentive in an over-collectivized society. While traditional Chinese moralism in relation to autonomy and collectivity in human nature was too idealistic, contemporary capital-driven China is too materialistic in its over-privatization, exploitation, and

46 Guy S. Alitto, “Rural Reconstruction during the Nanking Decade: Confucian Collectivism in Shantung,” *The China Quarterly*, no. 66 (June 1976): 213-46, <http://www.jstor.org/stable/652822>.

47 Guy S. Alitto, *The Last Confucian: Liang Shuming and the Chinese Dilemma of Modernity* (Berkeley: University of California Press, 1979), 273-8.

depletion of societal resources.

Past Chinese experimentation with collectivity has failed as a result of overlooking the importance of the individual perspective, whereas contemporary privatization is too isolating in its denial of the collective. Thus, a New *Danwei* Urbanism in post-Capitalist Socialist China will create more cohesive collective connections while maintaining distinctive or individual elements. It will provide spaces to mediate between indoor autonomous activities and collective outdoor activities.

Contemporary Vernacular Rural Village in the Guanzhong Plain, Shaanxi

The Guanzhong Plain in central Shaanxi Province has a population of over 23.5 million and covers an approximate area of 34,000 square kilometers.⁴⁸ It has a history of over 7,000 years of human settlement and is considered one of the founding regions of civilization in China. A standard village here is comprised of around 500–1,000 people. Typical farmer’s houses are rectangular in layout made of rammed earth or brick.⁴⁹ They are arranged, like row houses, one next to the other with shared walls [fig.2.6]. Basic elements are a one-storey front hall and a one-or-two-storey rear hall with a paved patio between them. The patio forms a courtyard-like space defined by the two halls on opposite ends and by a shared dividing wall and kitchen on the other ends. Often times, residents have to use outdoor paths to get from one room or hall to another. In some houses, a set of

48 Xiaojian Chen, “The Models of Urbanization and Their Impacts on Spatial Evolution of Built-up Area—Case Studies of Cities in Shaanxi in Northwest China” (49th ISOCARP Congress, Brisbane, AU, October, 2013), 2, http://www.isocarp.net/Data/case_studies/2286.pdf

49 Knapp, *Chinese Landscapes*, 32-33.



fig. 2.7 Site plan of Xu Jia Zhai Village

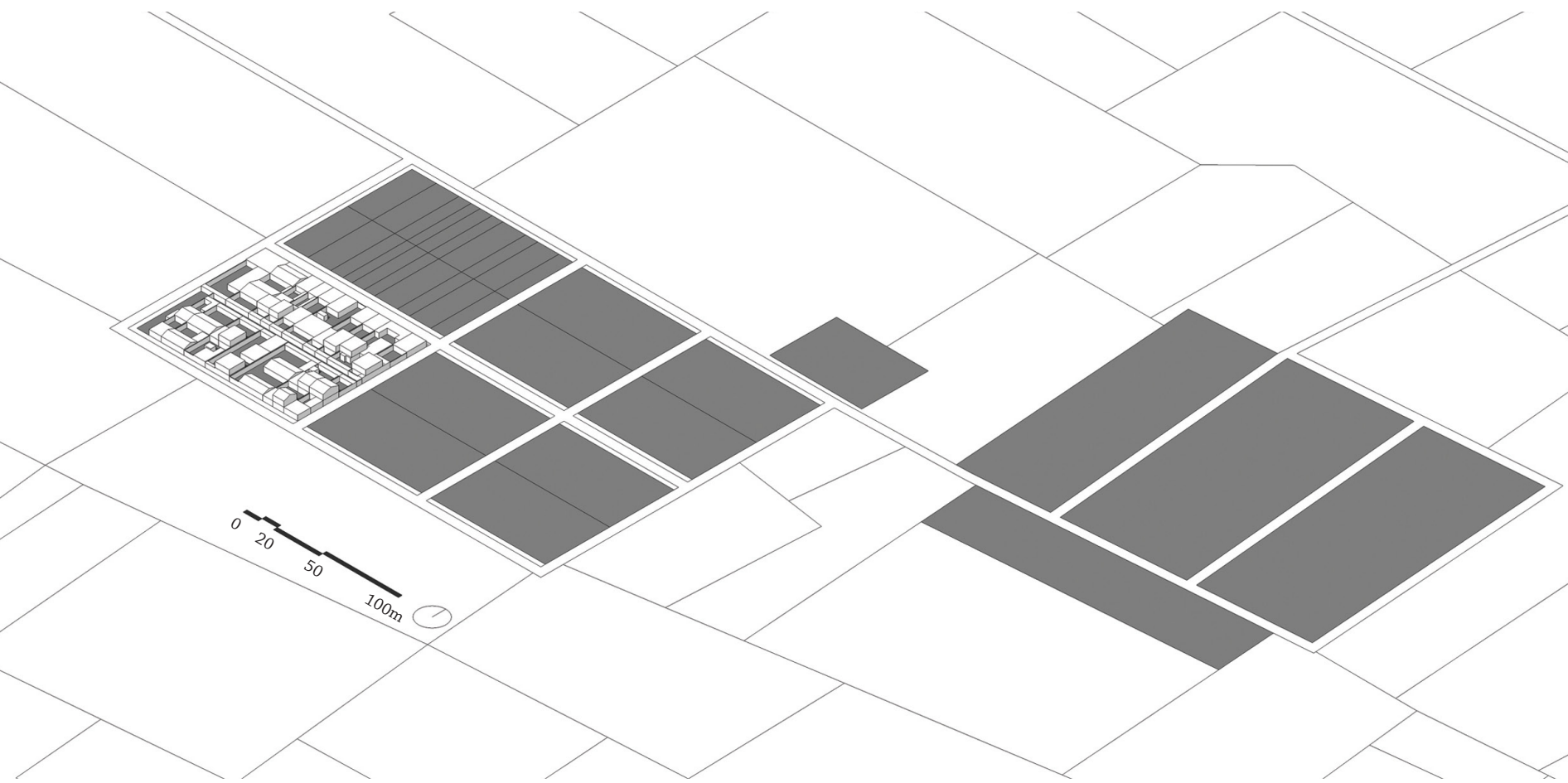


fig. 2.8 Porous housing blocks in *Xu Jia Zhai* Village for fresh air ventilation

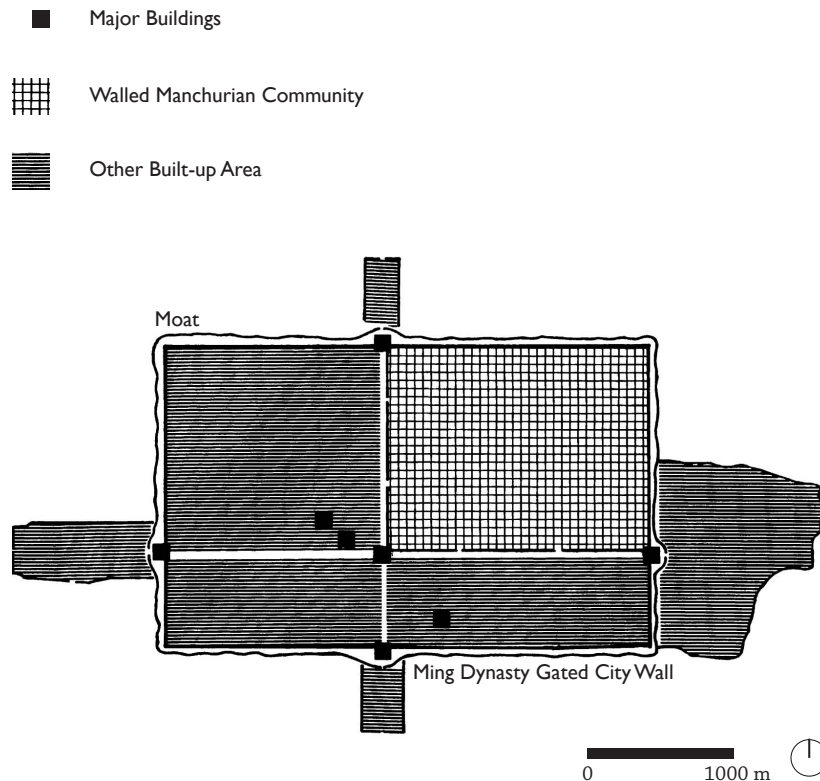


fig. 2.9 Xi'an in the 1890s at the end of the Dynastic Era

stairs in the patio leads up to the front hall rooftop. Behind the rear hall, there is a narrow lane that separates it from a shed covering an outhouse and animal pens. The outhouse directs sewage into a plant-filtered channel that cuts across the rear of all the houses in a row [fig. 2.7]. Life in the vernacular rural village is marked by the ease of movement between indoor and outdoor activities and by the use of productive ecological systems [fig. 2.8].

Traditionally, the Chinese prefer fresh airflow provided through natural ventilation of interiors. The term *bie qi* is commonly used in Chinese culture to describe the condition of feeling suffocated, both psychologically and physically, if there is no direct natural ventilation. Now, buildings are becoming increasingly mechanically conditioned, which discourages the flow between interior and exterior activities with the closure of openings. Transitional spaces between indoor and outdoor activities can be amplified in the *danwei* to return the Chinese lifestyle to a place of intimacy with the natural world. This will allow the general public to build an understanding of how to utilize and live within productive ecological systems and is, thus, pivotal to the alleviation of the ecological crisis in a post-Capitalist Socialist China.

2.2.2 The Modernizing City

Sun Ke (Sun Fo), son of GMD founder Sun Zhongshan (Sun Yat-sen), was one of the main figures responsible for the introduction of urban planning techniques from the West in his position as the first mayor of Canton (present day Guangzhou). After returning to China from studying in the U.S. in 1916, he published the 1919 article "On Urban Planning" (*Dushi Guihua Lun*). In it, he praised German city planning practices for detailing and anticipating the long-term expansion of the future city in addition

to fulfilling the needs of the current one. He also emphasized rational planning practices based on scientific methods and data obtained from surveys. Most importantly, the article outlined three major objectives for city planning in Republican China: (1) provision of greater means for the free flow and transportation of people and commodities between and within cities, which led to the building of rail-to-port networks and to efficient street systems with separate pedestrian sidewalks that resolved issues of overcrowding; (2) improvement of sanitary health through logically-organized networks for sewers and waste collection; and (3) the insertion of open public spaces, parks, and buildings for open-air leisure and entertainment in the city. It should be noted that Sun distinguished two different types of parks—a large one outside the city allowing citizens to completely escape from the urban setting and a smaller one centrally-located inside the city for a quick escape.⁵⁰ Planners of the Republican Era made tangible improvements to transportation and communication, sanitation, and public spaces in modernizing the feudal city.

Xi'an During the Republic (1920-1949)

The building of railroads between Xi'an and Eastern China in 1934 facilitated the free flow of goods and people from the interior to coastal ports. Xi'an was predominately a textile-producing, small industrial town during the Republican Era in which the center of focus shifted from the interior to the Coastal and Southern regions of China. Preceding the transition to Socialism in 1949, Xi'an had shrunk to an area of less than 14 square kilometers with a population of only 380,000. With the exception of the railroad, modernizations that transformed Coastal and Southern

cities failed to reach Xi'an. There were no open public spaces, plumbing, or transportation systems [fig. 2.9]. Historic monuments and pagoda remaining from the Dynastic Era were the only large or tall buildings breaking the horizontality of the city.⁵¹

Disintegration and Formation: Free Flow and Open Public Space

Whereas cities were based on utopic restrictions of hierarchy, regularity, and regulation during China's Dynastic Era, Republican urbanism applied rational planning methods to open up the public realm to a free flow of people and goods. This created defined public open spaces in the city in contrast to the Dynastic Era use of walled enclosures that restricted pedestrian urban activity.

Danwei Urbanism, however, returns to this tendency for walled enclosures in denial of active public urban spaces and streets. There is no sense of active, open urban public space in the *danwei* because of the gated wall and the inward-looking tendencies of courtyard spaces. After removal of the wall, a New *Danwei* Urbanism establishes a sequence of defined public spaces to open up the block to the street and the city at large. This draws upon the Republic Era legacy of opening up the city to public activities facilitated by defined open spaces and parks.

Absence and Presence: Public Parks and the Vastness of Nature

50 Joseph Escherick, *Remaking the Chinese City: Modernity and National Identity, 1900-1949* (Honolulu: University of Hawaii Press, 2000), 23-24.

51 Yaping Wang, "Planning and Conservation in Historic Chinese Cities: The Case of Xi'an," *The Town Planning Review* 71, no. 3 (July 2000): 315, <http://www.jstor.org.proxy.lib.uwaterloo.ca/stable/40112419>

Republican urban planners inserted public parks into the city as open green spaces for relaxation and fresh air. This brought the vastness of the countryside and nature into the city to alleviate the stresses of urban life through leisure.

In contrast, Socialist Era *Danwei* Urbanism does not provide public parks with meaningful ecological features that facilitate intense and leisurely urban activity. Plantings and lawns are applied as a cosmetic application across the site and are not meant to activate productive urban spaces. New *Danwei* Urbanism proposes a sequence of urban ecological constructions characterized by varying intensities of urban activity and uses ecological features with accumulated mass to penetrate or exert pressure on built mass.

Autonomy and Collectivity: Protected Pedestrian Traffic

Republican cities isolated and protected pedestrian traffic by providing sidewalks along streets. This attracted people to walk outside in the collective city rather than stay indoors in individual dwellings.

Danwei Urbanism, on the other hand, fails to provide a continuous and generous circulation system for pedestrians protected from car traffic. While the *danwei* does have a pedestrian sidewalk system, the widths are not generous enough. People tend to walk on the roads with the car traffic instead. New *Danwei* Urbanism constructs an armature of covered spaces to draw people outside for collective activity. Car traffic is relegated to the exterior of the site to protect pedestrian urban activity in the center.

2.3 SOCIALISM (1949-1978)

The Socialist period was marked by radically Egalitarian principles advocating collective labor, wealth, and lifestyle. All private concentrations of wealth were dissolved to form state-owned enterprises in which wealth was redistributed top-down from the government. Maoist practices focused on industrialization and modernization of the masses through rural communes for agricultural production. *Danwei* Urbanism was introduced to reorganize cities through the cellular multiplication of walled communities centered on the proximity between workplace, home, and social amenity. Socialist planning unified distinct aspects of rural and city life into basic units that sought to maximize the productive potential of Chinese communities through collectivity.

2.3.1 Rural Communes

Communes were planned communities in the countryside that closely integrated individual life with working in agricultural fields. Proximity between farm fields, social amenity spaces, and living quarters was deliberately planned with ideal walking distance in mind [fig. 2.10]. The commune center would be a 30-45 minute walking distance from central and satellite residential clusters.⁵² All privately held land was consolidated under collective commune ownership, and profits were redistributed evenly. The purpose was to maximize the productive potential through “collectivization and mechanization of agriculture,”⁵³ which was seen as a sign of progress in the provision of modern amenities to the rural population. Collective farming of the land was advertised as

52 Duanfang Lu, *Remaking Chinese Urban Form: Modernity, Scarcity and Space, 1949-2000* (London: Routledge, 2006), 112-13.

53 Tsetung Mao, “On Contradiction,” in *Selected Readings from the Works of Mao Tsetung* (Peking: Foreign Languages Press, 1971), 98.

RURAL COMMUNE

Fenghuo People's Commune

Site Statistics

Density (F.A.R) = 0.69

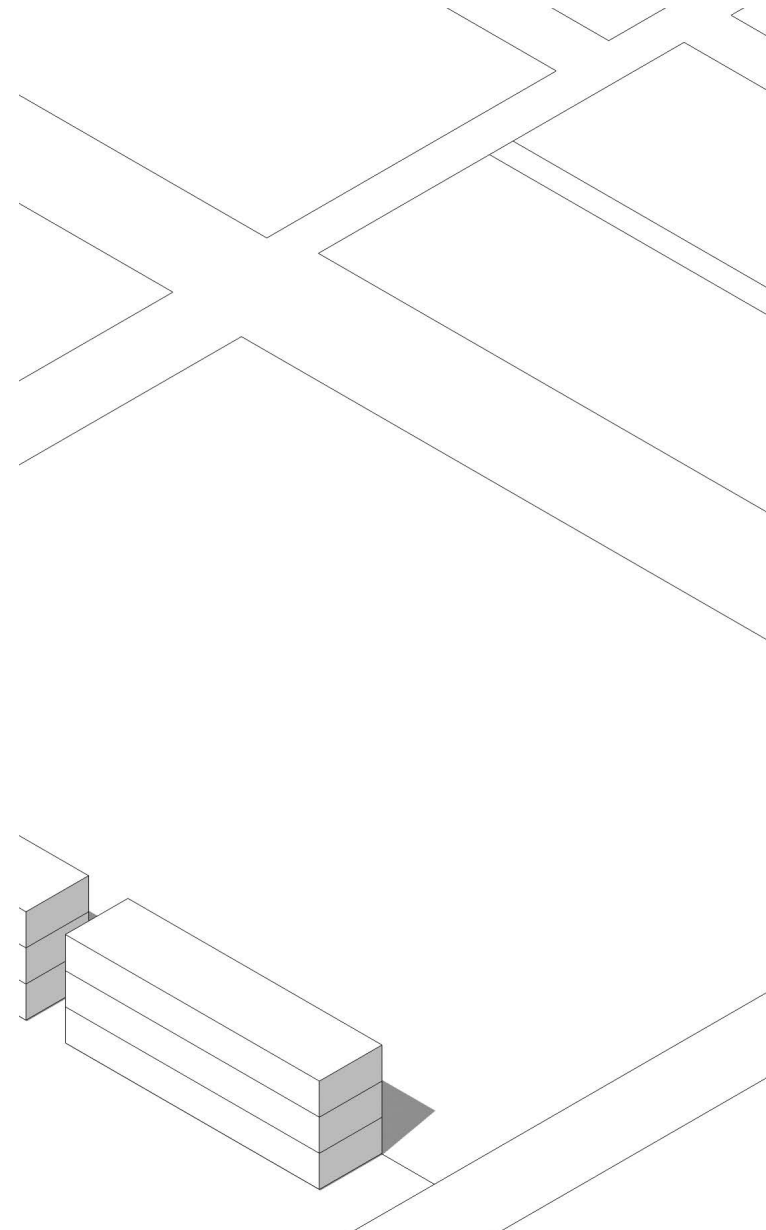
Building Height (storeys) = 1-3

Lot Area (sq. m) = 68,603

Lot Coverage

Built Footprint = 50%

Paved Surface = 50%



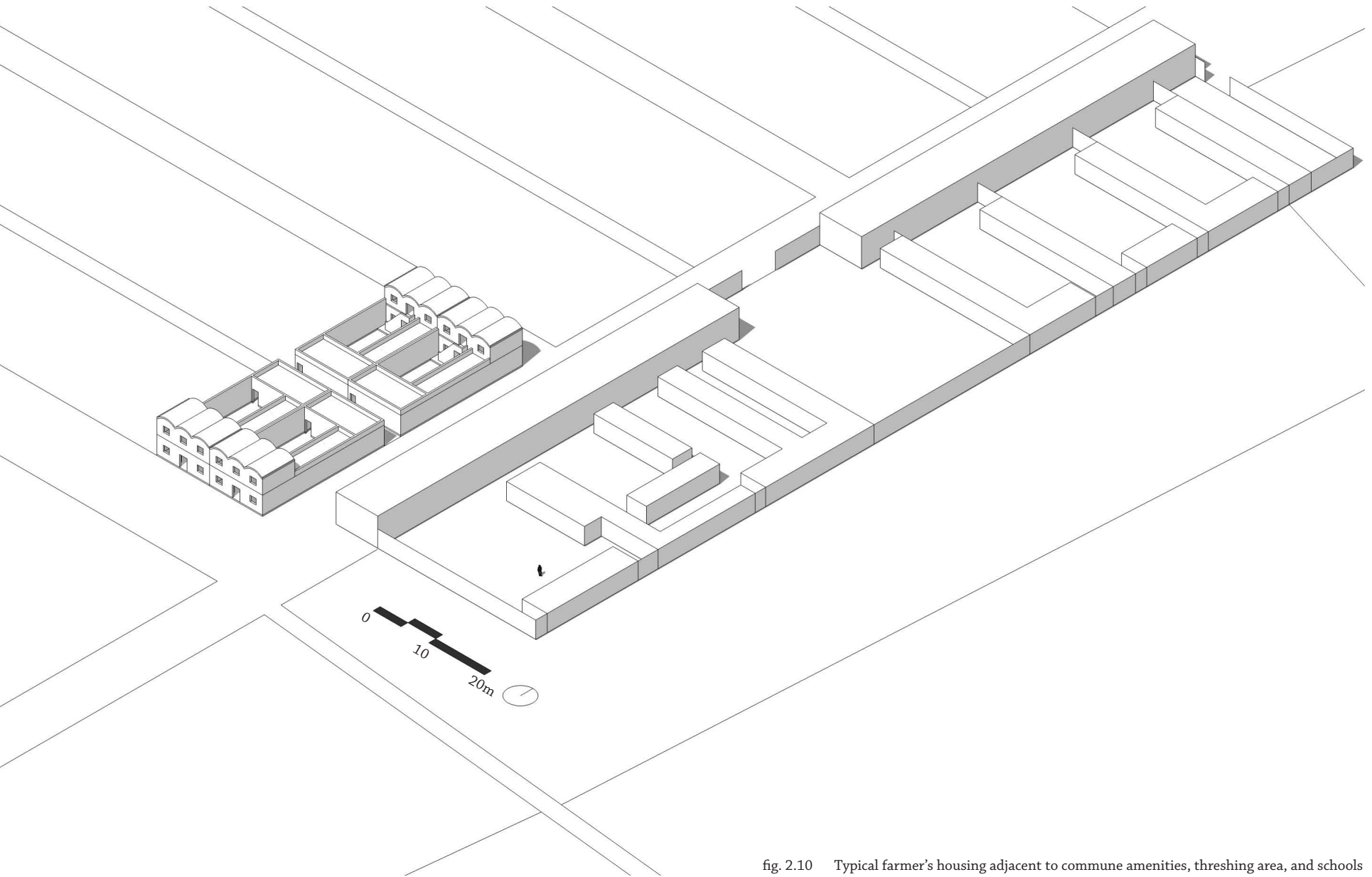


fig. 2.10 Typical farmer's housing adjacent to commune amenities, threshing area, and schools

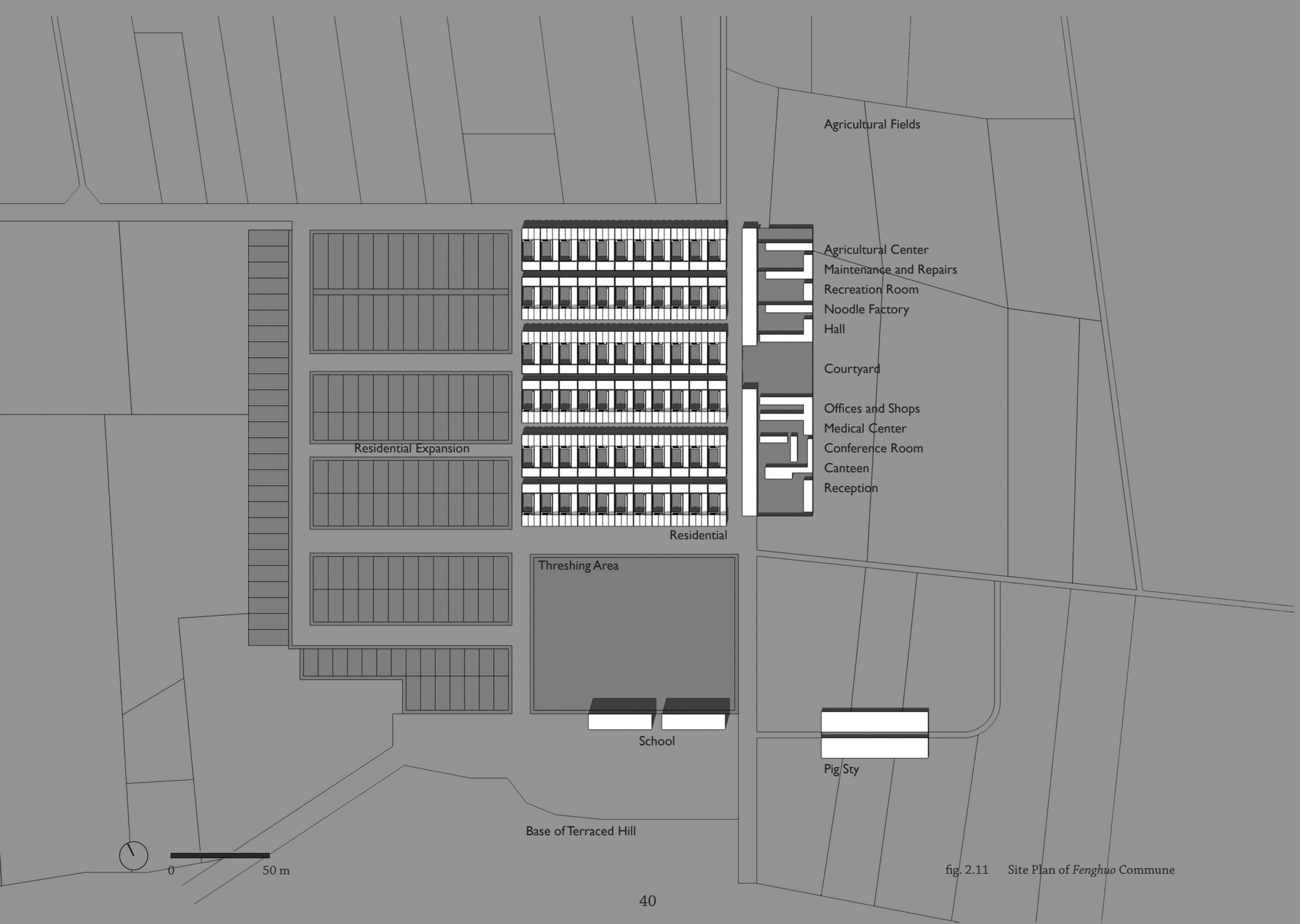


fig. 2.11 Site Plan of *Fenghuo* Commune

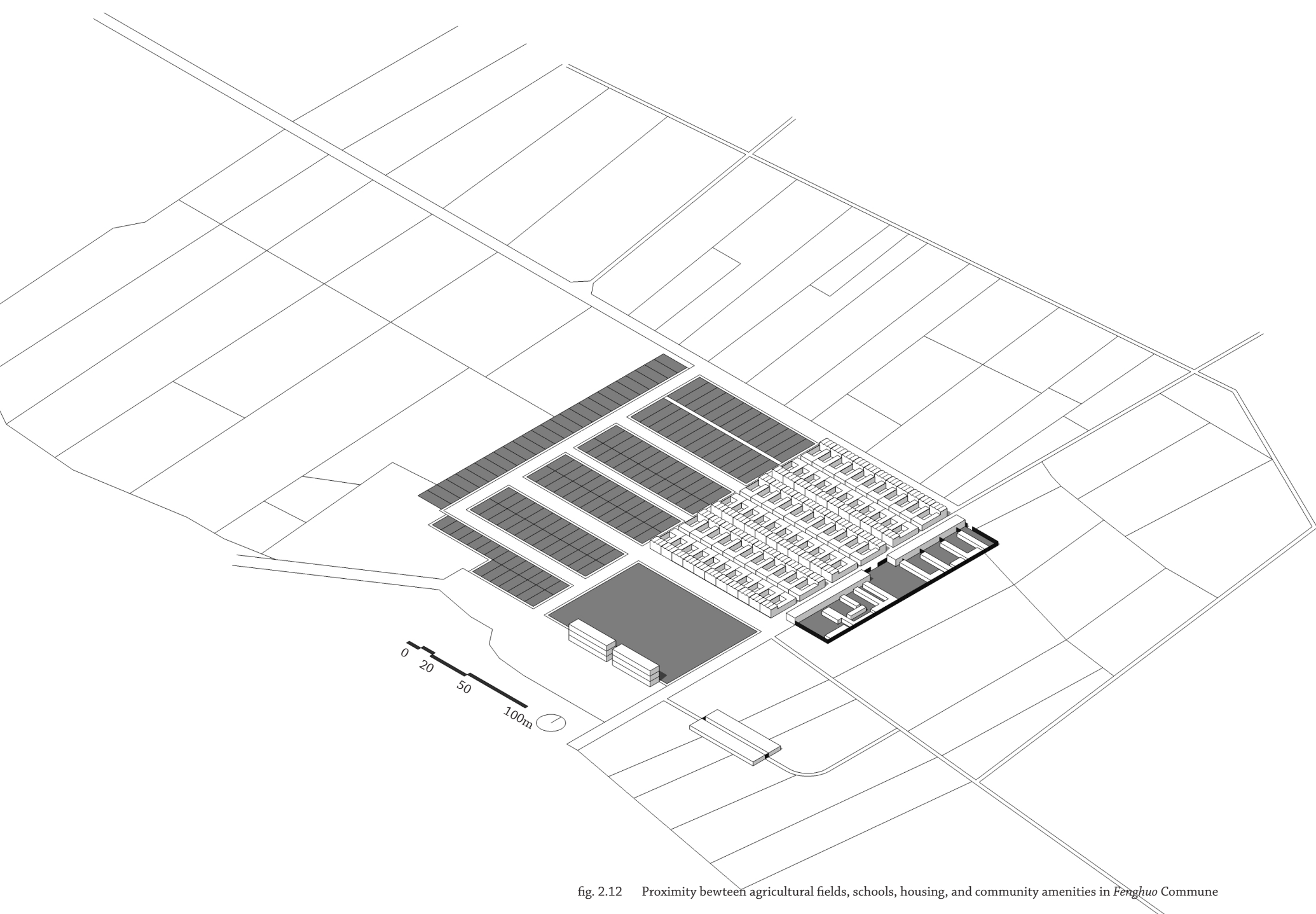


fig. 2.12 Proximity between agricultural fields, schools, housing, and community amenities in *Fenghuo* Commune

URBAN DANWEI (WORK UNIT)
Small-scale *Danwei* in Beijing

SITE STATISTICS

Density (F.A.R.) = 1.3

Building Height (storeys) = 1-10

Lot Area (sq. m) = 154,449

LOT COVERAGE

Built Footprint = 25%

Planted Lawn = 55%

Paved Surface = 20%

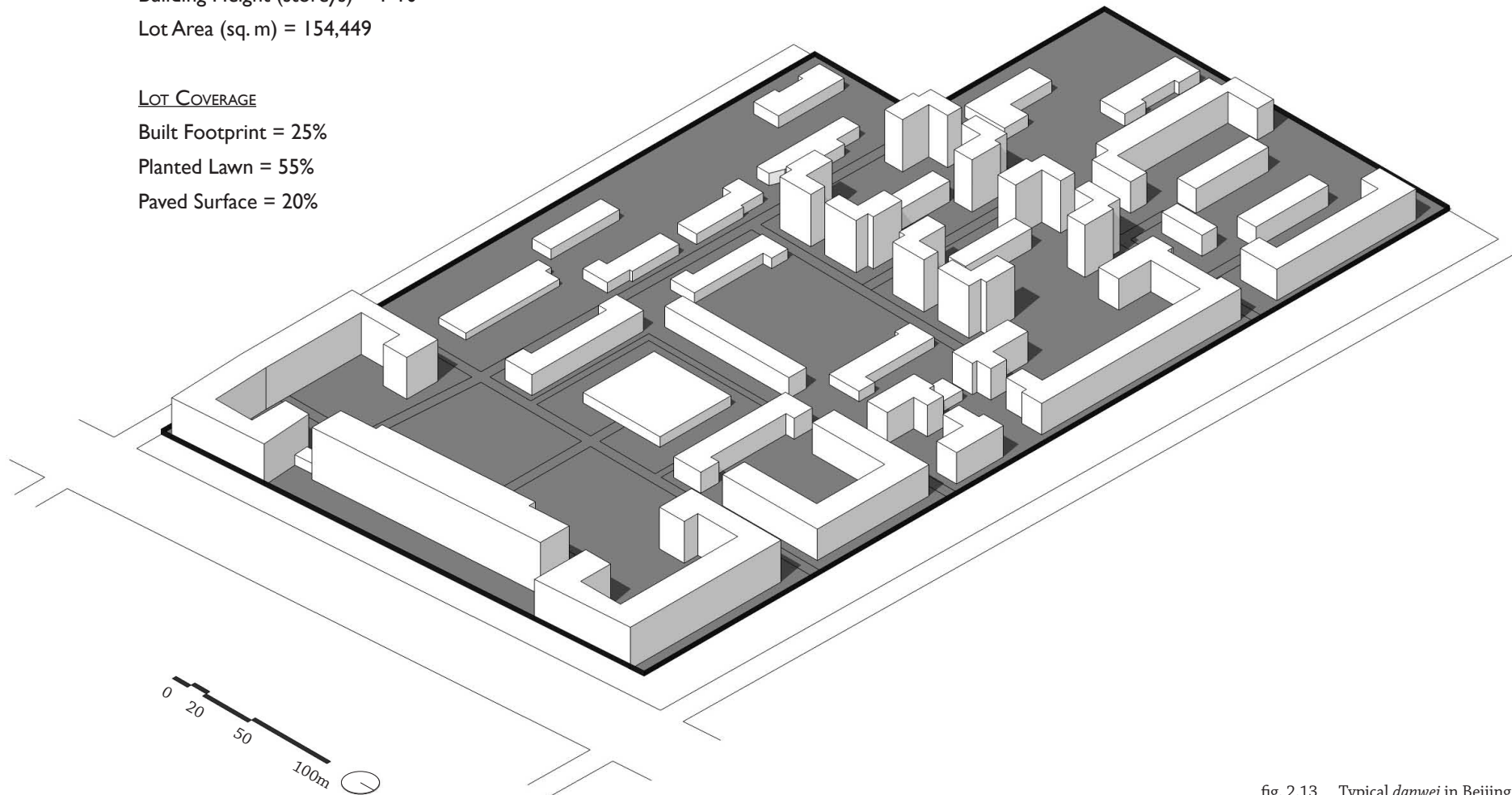


fig. 2.13 Typical *danwei* in Beijing

progressive but failed because individuals lacked incentive to work hard and stay within their means. The efficiency of the commune came from the insistence on a pedestrian-based walkable proximity between work, residential, and social amenity areas [fig. 2.11]. Like in the *danwei*, the existence of diverse programmatic elements of daily life within a single cohesive site has the potential to counter the monotony, segregation, and energy intensive commuting found in the contemporary car-oriented lifestyle.

Fenghuo People's Commune in Lique County, Shaanxi Province

This commune was located at the base of a hill in the Guanzhong Plain northwest of Xi'an. It was a self-sufficient community of 240 families with a total population of 1,400 people. The commune owned 130 hectares of land for growing wheat, corn, and cotton and supplemented this with light industry that accounted for about half of the generated income. As a result, the living standards improved with the commune providing surplus grain, a school, a library, and childcare and medical facilities. Housing, utilities, education, and burial services were free to people working in the commune.⁵⁴ The layout implemented a close relationship between areas of living, social services, education, industry, and agricultural production [fig. 2.12].⁵⁵ Efficiency, like in the *danwei*, came from the integration of various aspects of daily life within a single community.

A New *Danwei* Urbanism will further integrate various elements of

54 Hasan-Uddin Khan, ed., "Fenghuo Production Brigade," *Mimar* 3 (Singapore: Concept Media, 1982): 28, <http://archnet.org/publications/3885>.

55 Knapp, *Chinese Landscapes*, 58-59.

urban life to create a mosaic of urban programmatic activities within the site. This encourages socially productive exchanges that counter the monotonous isolation of contemporary urban developments.

2.3.2 *Danwei* (work unit) Urbanism

Danwei Urbanism re-introduced the use of the gated walled compound from China's Dynastic Era as the basic urban unit denoting social spaces within the block. Composition inside *danwei* walls also reflected the principles of hierarchy, regularity, and regulation established in Tang Dynasty Chang'an. A main workplace building housing a state-owned enterprise replaced the Imperial Palace as the central axis within the urban setting. This was reinforced by the, more or less, symmetrical composition and by the placement of the main workplace building directly behind the front gated entrance. Secondary workplace buildings flanked and stood behind the main building. Residential, amenity and service buildings were placed deeper into the *danwei* in secluded areas [fig. 2.13]. No distinctions in housing were made according to class or social position. As Li Shiqiao observes in *Understanding the Chinese City*, whereas Western cities are dominated by a distinction or segregation of types based on programmatic function or wealth, the Chinese city is uniform in that distinctions are not generated as vastly different types based on function or social hierarchy but by an abundance or quality of materiality in otherwise similar buildings. He supports this by pointing out that low-cost subsidized apartments and luxury highrises in China tend to share similar built attributes with the only major distinction being the quality of materiality used.⁵⁶ For example, enclosed *yangtai* from Socialist Era midrise subsidized housing are reiterated in expensive contemporary residential highrises.

56 Shiqiao Li, *Understanding the Chinese City* (Los Angeles, CA: Sage, 2014), 69.

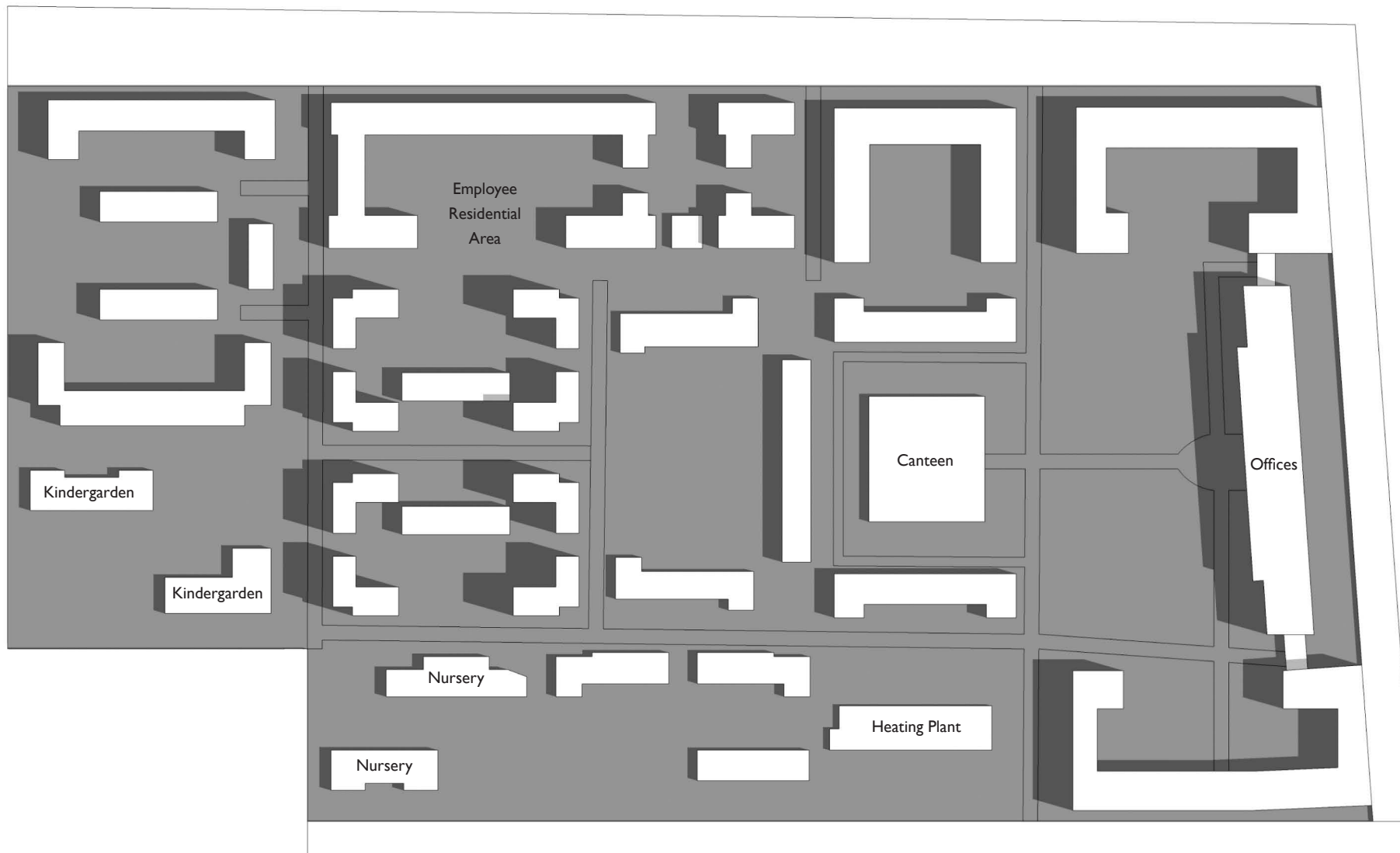







fig. 2.14 Site Plan of *danwei* in Beijing

-  Old City
-  Housing and Commercial Offices
-  Cultural District (mixture of housing, education, research, and various cultural uses)
-  Industry
-  Warehouses

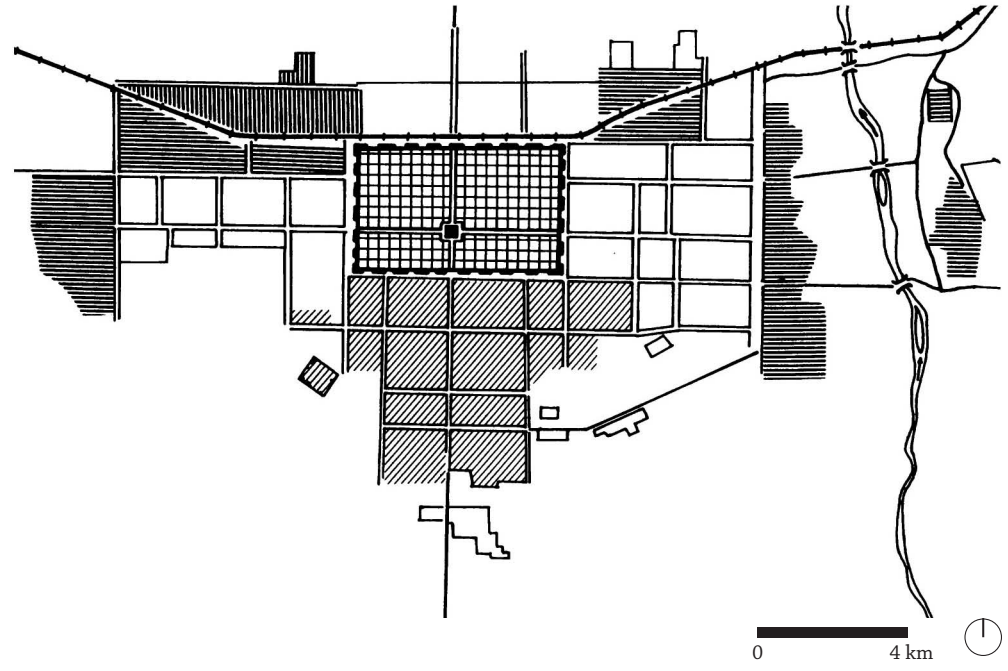


fig. 2.15 Xi'an in 1980 following changes in accordance to the 1953 development plan

Danwei buildings were grouped by their programmatic function into four general areas: workplace, residential, social amenity, and operational services. A grid system of tree-lined roads separated one area from another. *Danwei* compounds covered prominent chunks of the block and, often times, took up an entire city block [fig. 2.14].

A workplace provided subsidized housing, social services, and utilities in addition to stable employment. However, governing mechanisms restricted job mobility, making it difficult to leave. Although the *danwei* was self-sufficient as a unification of the various parts of city life, it was heavily dependent on subsidization and coordination with policies from the central government.⁵⁷ The *danwei* also acted as a mechanism of top-down control via conformity to government-dictated societal standards. *Danwei* dominated the Socialist City. More than 90 percent of city inhabitants worked and lived in *danwei* by 1957.⁵⁸

2.3.3 The Socialist City

The Socialist City was not only formed by a repetition of *danwei* compounds evoking the spatial order of the dynastic walled city. It was also about a radical shift in urban scale from the small, enclosed spaces of the dynastic city to bold, monumental insertions of open public squares and buildings as grand objects symbolizing a new Socialist order.⁵⁹ Beijing's Tiananmen Square expansion (1958-1959) and the "Ten Great Buildings" project (1959) were the most prominent examples of this. To

57 Xiaobo Lü and Elizabeth J. Perry, eds., *Danwei: The Changing Chinese Workplace in Historical and Comparative Perspective* (Armonk, NY: M.E. Sharpe, 1997), 181-82.

58 David Bray, *Social Space and Governance in Urban China: The Danwei System from Origins to Reform* (Stanford: Stanford University Press, 2005), 93-94.

59 Zhu, *Architecture of Modern China*, 99.

claim room for these projects, Mao Zedong initiated large-scale erasures of historical urban fabric. This method was based on the speed to produce extreme change to existing conditions in as little time as possible.⁶⁰ Mao was under intense pressures from Western imperialists whose industrial advancement gave them the upper hand in territorial invasions into the Chinese mainland, which began in the Qing Dynasty and lasted through the Republican Era into the Socialist Era.

Xi'an in the Socialist Era

In contrast to the razing of historical city fabric in Beijing, Xi'an retained much of its historical architecture in the Socialist Era. Socialist transformations to the city were not as radical in nature because of the lessened importance of its location in China's interior. Government buildings were inserted inside the walled old town. New developments extended the city outside the walled old town with designated areas for industry, housing, offices, and educational institutions [fig.2.15].⁶¹ *Danwei* were built in all areas of the city and became the primary ubiquitous unifying model of urban transformation in Socialist Xi'an.

Disintegration and Formation: Hierarchy vs. the Field Condition

The Socialist City can be seen as a continuum of the traditional dynastic order and also as a radical break from it. *Danwei* Urbanism continues the dynastic tradition of opposing the creation of intense public activity on the site. New *Danwei* Urbanism intends to negate the hierarchy, regulation, and regularity of the composition by establishing a new layer of buildings

60 Tao Zhu, "Building Big with No Regret," *AA Files* 63, (2011): 105-7.

61 Wang, "The Case of Xian," 317.

composed as an architectural field across the site. Newly defined public spaces will emerge as a result.

Absence and Presence: Monumentality in Ecology

Socialist cities juxtaposed the expanse of monumental spaces against the dense blocks of historical city fabric. This was achieved through insertions of urban squares to the city. In contrast, New *Danwei* Urbanism creates open space through monumental insertions of ecological systems.

Autonomy and Collectivity: Circulation as Connective Tissue

The road system inside the *danwei* divides the internal space into different programmatic areas. Circulation should instead become a connective tissue that traverses all the various programmatic areas of the *danwei* to unify them, and thereby, promote the mixture of programmatic activity.

2.4 REFORM AND ECONOMIC LIBERALIZATION (1978-present)

The de-collectivization of rural commune land under the Household Responsibility System was the first step in shifting China from a planned economy based the Egalitarian mode of production to a Capitalist economy based on privatization. Deng Xiaoping's Open Door Policy welcomed foreign investment into China, in particular along the coastal urban areas, through a relaxation of government regulation. He reinforced this with the establishment of Special Economic Zones in eastern coastal urban centers. The Socialist City has transformed into the present-day Westernized City through the import of not only foreign capital, but also the introduction of foreign building typologies with little connection to the context of Chinese urbanism.

2.4.1 Perimeter Block

The Perimeter Block is the Western typology with the most potential to connect to the existing Chinese context, but it is not widely utilized in the contemporary Chinese city. It can be seen as a densification of a courtyard that operates at the scale of an entire city block, not at the scale of a building as in the traditional Chinese city. In Barcelona, introduction of the Cerdà Grid shifted the urban spatial order from a densely packed historic city center to a more open form of density in the new city extension using the midrise perimeter block [fig. 2.16].⁶² The historic city had narrow, irregular streets and entire city blocks of solid building mass with only small interior light wells. In contrast, Cerdà's new city extension

⁶² Cerdà, *Urbs i Territori: Planning Beyond the Urban*. Edited by Francesc Magrinyà and Salvador Tarragó (Barcelona: Fundació Catalana per a la Recerca; Madrid: Sociedad Editorial Electa España, 1996), 47-53.

PERIMETER BLOCK

Cerdà Block in Barcelona, Spain

SITE STATISTICS

Density (F.A.R) = 2.8

Building Height (storeys) = 5-8

Lot Area (sq. m) = 12,671

LOT COVERAGE

Built Footprint = 55%

Greenspace/Paved Surface = 45%

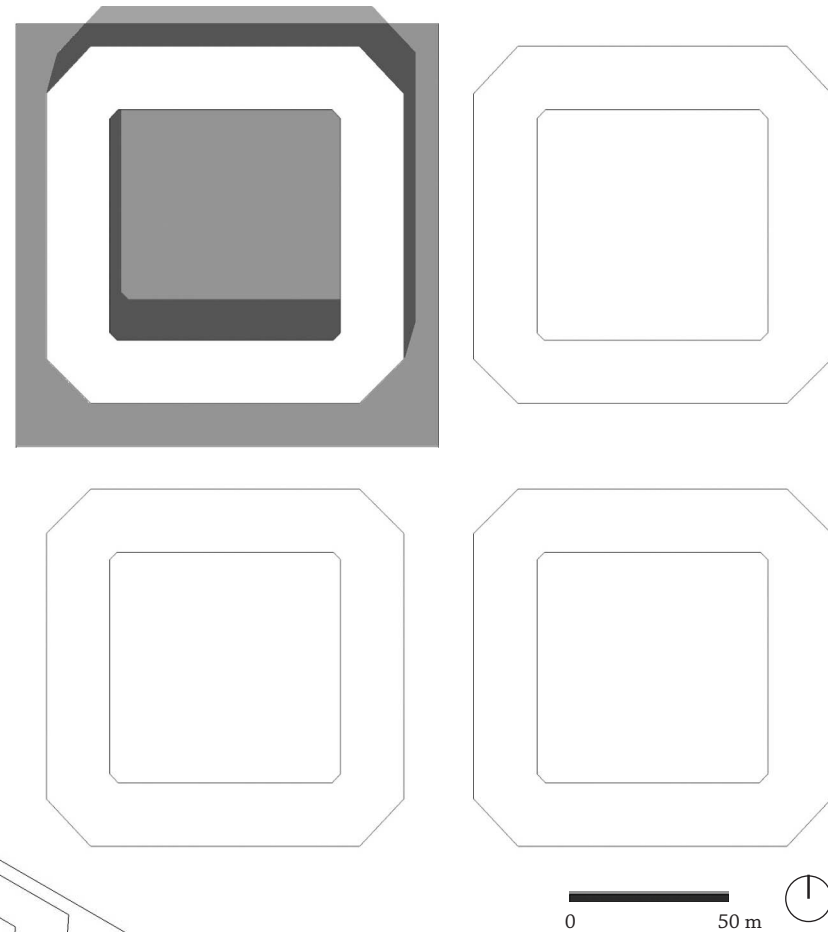


fig. 2.16 Typical Cerdà Block

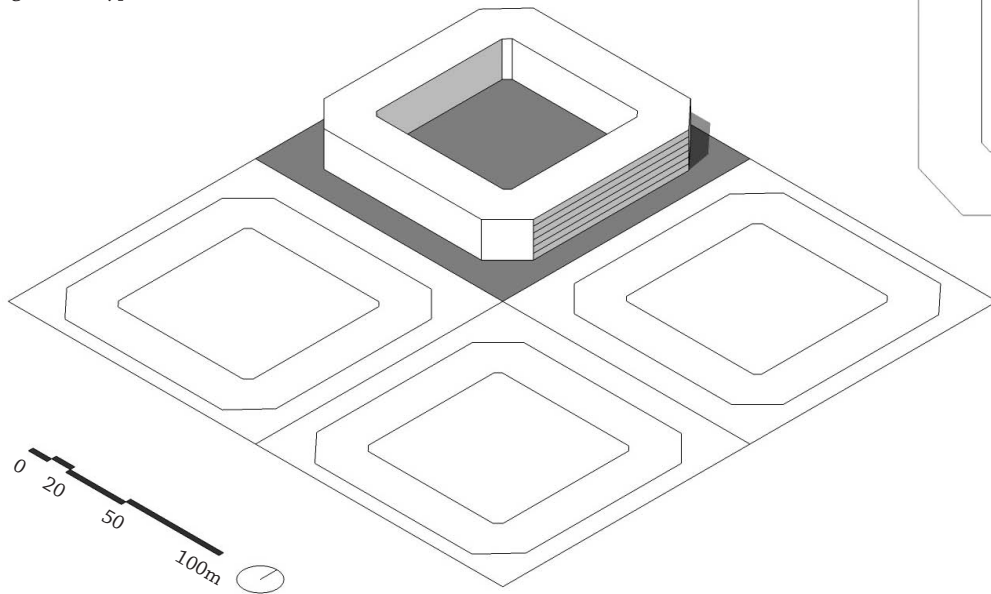
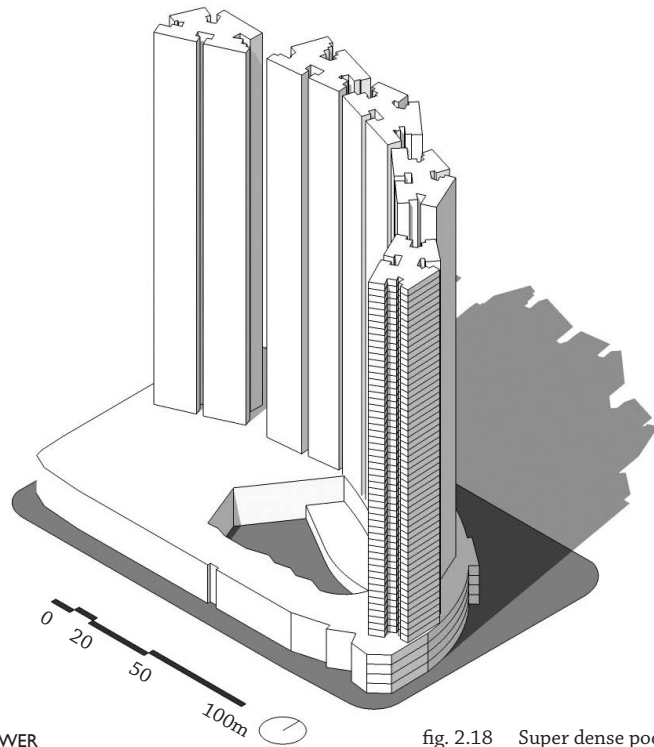


fig. 2.17 Perimeter blocks define the street while forming porous interior courtyards



PODIUM TOWER
Hong Kong

fig. 2.18 Super dense podium tower in Hong Kong

SITE STATISTICS

Density (F.A.R) = 8.4

Building Height (storeys) = 4 podium + 55 tower

Lot Area (sq. m) = 26,502

LOT COVERAGE

Built Footprint = 61%

Greenspace = 9%

Paved Surface = 30%

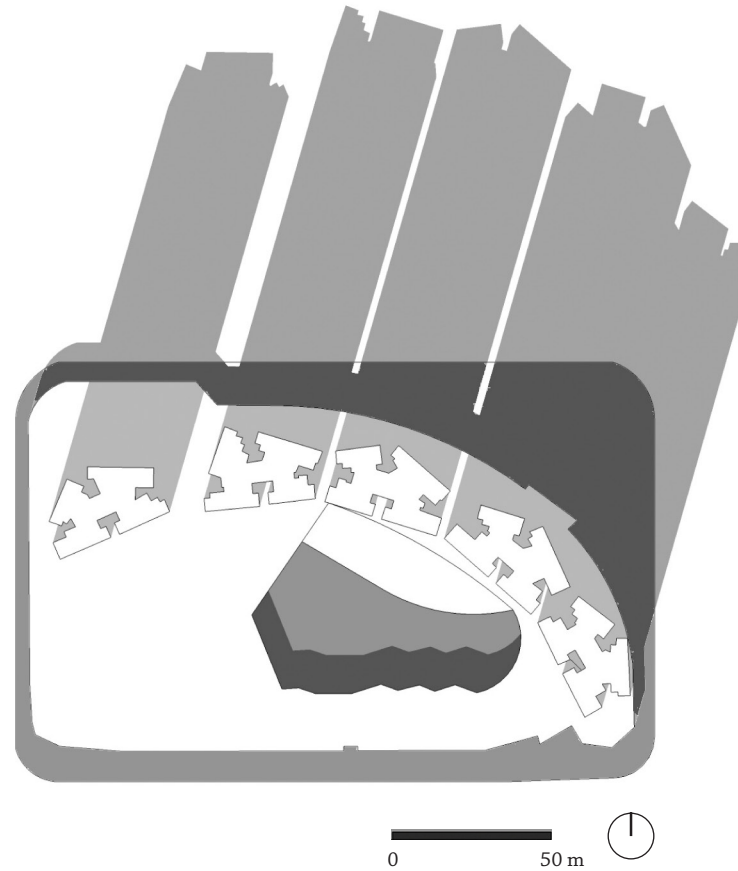
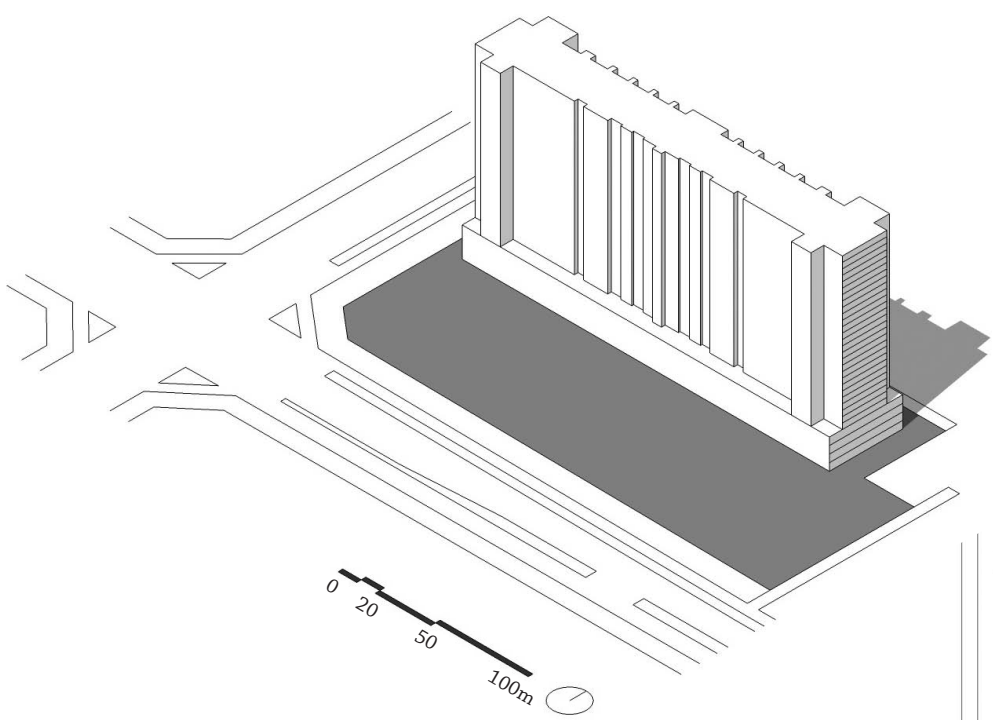


fig. 2.19 Podium occupies entire city block with multiple towers looming above



HIGHRISE TOWER
Yanta District, Xi'an City, Shaanxi

fig. 2.20 Highrise in Xi'an's Yanta District

SITE STATISTICS

Density (F.A.R) = 8.4

Building Height (storeys) = 4 commercial + 27 residential

Lot Area (sq. m) = 28,374

LOT COVERAGE

Built Footprint = 28%

Greenspace = n/a

Paved Surface = 72%

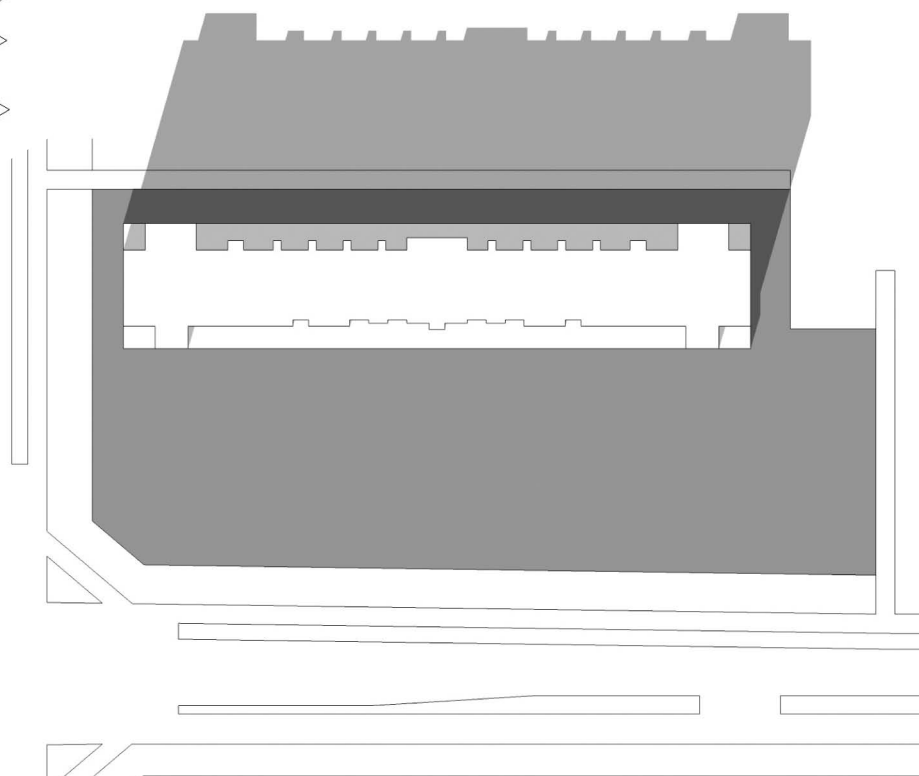


fig. 2.21 Highrise as density carrier set back from the street



had a wide, orthogonal street grid and introduced city blocks with one large courtyard space in the interior [fig. 2.17]. Repetition of these blocks with consistent spacing formed a uniform architectural field across the new city extension.

Post-Capitalist China will need to develop typologies, like the perimeter block, that relate to context and provide openness within density. A New *Danwei* Urbanism uses midrise block buildings to establish a perimeter that defines large open spaces on the site.

2.4.2 Podium Tower

The podium tower has been imported into China in its most extreme form, as a megaform that covers the whole urban block [fig. 2.18]. This condition is commonly found in Hong Kong where land is scarce and there is a need to maximize density [fig. 2.19].

Instead, the New *Danwei* utilizes the typology of the podium tower not as a megaform, but as a building on a platform that defines and connects it to adjacent spaces within the urban block.

2.4.3 Highrise Tower

Highrise towers are used in contemporary Chinese hyper-urbanism as repetitive objects that carry density without relation to the surrounding city [fig. 2.20]. This typology is the most widely used of those imported from the West but has the least potential to relate to historic Chinese urban fabric, which is mostly comprised of low-to-midrise buildings [fig. 2.21].

In order to relate to a traditional Chinese urban context, the highrise tower




in the New *Danwei* acts as a pagoda that looks out over the constructed landscape of the city block. It also centers the urban space as a sundial that traces shadow across the surface of public spaces at ground level.

2.4.4 The Westernized City

Contemporary Chinese hyper-urbanism has produced the Westernized City, which emulates the *tabula rasa* conditions of North American metropolises. This marks another wave of erasure of historical context in China in the footsteps of the methods initiated in the previous era. In addition to a denial of context through erasure, this has resulted in the widening and elevating of roads, neglect of the pedestrian scale by favoring high-rise and mega-scale building-objects, unproductive cosmetic application of landscape elements, and lack of variety caused by the segregation of distinct parts of city life. These developments can be seen in monotonous central business districts and high tech or economic development zones dominated by highrise offices and satellite towns formed by the repetition of gated tower communities. The speed of this transformation into the Westernized City in contemporary China continues the Maoist attitude that change should occur quickly over a short period of time.

Contemporary Xi'an

As an urban center in interior China with a slower pace of development, Xi'an has retained a larger portion of its historical Chinese urban formations but is, nevertheless, becoming the Westernized City. New residential and commercial developments have created tower communities, satellite towns, and business districts set apart from the street and mega-scale blocks detached from the low-to-mid rise buildings from an earlier era [fig. 2.21, 2.22].

-  Mixed-use
-  Industry and warehouses
-  Open space

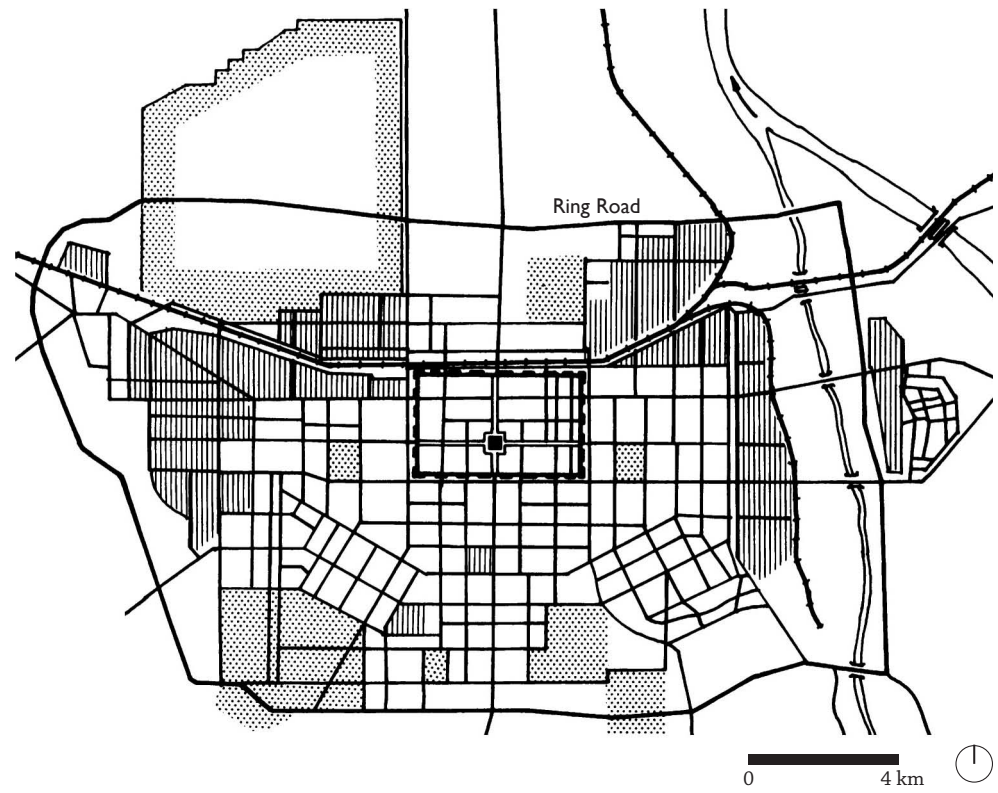


fig. 2.22 Expansion of Xi'an from 1980-2000

EDTZ Economic and Technology Development Zone

HTDZ High-tech Development Zone

CBD Central Business District

Central City

Satellite Towns

Historical Sites

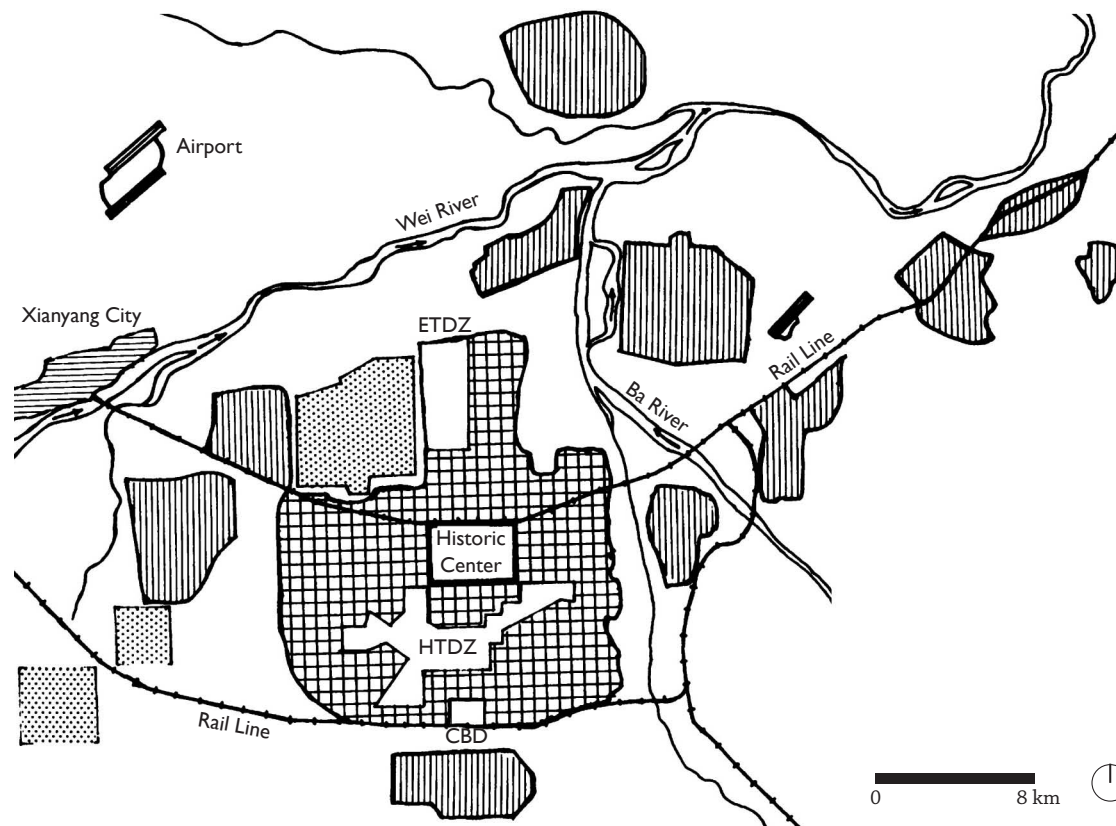


fig. 2.23 1995-2020 Official Plan for Xi'an showing development of tower districts and satellite towns

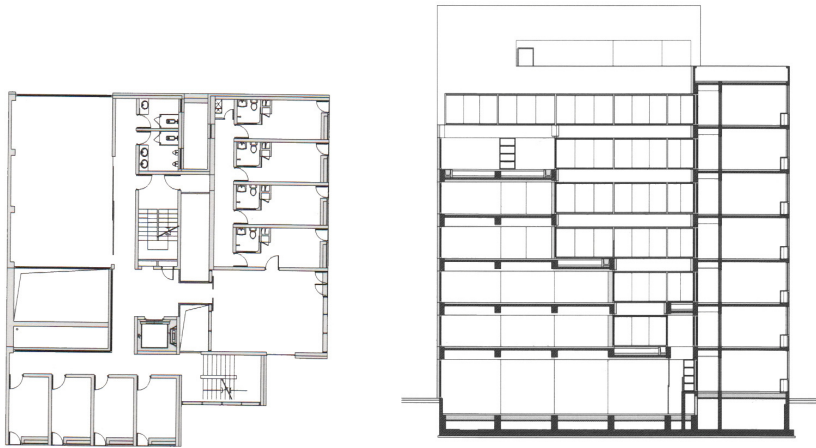


fig. 2.24 Morningside Center for Mathematics division in plan and section by scale changes



fig. 2.26 Variation of transparency in Upside-down Office to provide views while sitting



fig. 2.25 Pieced together facade in the Morningside Center for Mathematics



fig. 2.27 Movable bookshelves on bicycle wheels used transiently in Xishu Bookstore

Disintegration and Formation: Erasure and Monumental Blankness

The Westernized City continues the Socialist attitude of accelerated change and erasure of historical Chinese urban formations. Erasure has resulted in a gutting of parts of the city and has created spaces, like Tiananmen Square, on such a monumental scale that they are, inevitably, too blank. As noted by Sun Ke in the Republican Era, modernizing cities need defined open public spaces and parks at a realistic scale relative to the activities of daily urban life, not more monuments to a symbolic and hierarchical spatial order.

New *Danwei* Urbanism moves away from the method of erasure and monumental changes by suggesting that a subtle combination of curated demolition, layered with the insertion of new built form, can produce resultant spatial formations that promote intense, public cultural activity.

Absence and Presence: Ecological, Not Capital, Accumulation

Ecological mass is absent in the Westernized City because Capitalist-driven hyper-urbanism results in successive accumulations of building mass occupying large swaths of land.

New *Danwei* Urbanism indicates that the post-Capitalist Socialist Chinese city should accumulate ecological mass to resist the domination of building mass that congests the Westernized City.

Autonomy and Collectivity: Monumentality and the Pedestrian

Monumental buildings and spaces in the Westernized City resist

connection with surrounding urban elements. They can only be admired in their entirety from a distance.

In contrast, the pedestrian experiences the city from up close. A post-Capitalist Socialist China will focus on pedestrian connection to buildings.

2.5 POST-CAPITALIST CHINESE SOCIALISM

China must look for new forms of urban spatial organization in post-Capitalist Socialist society. The following is a review of private architectural practices in China that could be classified as post-Capitalist in the sense that they have sought a distinctly Chinese approach to modernism. Their architecture is subtle and distinctly rooted in the vernacular culture. These architects are not simply copying from the West or from traditional Chinese architecture; they are digesting it and presenting personal interpretations to resolve problems of the modern hyper-urban setting.

2.5.1 Yung Ho Chang (b. 1956)

Yung Ho Chang is critical of the current Westernized City in China. He terms it “the abstract city” or “city of objects” in which the primary propelling force for urbanization is a desire to exploit the efficiencies of the city for economic gain and productivity.⁶³ This attitude originated from the Socialist City, in which the emphasis was on producing economic advancement through rapid change towards monumental building. Chang argues for informal, small-scale, or subtle interventions in the city that engage directly with the promotion of urban culture. Then, architecture is no longer simply a tool for growing the economy or for reflecting

⁶³ Chang, “The Necessity of Banality,” 84.

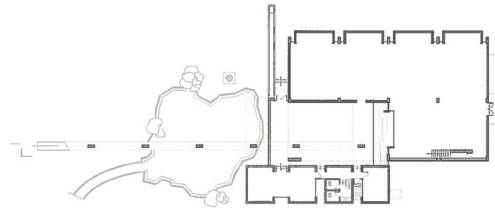


fig. 2.28 Floor plan Luyeyuan Stone Sculpture Museum, piecing together different scales

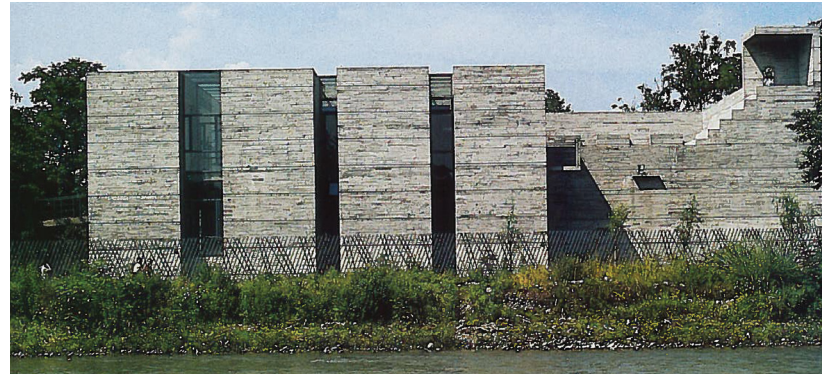


fig. 2.29 Liu's Luyeyuan Stone Sculpture Museum, zigzag motif and materiality in elevation



fig. 2.30 Luyeyuan Stone Sculpture Museum, alternating light and shadow

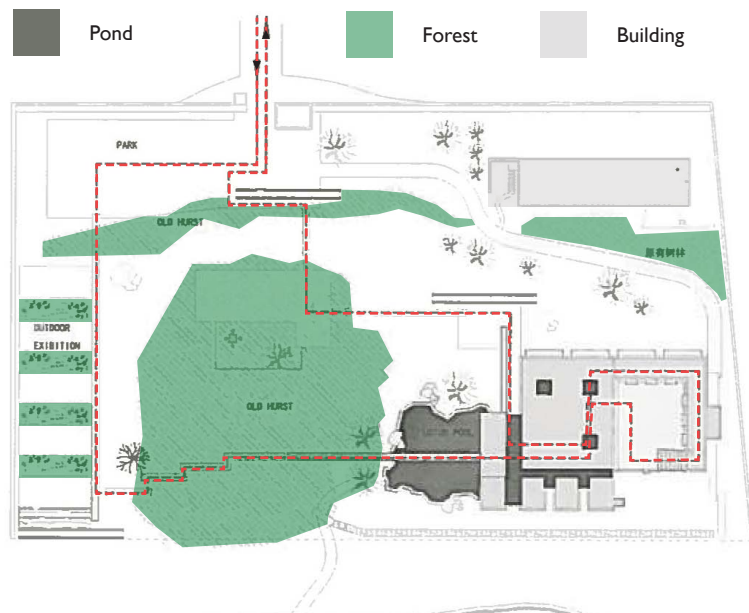


fig. 2.31 Luyeyuan Stone Sculpture Museum, balance between built and ecological mass



fig. 2.32 Luyeyuan Stone Sculpture Museum, zigzag path

newfound wealth.⁶⁴ Furthermore, he adds that urban planning codes perpetuate the city of objects and discourage the formation of articulate urban spaces.⁶⁵

Chang's architecture, completed in his Beijing-based practice Atelier Feichang Jianzhu, engages in a personal interpretation and transformation of traditional Chinese culture into conditions of modernity. For instance, in the Morningside Center for Mathematics in Beijing, he borrows the principle that division can create a sense of largeness in a tight space from the classical Suzhou gardens and applies it as a juxtaposition of differing spatial and visual scales that encapsulate the variety of the outside world within a single fairly compact building.⁶⁶ To evoke this variety, facades in his buildings are rarely one uniform plane; they are pieced together. His practice also engages architectural design from a highly experiential perspective based on personal reflections of the transient nature of daily activities. Xishu Bookstore, with its moving bicycle wheel bookshelves, and Upside-Down Office, with its inversion of frosting on glass office partitions to provide transparent views while sitting and obstructed views when standing, both reflect flexibility in architecture.

2.5.2 Liu Jiakun (b.1956)

Liu Jiakun is an architect working in Chengdu, Sichuan Province in China's interior. The location of his practice in an interior city allows him to experience a primitive state of nature and tradition in China while seeing

⁶⁴ Ibid., 88-89.

⁶⁵ Yung Ho Chang, "Architectural Education," *Architectural Design: Back to School* 74, no.5 (2004): 87-90.

⁶⁶ Gutierrez and Portefaix, *A Chinese Practice*, 69.



fig. 2.33 Jagged peaks of Mount Hua in Shaanxi Province

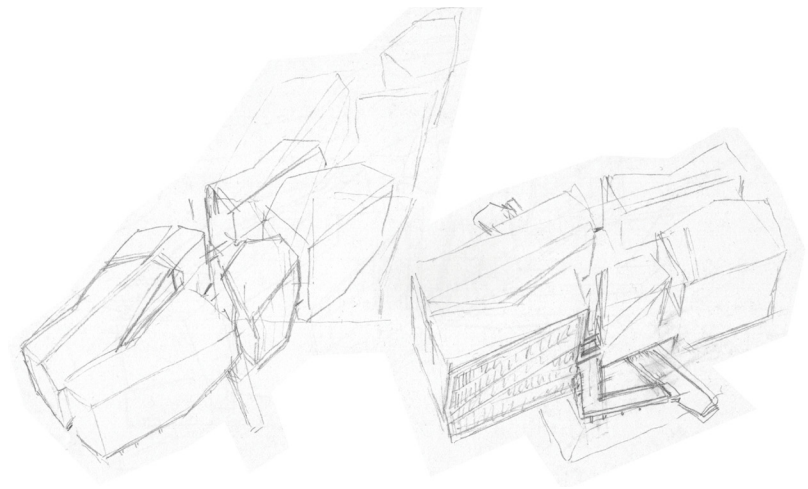


fig. 2.35 Wang's sketch of the Ningbo History Museum as a monolithic rock splitting apart



fig. 2.34 Massing of Ningbo History Museum like a mountain from afar



fig. 2.36 Village-like view of Ningbo History Museum from within

the Westernized City from afar.⁶⁷ Thus, he combines modern materials and minimalist tectonics with primitive or traditional design principles.

In his lecture, “Right Now Right Here,” Liu discusses his design for the Luyeyuan Stone Sculpture Museum. He treats the natural and man-made elements on the site equally, which references the traditional Chinese principle that humanity is defined only by its relative position within nature. The building mass and ecological mass, composed of a large clump of existing bamboo forest, are relatively similar in size. Like Yung Ho Chang, he also uses traditional Chinese design principles in his architecture. Circulation through the museum and the site connects the various elements in a zigzag path that evokes the continuous yet indirect circulation paths of the classical Suzhou garden. This zigzag motif reappears as part of the exterior concrete detailing. In plan view, the museum can be seen as a piecing together of distinct spaces that differ in scale, a traditional principle that Chang also applies in his Morningside Centre for Mathematics.⁶⁸ This indicates that traditional Chinese design principles can be applied in a flexible manner to differing conditions.

The materiality and rendering of shadow in Liu’s museum are primal—a mixture between Carlo Scarpa in its rough concrete and labyrinthine zigzag detailing and *Antro della Sibilla* (the Cumaen Cave of the Sibyl) in the alternating rhythm of light and shadow. It is a contemporary building that looks and feels old despite the use of the modern materials concrete

67 Jiakun Liu, “Right Now Right Here” (lecture, the University of Hong Kong Faculty of Architecture, Hong Kong, November 16, 2012), <http://www.arch.hku.hk/event/liu-jiakun-about-my-work/?subcat=fall-2012-public-lecture-series>.

68 Ibid.

and glass. Textured concrete in the museum evokes the aging of exterior brick walls in traditional Chinese houses.

2.5.3 Wang Shu (b.1963)

Wang Shu’s practice, Amateur Architecture Studio, is located in Hangzhou, Zhejiang Province. Hangzhou is one of the main cities of cultural importance in the lushly vegetated *Jiangnan* region of Southern China. This region is famous for its classical Chinese villages and gardens.

The intimate relation of Wang’s buildings to massive landscape formations implies that landscape and architecture are one. This reflects the traditional Chinese view of architecture as a dialectal composition of half landscape half building. In a lecture, Wang recalls his younger days drifting nomadically across the Chinese landscape. At one moment when he was hitchhiking westward after crossing the border from Shanxi into Shaanxi Province, he noticed the Western Peak of Mount Hua emerging from the distance. To him, the peak appeared to be a single rock cracking open into large jagged pieces.⁶⁹ This vision of the dramatic landscape in Shaanxi is transferred into Wang’s massing for the Ningbo History Museum as a monolithic building at the bottom that cracks open into five separate chunks at the top. The museum feels like a mountain from afar and village from within.

2.5.4 Yu Kongjian (b.1963)

Yu Kongjian is a landscape architect working in contemporary China. While his practice, Turenscape, is located in Beijing, his work has stronger

69 Shu Wang [王澍], “The Philosophy of Architecture [建筑的哲学],” *Civilization Tour* [文明之旅], CCTV 4, August 8, 2012), <https://www.youtube.com/watch?v=6Gy1-bLNXAE>.

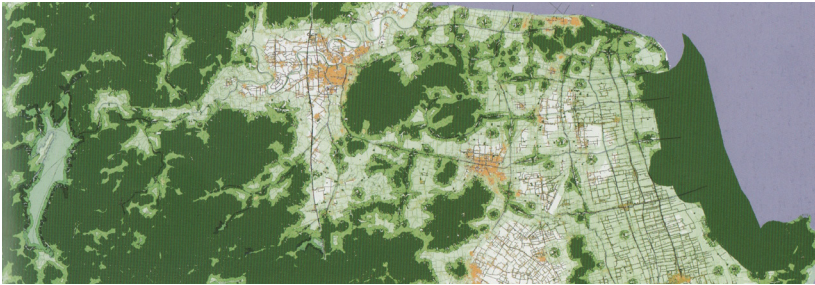


fig. 2.37 Yu's negative planning to establish security patterns for biodiversity in Taizhou



fig. 2.38 Planted rice rows framing paths in Shenyang Architectural University Campus



fig. 2.39 The Peasant's Approach to ecological mass in Shenyang Architectural University

ties to his childhood memories as a son of a farmer living in the productive cultural landscapes of rural Zhejiang Province.

He is interested in restoring, to the Westernized City, a sense of landscape architecture as the interconnectedness between “natural, cultural, and spiritual processes.”⁷⁰ Thereby, his work links ecology with the creation of cultural identity, which is present in the countryside but absent from the Westernized City. Like Liu and Wang, he references the traditional Chinese principle that man and nature are one⁷¹ and, therefore, can be balanced in a dialectical manner as opposing yet complimentary forces. Yu values what he terms “the peasant’s approach” to the creation of meaningful “deep forms” in landscape that connect nature and culture at both “regional and experiential scales.”⁷² In this method, he distills the following agricultural strategies of modifying landscape for cultural needs in everyday rural life: (1) cut and fill, (2) frame and access, (3) irrigate and fertilize, and (4) grow and harvest.⁷³ In his lecture entitled, “Think Like a King, Act Like a Peasant,”⁷⁴ Yu suggests that these modest vernacular strategies are applied to his projects to create grand, large-scale effects of ecological mass defining open spaces in Chinese cities.

Another aspect of Yu’s work combines Ian McHarg’s ecological method⁷⁵ with traditional Chinese *Fengshui* principles as “negative planning” in which information is mapped out in layers, so designers can analyze the implications of the resultant overlapping forms to determine the proper site location for urban development.⁷⁶ This relates to Stan Allen’s idea that moments of intensity in an architectural field materialize as “thickened surfaces.”⁷⁷ Thickening can be achieved through the ecological design framework as concentrations of mass in places where the layers overlap. In a dialectical application of the Incomplete Theory of Architecture from the first chapter of this thesis, intensity can also be achieved inversely as a thinning or disintegration of mass in the architectural field.

70 Yu and Padua, *The Art of Survival*, 19.

71 Gutierrez and Portefaix, *A Chinese Practice*, 5.

72 Kongjian Yu, “Creating Deep Forms in Urban Nature: The Peasant’s Approach” in *Nature and Cities: Urban Ecological Design and Planning* (Austin, TX: UT Austin School of Architecture; Cambridge, MA: Lincoln Institute of Land Policy, 2014), 1.

73 Ibid., 4-8.

74 Kongjian Yu, “Think Like a King, Act Like a Peasant” (lecture, ETH Zurich, Zürich, CH, June 21, 2013), http://www.multimedia.ethz.ch/episode_play/?doi=10.3930/ETHZ/AV-bd5d7aeb-ac3b-4a90-a490-ee593a9cb12f.

75 Swaffield, *Theory in Landscape Architecture*, 38-42.

76 William S. Saunders ed., *Designed Ecologies: The Landscape Architecture of Kongjian Yu* (Basel, CH: Birkhäuser, 2012), 201-2.

77 Allen, “Field Conditions,” 98.

2.5.5 The Post-Capitalist Socialist City

The post-Capitalist Socialist Chinese city will arise from a layering of interconnected systems that are complimentary rather than contradictory.

It will transform the monotonous and polarized Westernized city through acknowledging the processes of disintegration and formation, absence and presence, and autonomy and collectivity in creating socially, psychologically, and ecologically viable urbanization patterns.

Architecturally, this can manifest through an evaluative interpretation, not imitation, of historical Chinese spatial tendencies in a socially activating urbanism that promotes the creation of coherent yet distinct entities and re-associates productive ecological systems with cultural activities.

Composition of the New *Danwei* in the post-Capitalist Socialist city will involve the breaking up of spaces and facades of differing scales as demonstrated by Chang and Liu. Also, Chang's focus on transient, personal activities in architecture relates to the new layer of un-insulated covered spaces for informal gathering and exchange in the new *danwei*. Liu, Wang, and Yu's work demonstrate the traditional tendency to balance built mass with ecological mass and can be applied to the new *danwei* to produce meaningful associations between nature and culture. Finally, Yu's negative planning techniques inform the creation of intensity in the architectural field as defined public spaces of relative thinness or emptiness.

CHAPTER 3: THE *DANWEI* AS CAMPUS

A New *Danwei* Urbanism not only requires an understanding of the implications of historical and typological context. Precedents for design at the scale of the city block appropriate to the current *danwei* also need to be established. Campuses can provide design precedents for the *danwei* in a post-Capitalist Socialist setting.

The university campus is one of the major generators of the urbanization process in the contemporary Chinese city. This can be seen through the littering of track fields in aerial views and from the establishment of university districts, such as Beijing's Haidian District, in some of China's traditional cultural urban centers. There are around 30 public universities in the Greater Xi'an Area, around 30 in Shanghai, and more than 60 in Beijing. These three cities also hold the highest concentration of Project 211 and Project 985 universities, which have been identified as the primary national level institutions with the most funding and best academic reputations. In China, university campuses are, for the majority, conceived as *danwei*. Thus, the primary difference between the Western concept of campus and the Chinese *danwei* campus is that the latter houses staff and faculty primarily on or adjacent to gated campus grounds whereas the former only accommodates student residences and, often times, are not gated. Nevertheless, both facilitate the sharing of resources by the grouping of buildings for the various parts of daily life. In this way, they are mostly self-sufficient entities within the city. At the same time, they also draw on the cultural richness and wide range of resources from the surrounding city.



fig. 3.1 Balance of ecological and built mass, Xiangshan
Campus of the China Academy of Art

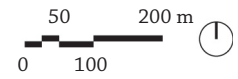




fig. 3.2 Pagoda-like exterior circulation on the office and art studio tower in Xiangshan Campus

A new *danwei* operates as a campus with intensified defined public spaces and street frontages, increased mixture of different program, productive ecological mass, and un-insulated covered spaces for semi-outdoor activity. The thesis argues that the campus *danwei* can be conceived in a dialectical manner in which richness comes from a post-Capitalist Socialist notion that efficiency comes from the exchange of knowledge facilitated by proximities between distinct entities and by the establishment of outdoor spaces for social, cultural, and ecological associations.

3.1 XIANGSHAN CAMPUS OF THE CHINA ACADEMY OF ART

Architect: Wang Shu

Location: Hangzhou, Zhejiang Province

Academic programs: school of design, school of architectural art, public art institute, media and animation institute

Wang's Xiangshan Campus can be understood as the balance of absence and presence, ecological mass and architectural mass. His design is inspired in part by the original plan of Hangzhou as half city half nature in accordance with traditional Chinese principles.⁷⁸ The built mass of the campus is relatively equal to the ecological mass of the hill it surrounds.

The campus can also be seen as a non-hierarchical, shifting arrangement of generic typologies: the courtyard building, the tower, and the long block gallery. Campus buildings are arranged around the base of an existing

⁷⁸ Shu Wang, "From Heart to Hands: To Reconstruct the Living Places in Collapsing Traditional Cities" (lecture, Harvard GSD, Cambridge, MA, February 27, 2008), <http://www.gsd.harvard.edu/#/media/from-heart-to-hand-wang-shu.html>.

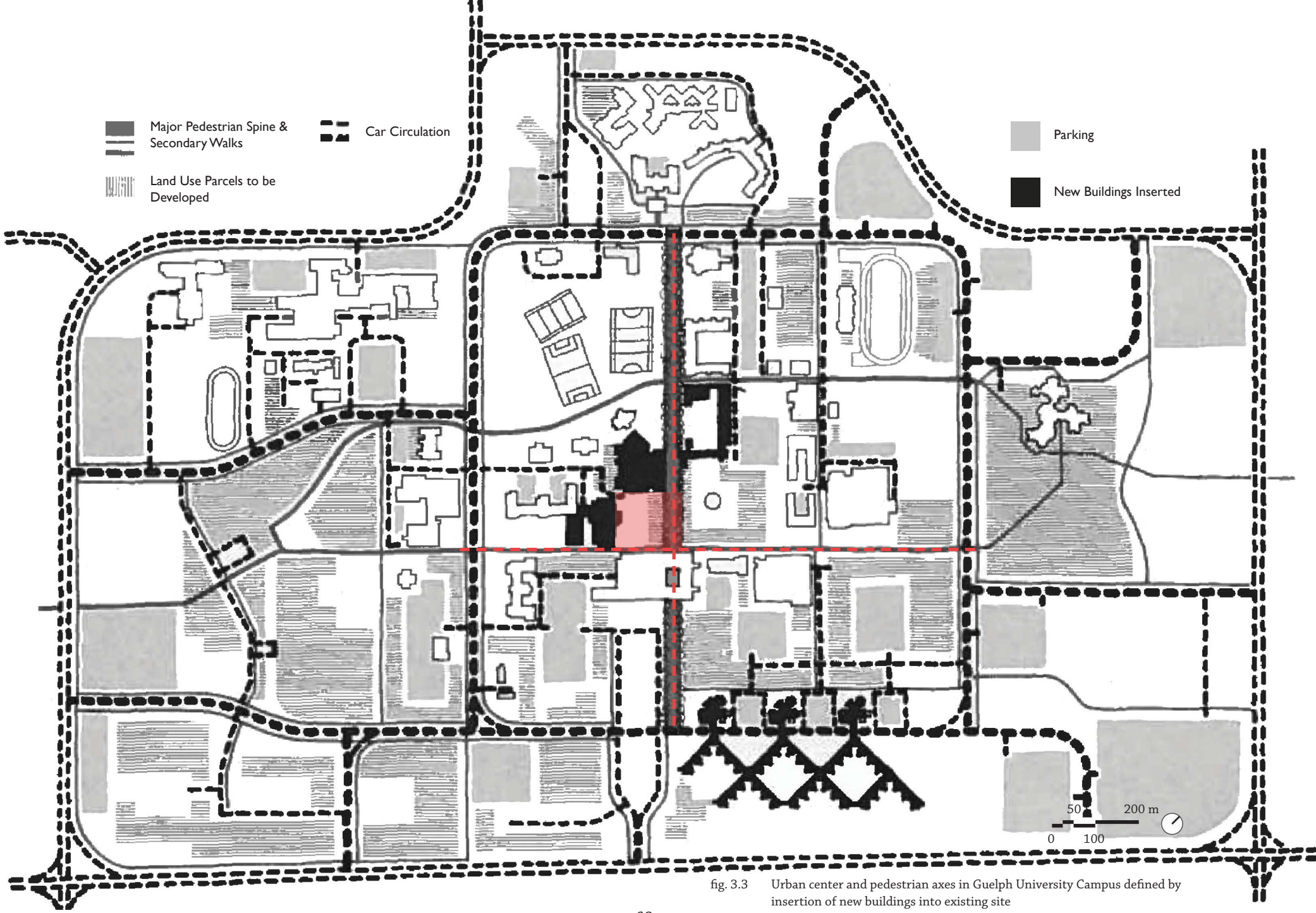


fig. 3.3 Urban center and pedestrian axes in Guelph University Campus defined by insertion of new buildings into existing site



fig. 3.4 North-south pedestrian and bike path looking south towards urban center



fig. 3.5 Guelph University urban center at the intersection of defined pedestrian axes



fig. 3.6 East-west pedestrian and bike path looking east towards urban center

hill in a seemingly irregular village-like pattern. However, an underlying spatial sequence of varying courtyard conditions is present. There is an alternating rhythm of courtyards that (1) open and orient towards the hill, (2) open away from the hill, and (3) are closed on all sides.

Other elements of traditional Chinese design appear in the campus. The studio tower, with its square footprint and externalized circulation, is used in the traditional sense as a pagoda that looks out over the landscape. Circulation is externalized in a continuous winding path that evokes the indirect zigzag paths of the classical Chinese gardens in neighboring Suzhou. Buildings are shifted and misaligned from orthogonal position to allow people to see more than one elevation simultaneously.

The result of these architectural moves is to provide various informal spaces for outdoor gathering. This promotes the cross-fertilization of knowledge between students, faculty, staff, and outside visitors in the campus.

3.2 GUELPH UNIVERSITY CAMPUS

Architect: José Luis Sert

Location: Guelph, Ontario

Academic programs: agriculture, veterinary medicine, arts and sciences

Whereas Wang Shu's Xiangshan Campus is a web of various village-like gathering spaces encircling a central landscape mass, Sert's Guelph University is one defined urban space occupying the campus center. Sert's plan for Guelph University touches on issues of autonomy and collectivity in campus urbanism. The overall strategy transforms a dispersed rural

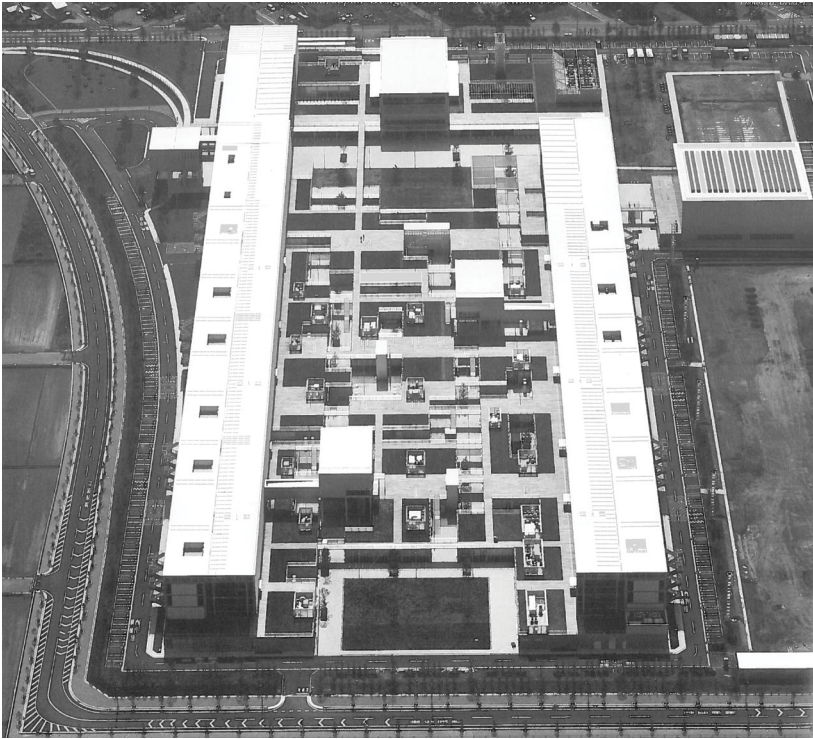


fig. 3.7 Aerial view of Saitama Prefectural University Campus as a megaform comprised of two, four storey long bars connected by a one-storey platform with void cutouts



fig. 3.8 Cave dwellings in voids cut into the Loess Plateau in Northern Shaanxi Province

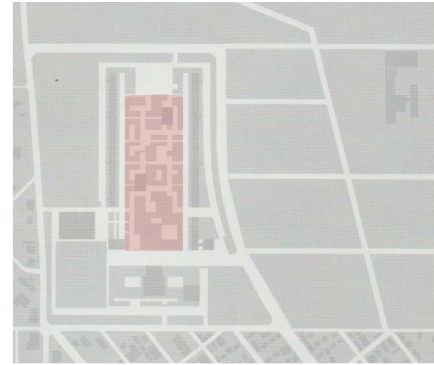


fig. 3.9 Platform as connective tissue, site plan of Saitama Prefectural University

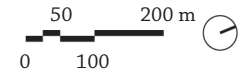


fig. 3.10 Section of Saitama Prefectural University

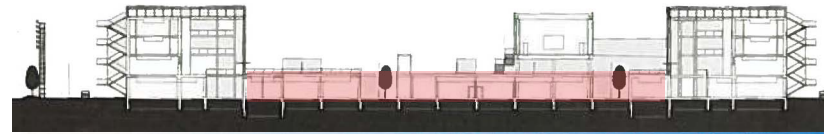


fig. 3.11 View of Saitama Prefectural University from outside the campus



fig. 3.12 Platform

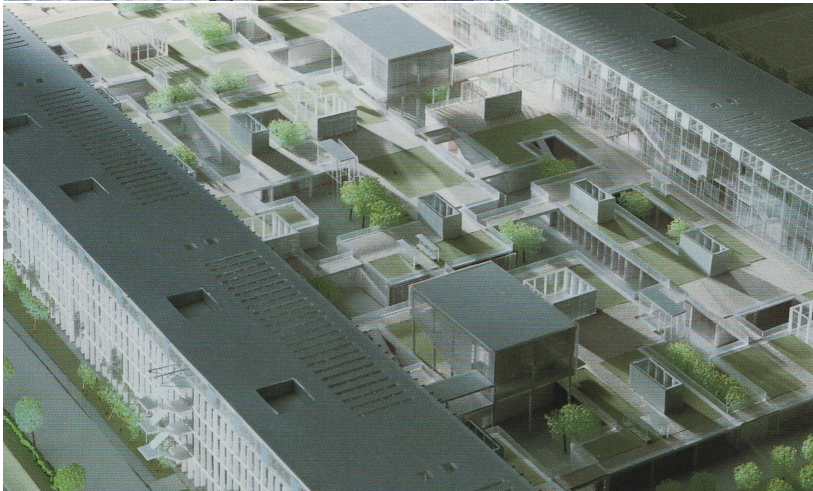


fig. 3.13 Model of Saitama Prefectural University

campus into an active urban center.⁷⁹ Existing buildings of varying age, style, materiality, and scale are unified and connected through the creation of a pedestrian urban center for the campus. Car traffic is limited to the exterior layer in order to free up the center for pedestrians and bicyclists.

The Guelph University Campus also engages the process of disintegration and formation in the layering of existing and new buildings. Insertions of new buildings into the existing condition reinforce and define the creation of a new resultant pedestrian space at the heart of the campus. As a newly defined public open space within the academic area, the urban center promotes informal social exchanges that fuel the growth of a dynamic campus culture.

3.3 SAITAMA PREFECTURAL UNIVERSITY CAMPUS

Architect: Riken Yamamoto

Location: Saitama, Japan

Academic programs: nursing, rehabilitation, social welfare

This design explores ideas of autonomy and collectivity in the campus through the use of a 1-storey platform as the main connective tissue for the entire university. The platform lies between two, 4-storey rectangular buildings containing the 4-year senior college and 2-year junior college. The campus is not spatially divided into departments. Instead, Yamamoto mixes the laboratories and study spaces for all departments in the first level of the campus.⁸⁰ This encourages the interaction of students across

⁷⁹ "Designing for Growth: The Metamorphosis of a Rural Campus into a University Town," *Architectural Record* 151, no. 5 (May 1972): 89.

⁸⁰ Riken Yamamoto and Wilhelm Klauser, *Riken Yamamoto* (Basel, CH: Birkhäuser, 1999), 104-6.

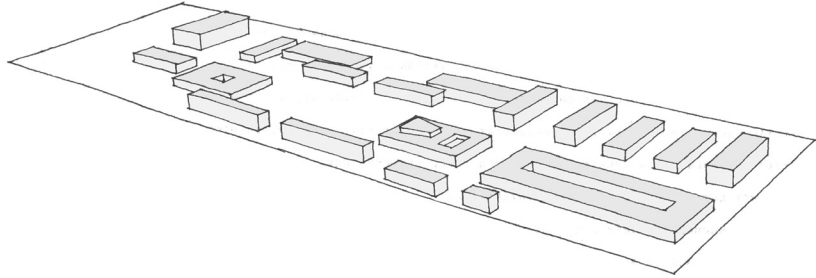


fig. 3.14 Eisenman's diagram of IIT Campus as a balance of positive and negative volumes



fig. 3.16 Void spaces, IIT Campus site plan

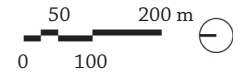


fig. 3.15 Aerial view of IIT Campus in relation to surrounding city context

departmental boundaries.

3.4 ILLINOIS INSTITUTE OF TECHNOLOGY (IIT) MAIN CAMPUS

Architect: Ludwig Mies van der Rohe

Location: Chicago, Illinois

Academic programs: engineering, architecture, design, law, science, psychology, business, communications, industrial technology, information technology

Mies' IIT blurs the line between absence and presence, figure and ground. Peter Eisenman analyzes the IIT campus as a composition of interchangeable positive and negative volumes. In this analysis, building blocks are positive and the spaces between them are negative. Positive and negative are interchangeable because they share a similar scale and arrangement. The unity of the overall composition comes from the interlacing of built figures and open ground.⁸¹ In the article "Mies and the Figuring of Absence," Eisenman also asserts that IIT can be seen as an "extension of the prairie into the city."⁸² Absence or void along the campus perimeter sets it apart, as a conceptual fence, from the presence of densely built urban context. Rem Koolhaas, in his article "Miestakes," observes that Mies' original use of absence to define the campus from the city is no longer clear with the present-day dilapidation and disappearance of urban context. In other words, Mies' IIT is dependent on its relation to the surrounding city because the emptiness of the campus can only be

81 Peter Eisenman, *The Formal Basis of Modern Architecture* (Lars Muller Publishers, 2006), 60-61.

82 Eisenman, *Written into the Void*, 102-07.

understood against the fullness of the city.⁸³ This suggests a dialectical relationship between the campus and the city as distinct yet entirely interdependent systems.

3.5 THE NEW DANWEI

The formal characteristics and scale of the new *danwei* are based on building typologies and arrangements found in the four campuses discussed above. Relevant design principles from Wang's Xiangshan Campus for the establishment of a New *Danwei* Urbanism are non-hierarchical deployment of typologies across the site, pagoda-like use of exterior circulation on the tower to provide connection with the landscape, acknowledgement of ecological mass, and focus on spaces for informal social and intellectual exchange. Sert's Guelph University Campus is a precedent for designing active pedestrian circulation networks independent from car traffic and for the definition of an urban center in the new *danwei*. Yamamoto's Saitama Prefectural University Campus is an example of programmatic mixing to facilitate informal exchanges that can be applied to the campus *danwei* to provide a dynamic mosaic of collective activity. Finally, Mies' IIT Campus demonstrates the use of liminal voids or absences to define the edge condition in a manner that also connects the university to adjacent city context. These ideas inform the interconnectedness between city and campus, ecology and culture, indoor and outdoor activity, and distinct programmatic and academic functions in a New *Danwei* Urbanism.

83 Rem Koolhaas, "Miestakes," *AAr* 23 (April 2004): 10-19.

CHAPTER 4: NEW *DANWEI* URBANISM

An existing university *danwei* located in Xi'an, a major urban center in China's interior, is the site for testing the dialectical principles of incompleteness in architecture relative to the trajectory of historical Chinese urbanisms and typologies and to campus planning. The design exercise applies the three layers of incompleteness in architecture, demolition as disintegration and formation, ecology as absence and presence, and un-insulated covered spaces as autonomy and collectivity, to the existing site. Together, these principles guide the formation of a New *Danwei* Urbanism based on complimentary rather than contradictory proximities between existing and new constructions, cultural activities and ecological mass, and indoor and outdoor activity. *Danwei* in a post-Capitalist Socialist setting takes the form of an urban campus that maintains shared proximities between distinct entities while facilitating a flow of intellectual and social activity from the surrounding city. Efficiency can be redefined in a post-Capitalist Chinese Socialism, not as anti-cultural architectures of excess for capital accumulation marked by speed, monotony, erasure, exploitation, denial of productive ecological mass, or segregation, but as coherent connections founded on proximities and layered systems that can mediate a wide range of independent or differing elements. This method addresses the necessity for a Chinese urbanism that is ecologically, psychologically, and socially viable. It is rooted not only in the Chinese culture, but also in the possibility for interconnectedness between distinct entities in a new Socialist modernity.

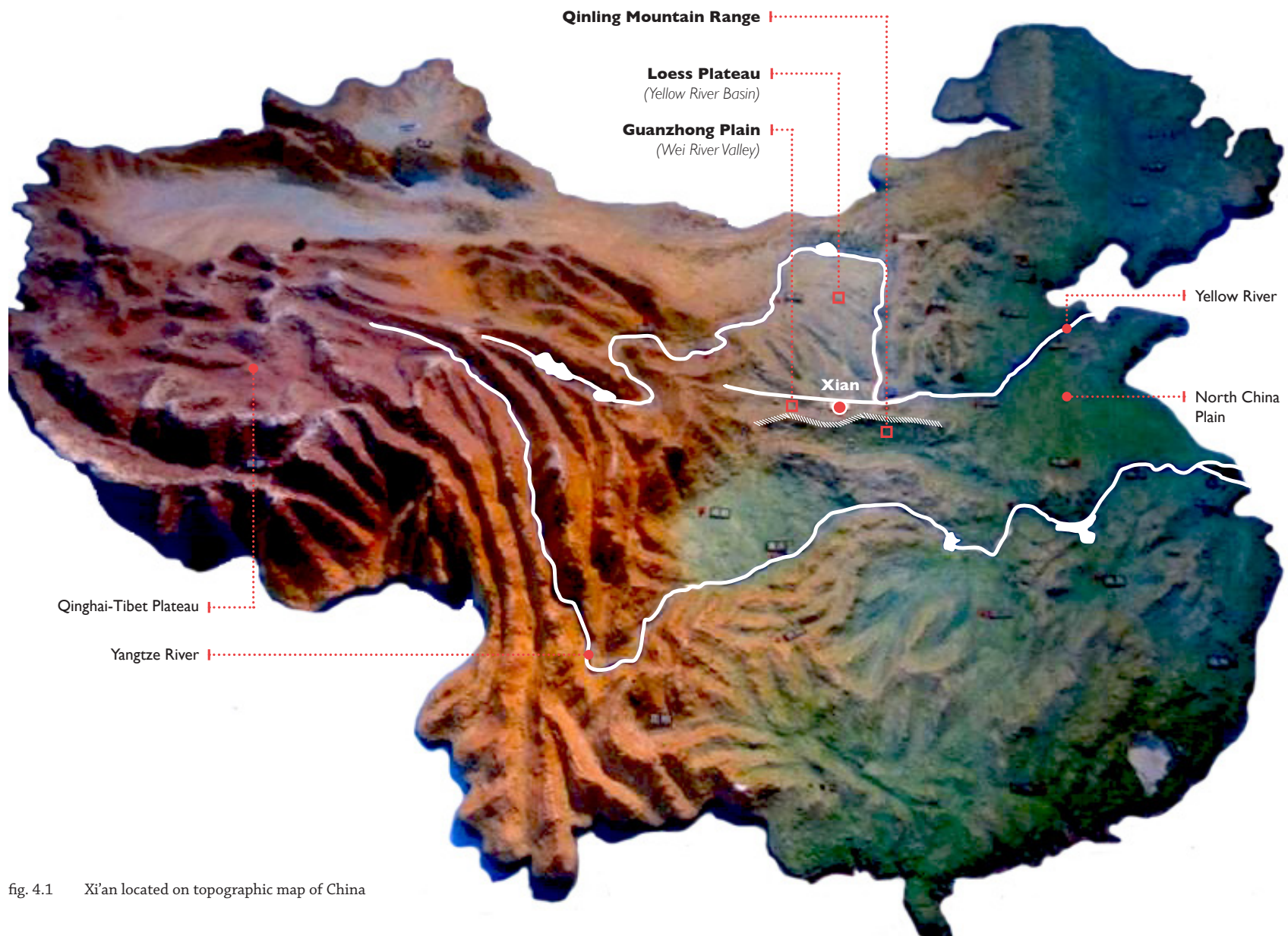


fig. 4.1 Xi'an located on topographic map of China



fig. 4.2 Map of provincial boundaries highlighting Xi'an's location in the Northwestern Region of China



- NORTHWEST CHINA**
(Shaanxi, Ningxia, Gansu, and Qinghai Provinces + Xinjiang Uyghur Autonomous Region)
- Located in interior China
 - Less developed economically than Coastal Region
 - Surrounded by vast, dramatic landscape features and ecologies (mountains, plateaus, rivers, deserts, wetlands, grasslands)
 - Significant presence of ethnic minority population
 - Contains a number of natural and historic sites of national and international cultural value (Terracotta Warriors; Silk Road; Mogao Caves; Tian and Hua Mountains; Qinling Mountain Range separating North and South China; Three Rivers Nature Reserve containing the headwaters of the Yangtze, Yellow, and Mekong Rivers; Qinghai-Tibet Plateau; Gobi and Tarim Deserts)

4.1 XI'AN CITY

Xi'an is a second-tier city located in interior North-Central China and is the gateway between the Northwest Region, dominated by a vast natural landscape, and the highly urbanized Eastern and Southern Coastal Regions. The city sits within the flood plain of eight surrounding rivers and streams in the Guanzhong Plain in Central Shaanxi Province to the north of the Qinling Mountain Range and south of the Loess Plateau. Intense agricultural cultivation and human settlement has taken place in this fertile region for thousands of years, creating a 30-100 cm anthropogenic layer of brown *Lou* soil from the accumulation of manure over Loessial soil.⁸⁴ As of 2010, the population has reached around 7.9 million in the Greater Xi'an Area and is projected to grow to 10.7 million by 2020.⁸⁵

The climate is temperate with an even distribution of all four seasons annually. Summers are hot and humid, springs are warm, falls are rainy and cool, and winters are cold with little accumulated snowfall. Temperature typically ranges from above thirty degrees Celcius at the highest to hovering around the freezing mark at the lowest. Annual rainfall is moderate.

Xi'an is an appropriate site for contemplating a New *Danwei* Urbanism because of its location in interior China, its historical significance as an ancient capital city. Interior Chinese cities have been less affected by hyper-urbanization due to its distance from the coastal regions. The

⁸⁴ Zhou, J., B. Liang, J. Yan, and W. Zhao, "Lou Soil, A Fertile Anthropogenic Soil with Thousands of Years of Cultivating History," Abstract, *American Geophysical Union* (December, 2012), <http://adsabs.harvard.edu/abs/2012AGUFM.B23J..05Z>.

⁸⁵ *Supersized Cities: China's 13 Megalopolises* (The Economist Intelligence Unit Ltd., 2012), http://www.liaa.gov.lv/files/liaa/attachments/eiu_accesschina_megalopolises_0.pdf

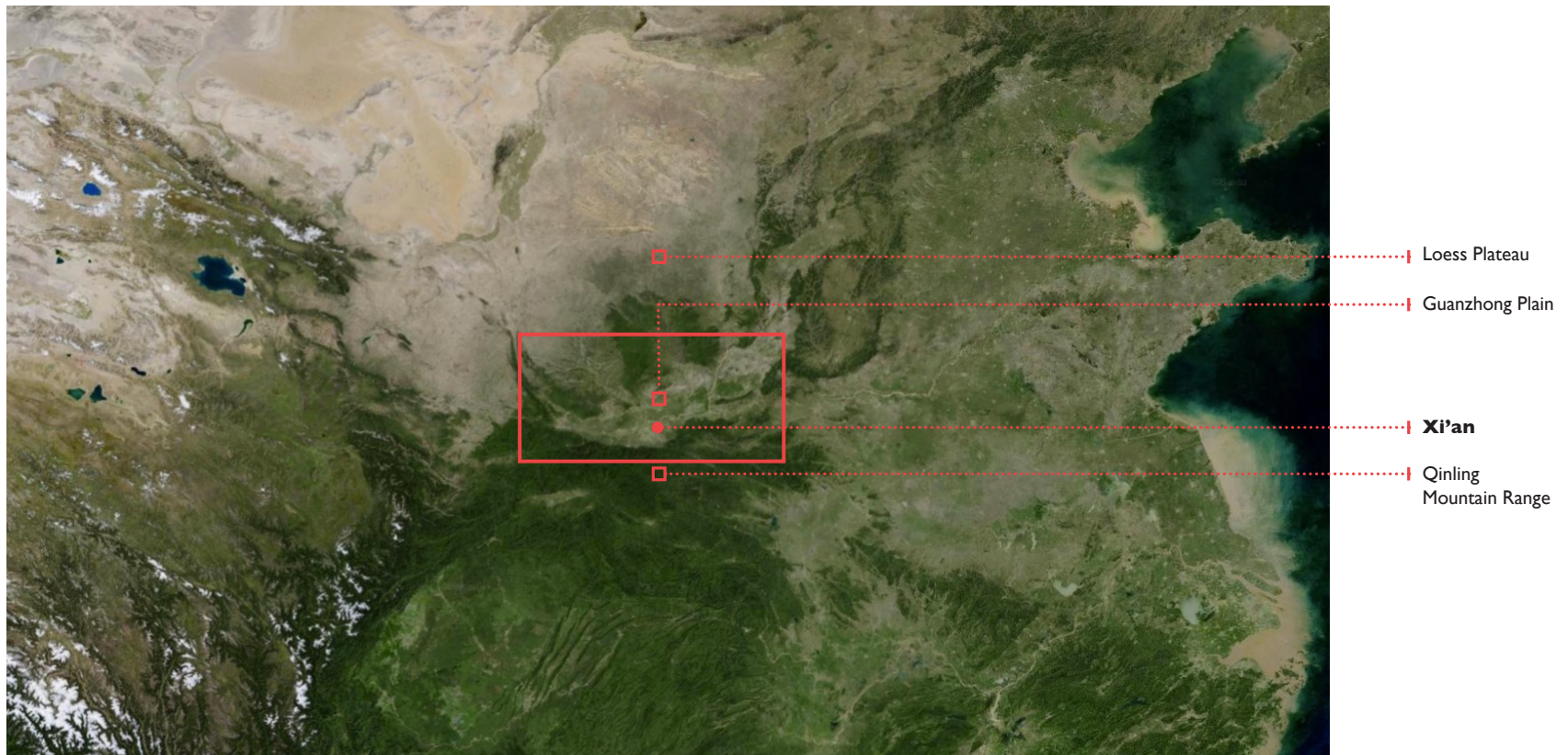


fig. 4.3 Satellite view of the Guanzhong Plain in North Central China

pace and scale of post-Reform urbanization in this area is slower and less intense. Rather than presenting this as negative or non-progressive, the thesis utilizes Xi'an's removal from hyper-urban influences as an advantageous condition in which it is still possible to interact with a trajectory of existing Chinese urbanisms accumulated over thousands of years within the same city. The Ancient Walled City, Socialist *Danwei* City, and Modernizing Highrise City are all visible within Xi'an.

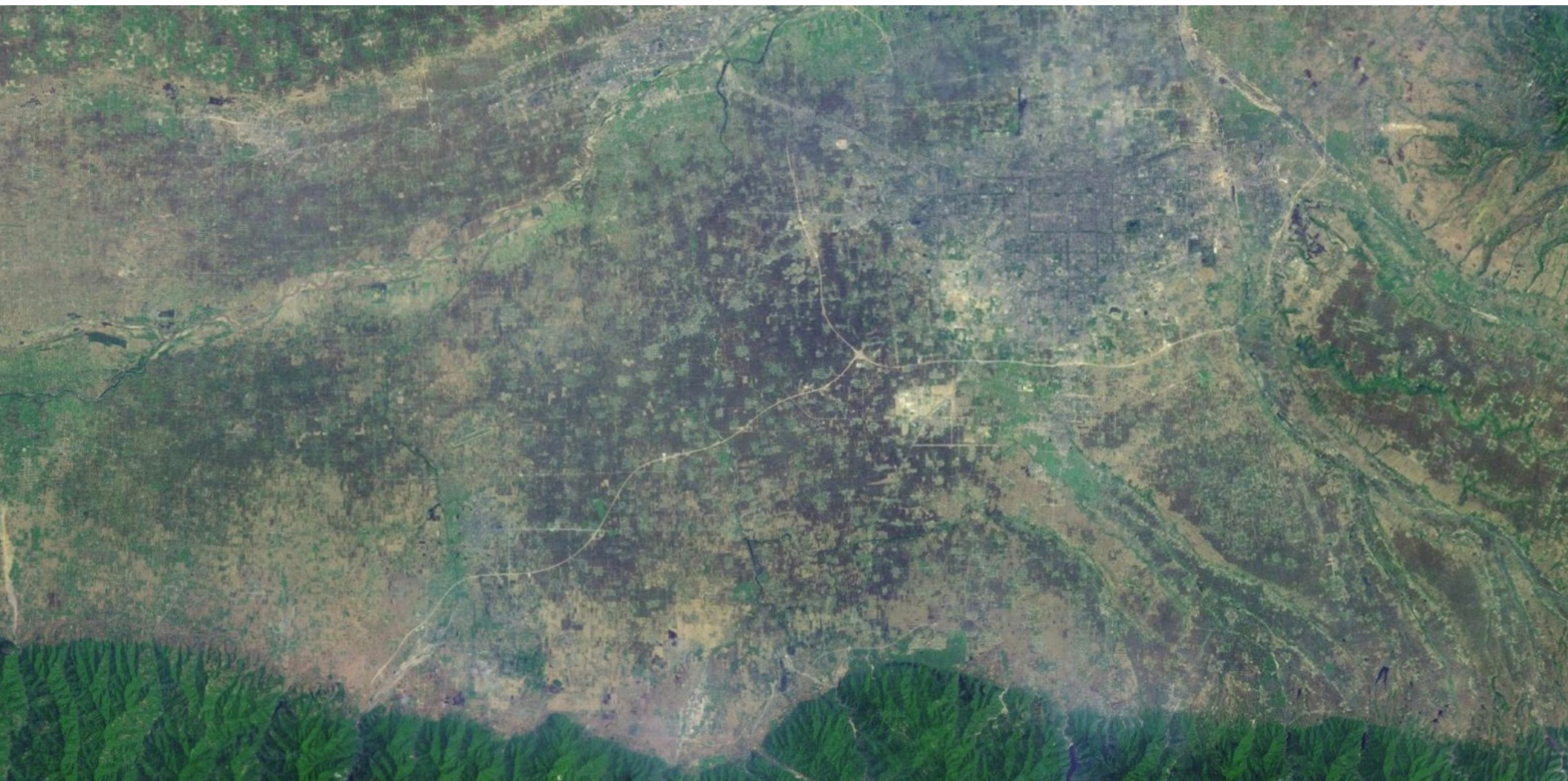


fig. 4.4 Satellite view of Xi'an and surrounding countryside village clusters in the Guanzhong Plain

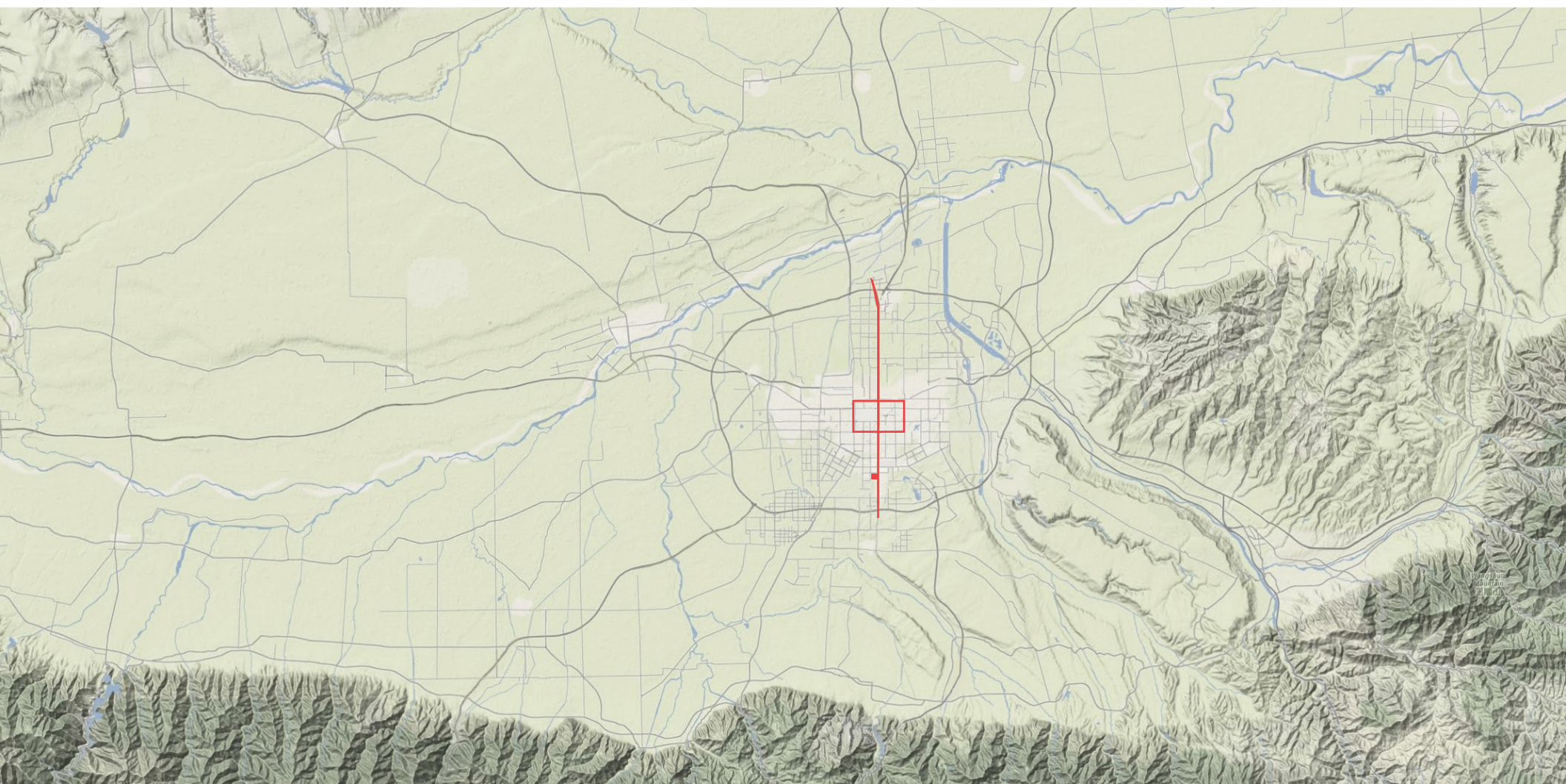


fig. 4.5 Terrain map of Xi'an highlighting the historic inner city wall and *danwei* site along the main north-south axis



fig. 4.6 View of road leading to the outer city south of Xi'an's historic inner city wall



fig. 4.7 Tower-lined road bridging over the moat around exterior of the old city wall



fig. 4.8 View of Xi'an from on top of the city wall towards the low-to-mid rise inner city to the left and the highrise outer city wrapping around the outside of the wall to the right



fig. 4.9 Contemporary buildings in Xi'an imitating traditional curved temple or palace roofs (*dawuding*)



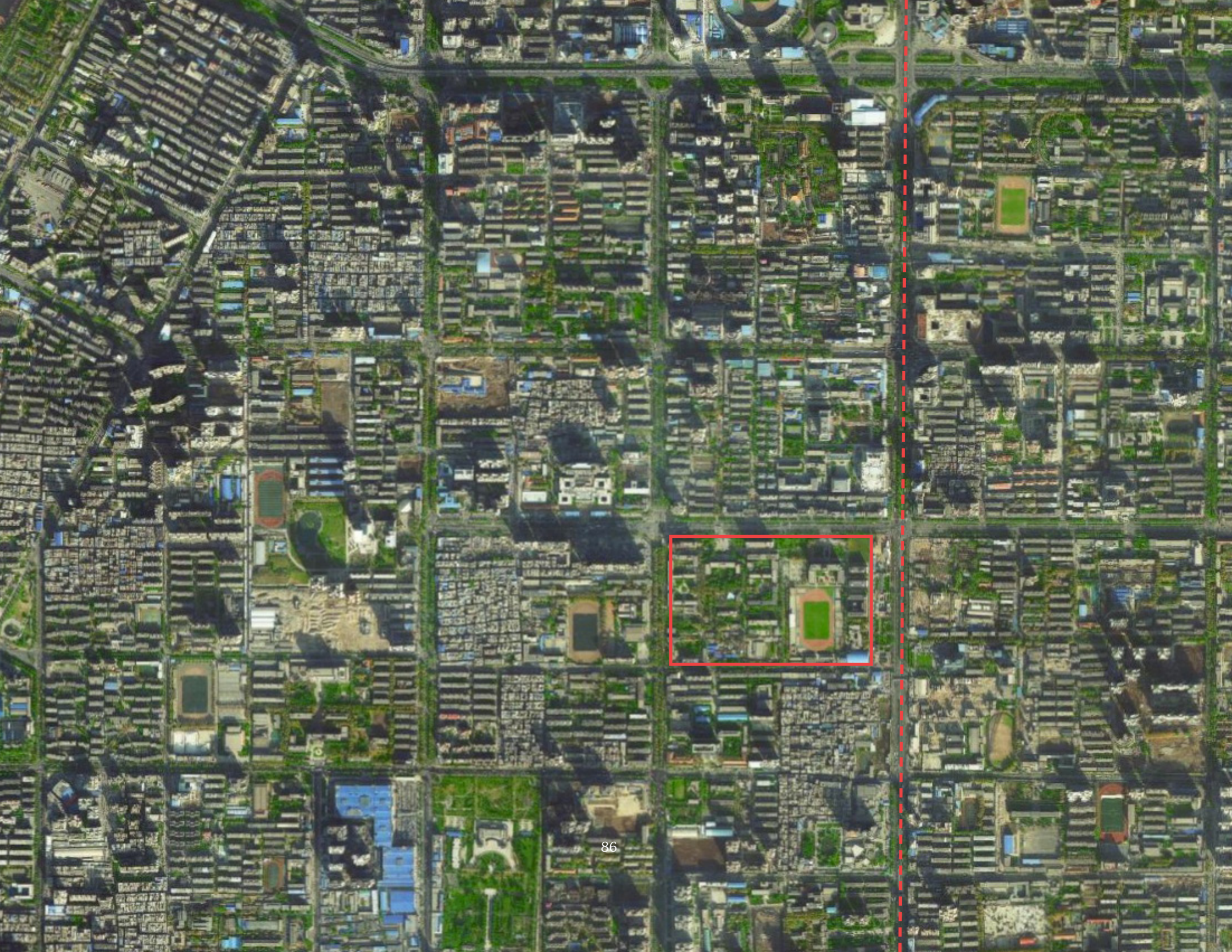
fig. 4.10 Western-style shopping mall and plaza in Xi'an



fig. 4.11 Urban activities taking place on paved surface in Xi'an City Wall Park occupying the space between the wall and the moat



fig. 4.12 View of the outer city skyline from within the inner city wall



4.2 DANWEI SITE

Founded in 1937, the Yanta Campus of Xi'an Jiaotong University contains approximately 4,300 students in the fields of medicine and finance.⁸⁶ It is located along the city's main north-south axis in the Yanta District to the south of the historic Imperial City walls and is a 30-40 minute commute from the old inner city center. Yanta is a cultural district containing a high concentration of university *danwei* campuses as well as historical cultural landmarks, such as the Giant Wild Goose Pagoda and the Shaanxi History Museum. City blocks here are similar to those in Europe in that they include a mixture of with stores, hotels, restaurants, markets, offices, banks, hospitals, campuses, and public transit within a relatively manageable walking distance. On campus academic programs include the Medical College, School of Public Health, School of Pharmacy, Institute of Forensic Medicine, School of Nursing, and Institute of Finance. It is also the site for various laboratories and institutes for teaching and research, including the Ministry of Education Medical Education and Training Center and research laboratories for genetics, diseases, and experimental medicine. Student residences are provided on site or in a nearby gated plot while faculty and staff live in a *danwei*-owned gated housing community across the street that also houses employees from the adjacent hospital *danwei* affiliated with the Jiaotong University Medical College.

The existing *danwei* condition does not take full advantage of the

86 Xian Jiaotong University, "Medical Department," accessed March 8, 2015, http://www.xjtu.edu.cn/new_yxb_xynr.jsp?urltype=tree.TreeTempUrl&wbtreid=1757.

fig. 4.13 Satellite view of the *danwei* site within Yanta District, note the ubiquity of track fields indicating the high concentration of university *danwei* in the area

proximity between workplace, residential, and social service activities. In fact, efficiencies that are facilitated by these proximities are increasingly disappearing due to the dispersal of *danwei* housing into areas of the city far away from the workplace rather than densifying the swaths of wasted undefined open spaces inside the enclosing wall. The campus *danwei* in its current condition negates both the city and the street through the use of a gated enclosing wall. This can be solved by removing the enclosing wall, adding density, and creating defined or covered public spaces on site for exchanges between city residents and the academic campus community. To connect distinct campus entities, laboratories and study areas for teaching schools and research institutes are mixed regardless of academic specialty. Furthermore, a mosaic of buildings with various commercial, leisure, mixed-use, residential and production-oriented program found in other parts of the city are introduced into this rigid institutional setting to facilitate efficiencies in the interconnection, not separation, of daily urban activities. For example, a reduction in car traffic and parking is achieved through a car-sharing system in which those affiliated with the campus can rent cars owned by the *danwei* for collective use. Public transportation is also easily reached by walking or biking to the bus stations along the *danwei* periphery or by two subway stations one block to the north or south along Chang'an Street. Biking, taking public transit, and walking are made possible by the interconnections and proximities between various parts of daily life in the campus *danwei*. Productive ecological mass supplants cosmetic plantings and lawns to create a complimentary association between nature and *danwei* culture. Finally, pedestrian and bike circulation is re-organized as an independent system of paths and un-insulated covered spaces to draw people from private indoor activities into collective urban exchanges of a public nature occurring outdoors.

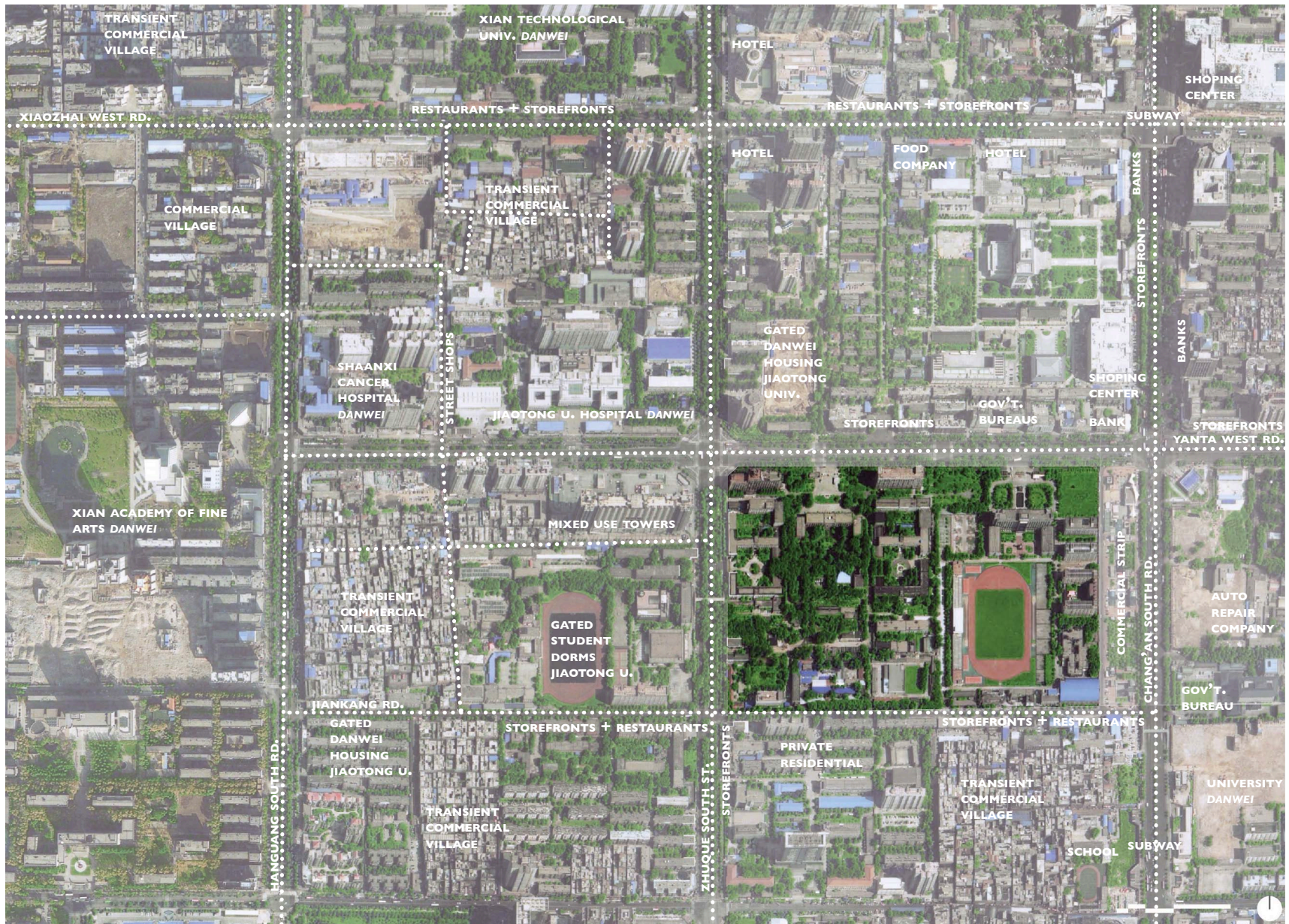


fig. 4.14 Context plan of existing danwei site



ZHUQUE SOUTH ST.

YANTA WEST RD.

WUTONG RD.

JIAOXUE WEST RD.

JIAOXUE EAST RD.

CHANG'AN SOUTH RD.

JIANKANG EAST RD.



fig. 4.15 Satellite view site plan of existing danwei



fig. 4.16 Crossing from the northwest corner of the *danwei* at the intersection of Yanta West Road and Zhuque South Road



fig. 4.17 Looking northwest from the intersection of Yanta West Road and Zhuque South Road towards the Jiaotong University hospital *danwei*



fig. 4.18 Transient commercial activity inside the Jiaotong University hospital *danwei* employee residential area



fig. 4.20 33-storey residential towers inside Jiaotong University hospital *danwei*



fig. 4.21 Wasted space inside Jiaotong Univ. gated housing community



fig. 4.19 Convenience store sheds inside the gated *danwei* housing community for Jiaotong University located northeast of the intersection at Yanta West Road and Zhuque South Street



fig. 4.22 Socialist-era employee housing inside the Jiaotong University hospital *danwei* with un-insulated enclosed loggia extending from the exterior wall



fig. 4.23 Typical residential street inside the Jiaotong University hospital *damwei*



fig. 4.24 Detail of un-insulated enclosed loggia extending from the exterior wall of Socialist-era *damwei* housing



fig. 4.25 Shopping street bordering the western edge of the Jiaotong University hospital *danwei* that originates from the transient commercial village into Yanta West Road



fig. 4.27 Intersection of the shopping street with Yanta West Road



fig. 4.26 Storefronts along the shopping street



fig. 4.28 Transient commercial shopfronts in the laneway village north of Jiaotong University hospital *danwei*



fig. 4.29 Shopfronts on the ground floor with apartments above in the transient commercial laneway village



fig. 4.30 Gated entry of existing *danwei* site along Yanta West Road near the Zhuque South Street intersection

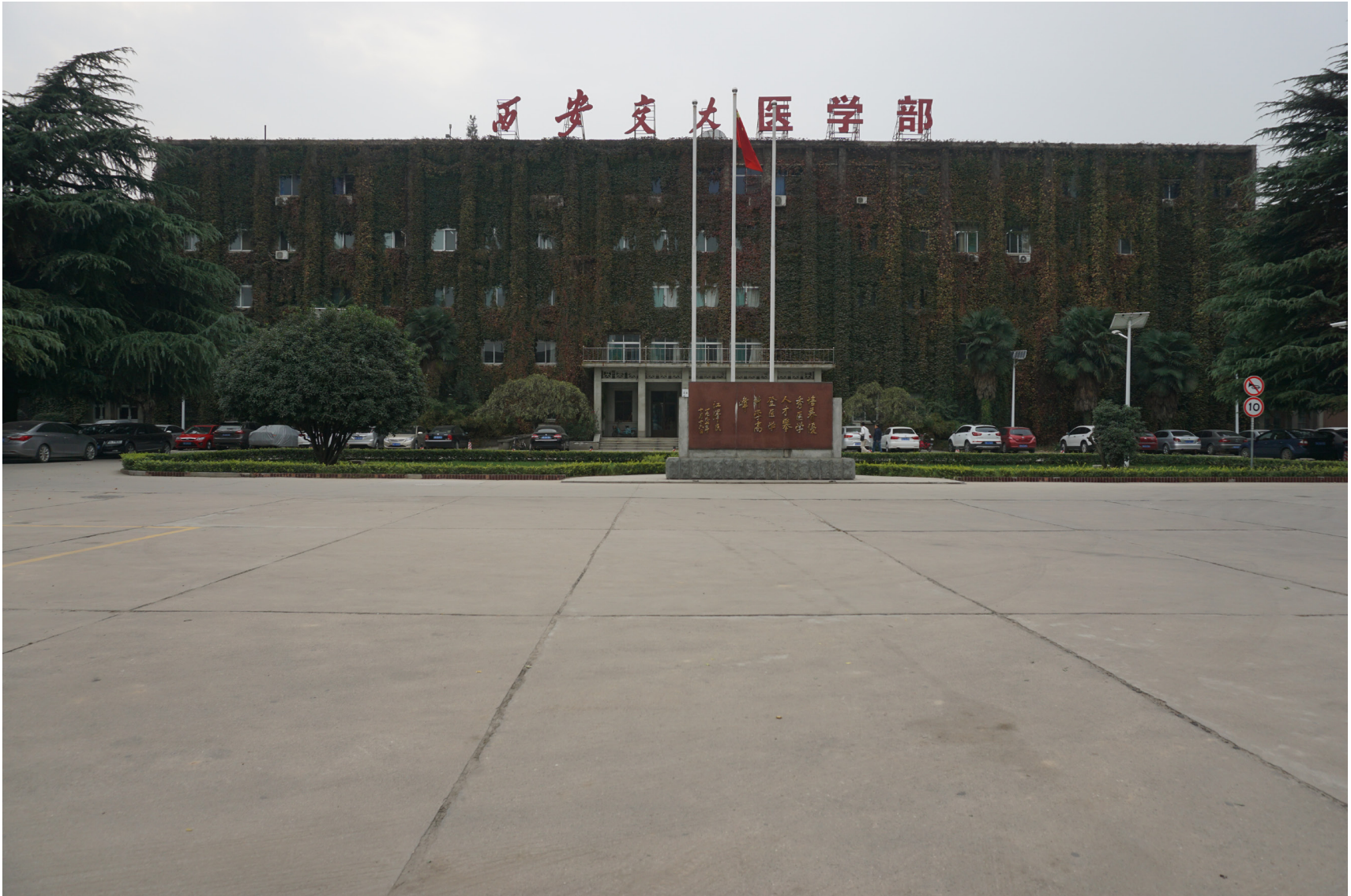


fig. 4.31 Undefined paved open space in front of medical school building set back from the street



fig. 4.32 Crosswalk leading from gated medical school campus entrance towards the gated Jiaotong University *danwei* residential community to the north



fig. 4.33 View of Yanta West Road with storefronts to the left and medical school *danwei* gate to the right



fig. 4.34 Jiaotong University Yanta campus *danwei* gated entrance along Yanta West Road near intersection with Chang'an South Road



fig. 4.35 Gated entrance in front of the Institute of Economics and Finance



fig. 4.36 View from gate across the street



fig. 4.37 Convenience store just inside the campus gate



fig. 4.38 Intersection of Yanta West Road with Chang'an South Road looking west towards northeast corner of the campus *damwei* on the left



fig. 4.39 Chang'an South Road looking north towards intersection with Yanta West Road



fig. 4.40 Laneway between the eastern wall of the campus *danwei* with natatorium behind and a commercial strip



fig. 4.41 View from Jiankang East Road looking west towards the natatorium in the southeast corner of the campus *danwei*



fig. 4.42 Intersection of Jiankang West Road with Zhuque South Street looking east towards the southwest corner of the campus danwei on the left



fig. 4.43 View from Jiankang West Road looking west towards the intersection with Zhuque South Street



fig. 4.44 View from Jiankang West Road looking east towards the campus *danwei* wall to the left



fig. 4.45 View from pedestrain bridge over Zhuque South Street on the west side of the univeristy *danwei* lined by mature French plane trees, main car traffic separated from small vehicle traffic (bike, motorcycle, scooter etc.)



fig. 4.46 View from Zhuque South Street looking north towards the pedestrian bridge crossing connecting the campus *danwei* on the right to the gated Jiaotong University student residential quarter to the left



fig. 4.47 Gated entrance on the western boundary of the *danwei* site along Zhuque South Street



fig. 4.48 View from Yanta West Road of the forensic medicine building with clock tower in the northwest corner of the campus *danwei*



fig. 4.49 Roundabout in courtyard behind the western gate of the campus *danwei* framed by medical research and lab buildings



fig. 4.50 View looking east along Wutong road, the main east-west axis in the campus *danwei* leading from the western gate roundabout to the track and field and lined by mature French plane trees providing a continuous canopy



fig. 4.51 View along Wutong road with lawn on left and the nursing school teaching building on the right



fig. 4.52 View along Wutong road looking east towards the roundabout which leads to the track and field



fig. 4.53 Roundabout on the east end of Wutong road defined by finance teaching building to the left and pharmacy teaching building to the right



fig. 4.54 View of badminton and basketball courts to the north of Wutong road just past the roundabout



fig. 4.55 View south along the north-south road lined with mature French plane trees separating the pharmacy teaching building to the right from the campus hotel and bleachers to the left



fig. 4.56 Wutong road looking west with fenced track and field to the left and Finance and Economics Institute to the right



fig. 4.57 View from Wutong road looking south towards track and field with student residences to the left and bleachers to the left



fig. 4.58 View from Wutong road looking east along the track and field



fig. 4.59 View looking north towards the Finance and Economics Institute from the north-south road between the track and field to the left and student residences to the right



fig. 4.60 View From Road Looking North with Finance and Economics Institute to the Left and Student Residences to the Right



fig. 4.61 Gated student residences in the campus *danwei*



fig. 4.63 Cosmetic planting and lawn inside the campus *danwei*



fig. 4.62 View east of tree-lined road between the medical library to the left and finance teaching building to the right



fig. 4.64 Traditional style pavilion in the campus *danwei*



fig. 4.65 View south of Jiaoxue West Road French plane tree canopy with medical teaching building and conference center to the right and lawn behind main medical teaching building to the left



fig. 4.66 View south of Jiaoxue East Road with finance teaching building to the left and ivy-covered main medical teaching building to the right



fig. 4.67 View south along Jiaoxue East Road of pharmacy teaching and training building



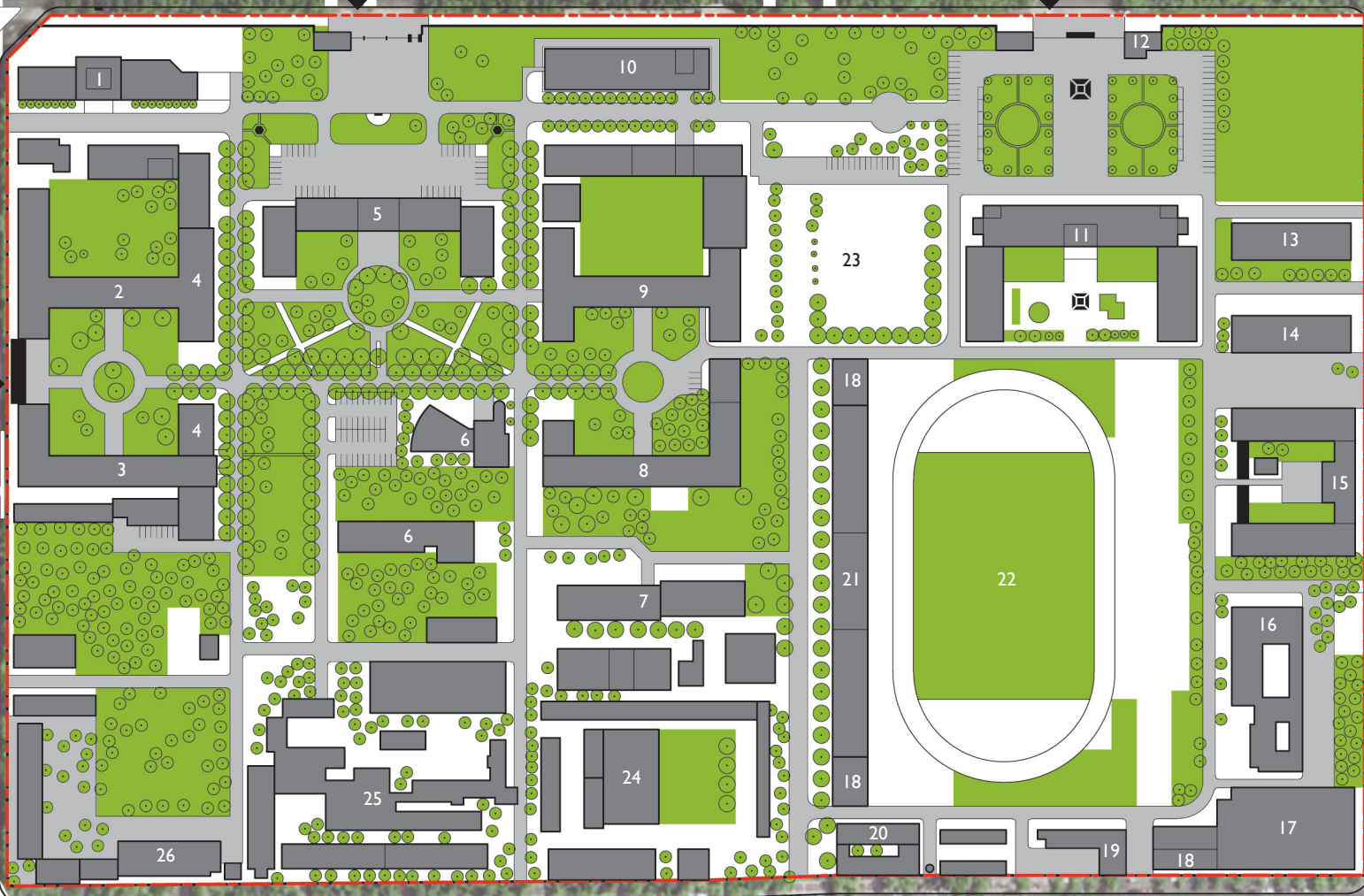
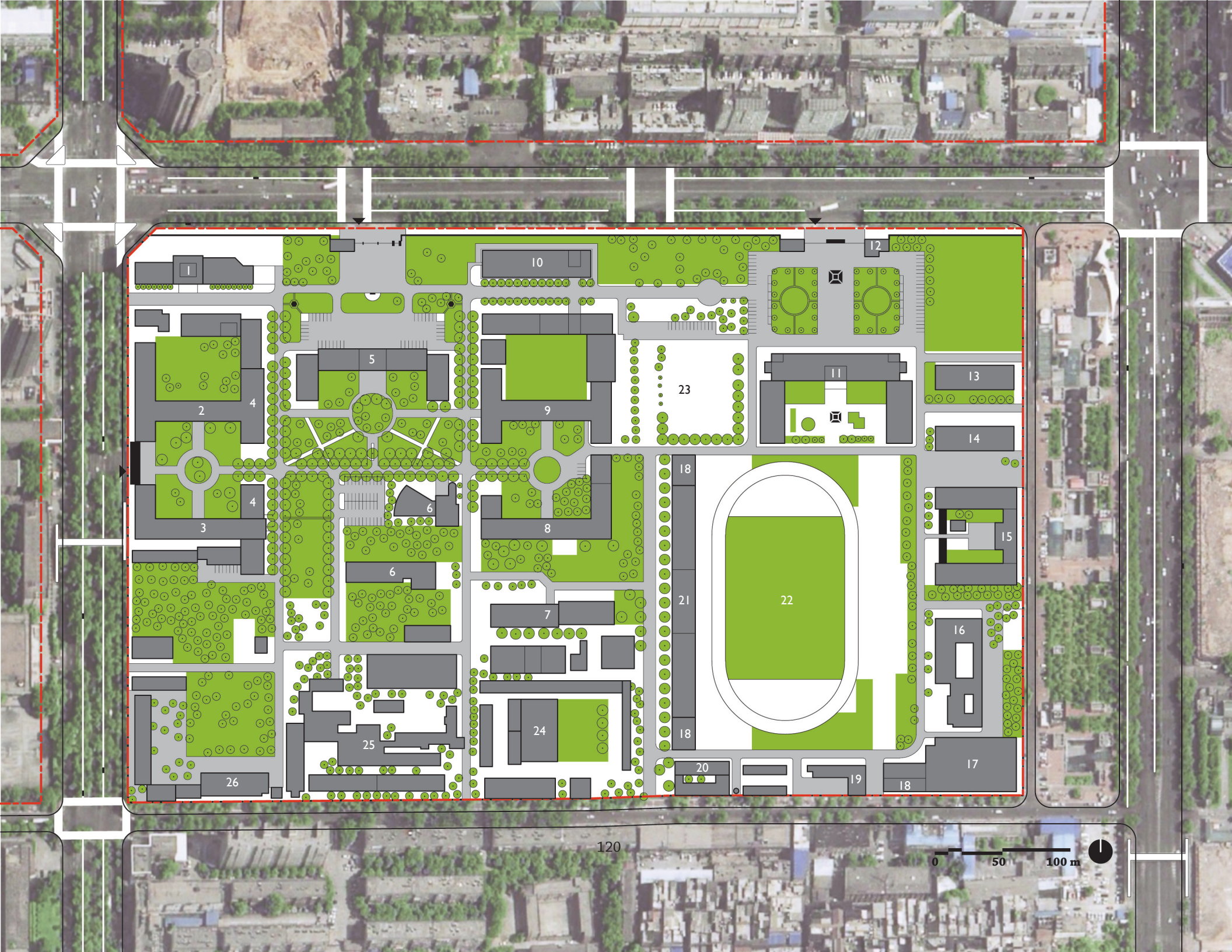
fig. 4.68 View south towards the dead end of Jiaoxue East Road showing the neglected state of single-storey printing company buildings to the right



fig. 4.69 View east along printing company laneway



fig. 4.70 View east of low-density buildings in the printing company laneway



120

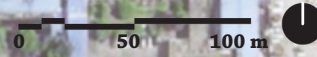
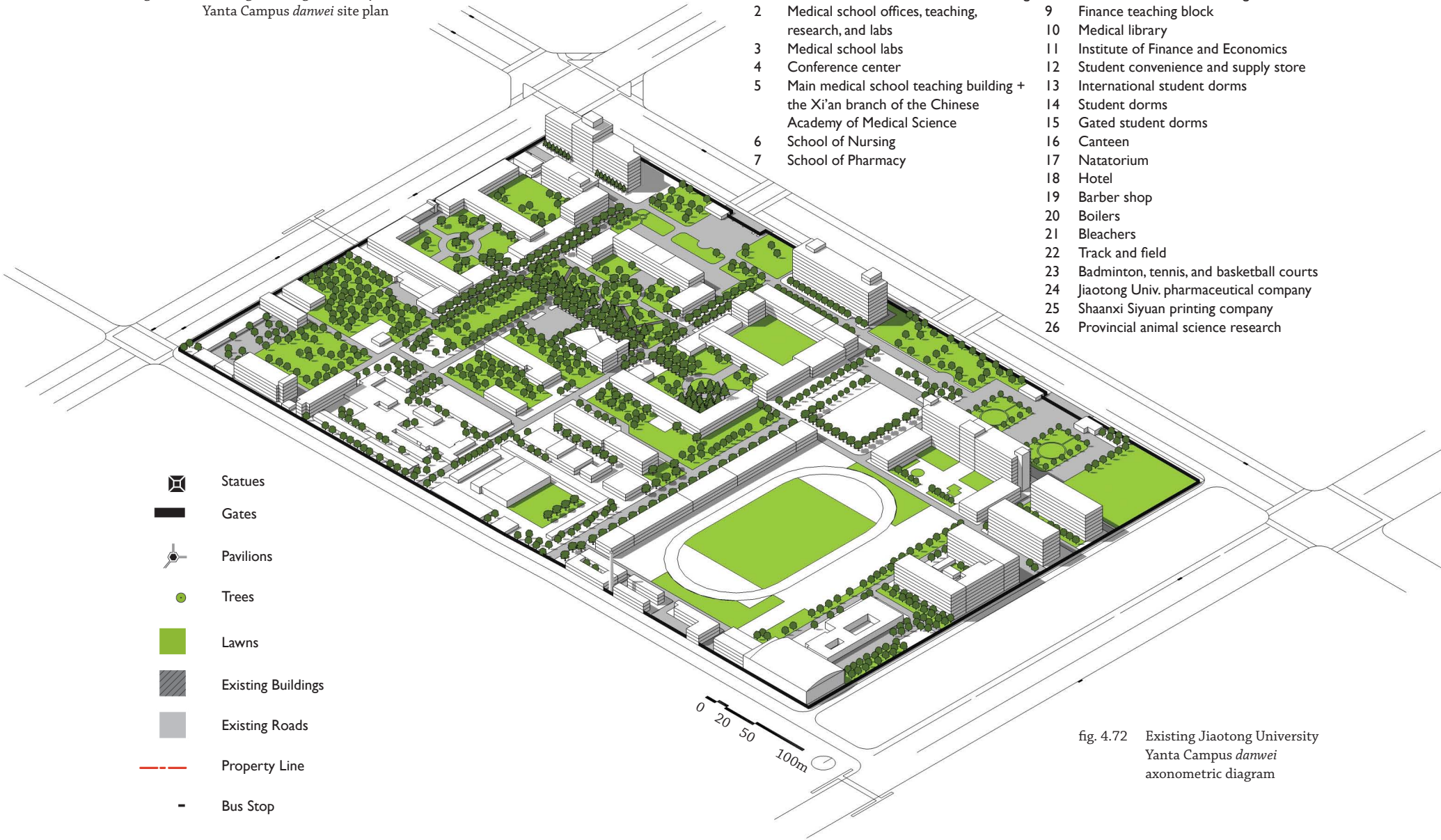


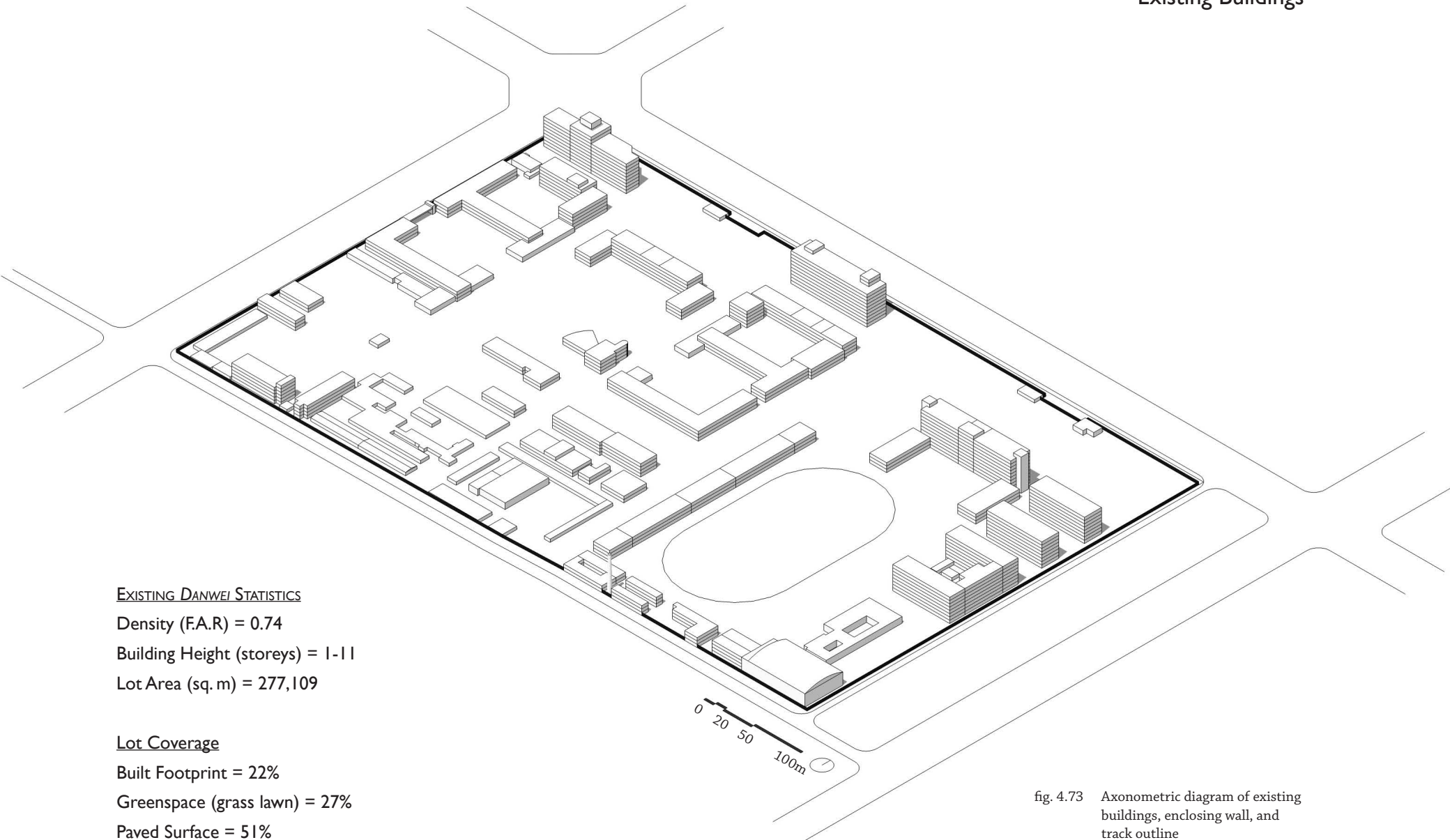
fig. 4.71 Existing Jiaotong University
Yanta Campus *danwei* site plan



- | | | | |
|---|--|----|--|
| 1 | Forensic medicine research and teaching | 8 | Licensed Pharmacist Training Center |
| 2 | Medical school offices, teaching, research, and labs | 9 | Finance teaching block |
| 3 | Medical school labs | 10 | Medical library |
| 4 | Conference center | 11 | Institute of Finance and Economics |
| 5 | Main medical school teaching building + the Xi'an branch of the Chinese Academy of Medical Science | 12 | Student convenience and supply store |
| 6 | School of Nursing | 13 | International student dorms |
| 7 | School of Pharmacy | 14 | Student dorms |
| | | 15 | Gated student dorms |
| | | 16 | Canteen |
| | | 17 | Natatorium |
| | | 18 | Hotel |
| | | 19 | Barber shop |
| | | 20 | Boilers |
| | | 21 | Bleachers |
| | | 22 | Track and field |
| | | 23 | Badminton, tennis, and basketball courts |
| | | 24 | Jiaotong Univ. pharmaceutical company |
| | | 25 | Shaanxi Siyuan printing company |
| | | 26 | Provincial animal science research |

fig. 4.72 Existing Jiaotong University
Yanta Campus *danwei*
axonometric diagram

Existing Buildings



EXISTING DANWEI STATISTICS

Density (F.A.R) = 0.74

Building Height (storeys) = 1-11

Lot Area (sq. m) = 277,109

Lot Coverage

Built Footprint = 22%

Greenspace (grass lawn) = 27%

Paved Surface = 51%

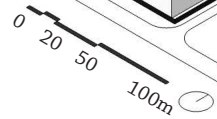


fig. 4.73 Axonometric diagram of existing buildings, enclosing wall, and track outline

4.3 PRINCIPLES FOR A NEW *DANWEI* URBANISM

The following operational principles as states of fullness and emptiness in architecture can be layered to generate a New *Danwei* Urbanism:

4.3.1 Conversion of the Physical Fabric as Disintegration and Formation

Chinese urbanisms have primarily alternated between two extreme conditions of erasure and conservation in adapting existing historical urban conditions for the contemporary setting. A New *Danwei* Urbanism operates as an intermediate condition in which existing and new buildings are embedded, complimentary systems. This involves the disintegration of existing hierarchical composition in the *danwei* and the formation of an architectural field of relatively evenly distributed typologies across the site to build density and define open public spaces for social and intellectual exchange.

- Erase the insignificant constructions that detract from the underlying spatial structure on site and are too idiosyncratic in style to be of enduring use in the formation of a new order. A new resultant order is formed after a curated demolition of the existing condition. In the case of partial demolition, this leaves cutouts where demolished building parts once intersected with the remaining building.
- Insert new buildings in an even distribution or spacing across the site. This comprises an architectural field. The number of building typologies added is limited to contribute to the consistency of the field. Also, the generic nature of typologies is complimentary to the uniformity of spacing between buildings forming the field. The resultant spatial order is a new sequence of strongly defined

public open spaces with activities that range from calm and contemplative to intense and active.

- Program the new buildings to achieve a mosaic of differing functions distributed across the site. Avoid placing buildings of the same program next to each other. This new mosaic breaks-up the monotonous blocks of similar program formed by the retained buildings.

Retained Existing Buildings
Southeast View



fig. 4.74 Axonometric diagram of retained existing buildings with orange areas indicating cutouts created from partial demolition of building blocks

Retained Existing Buildings
Southwest View

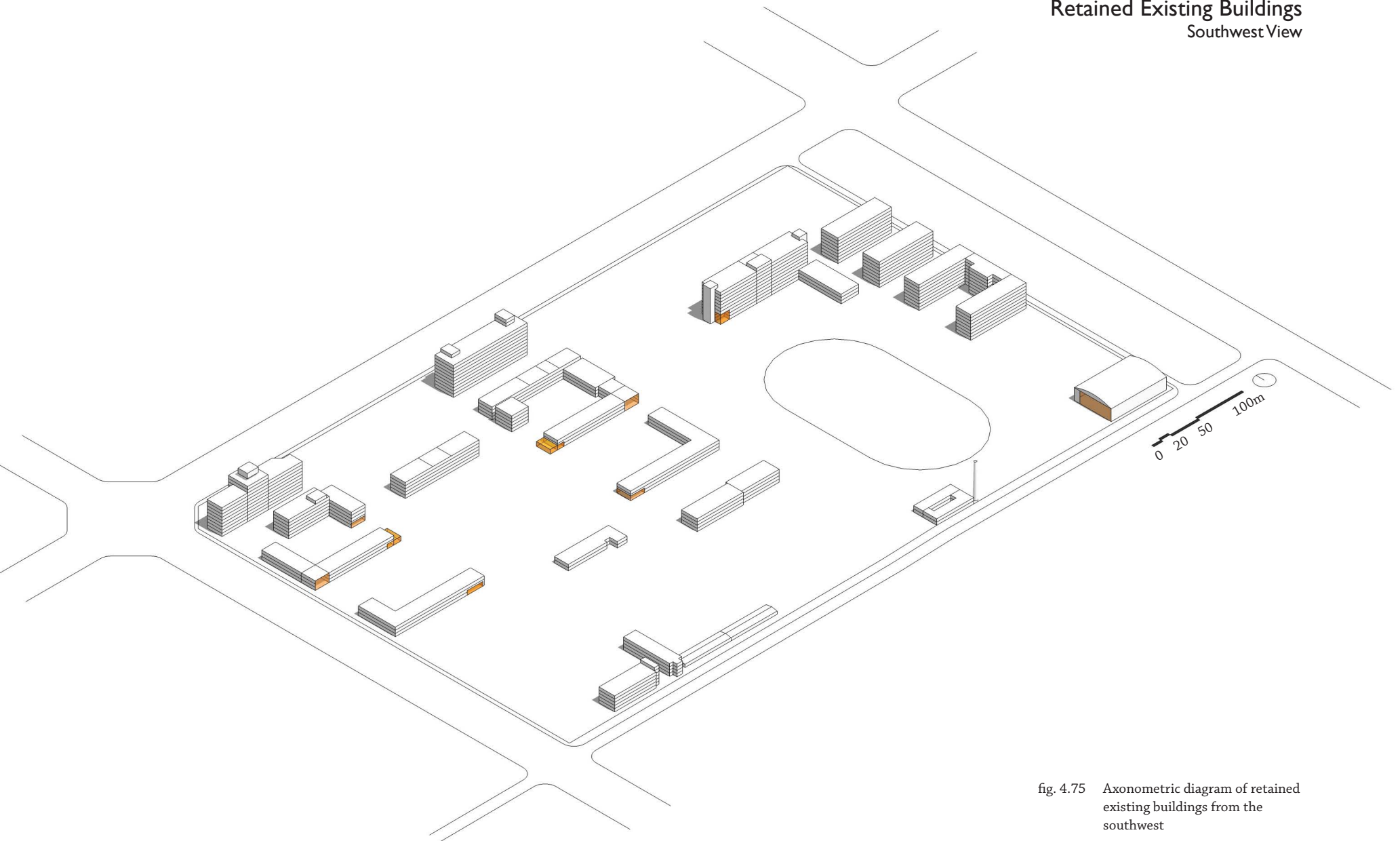


fig. 4.75 Axonometric diagram of retained existing buildings from the southwest

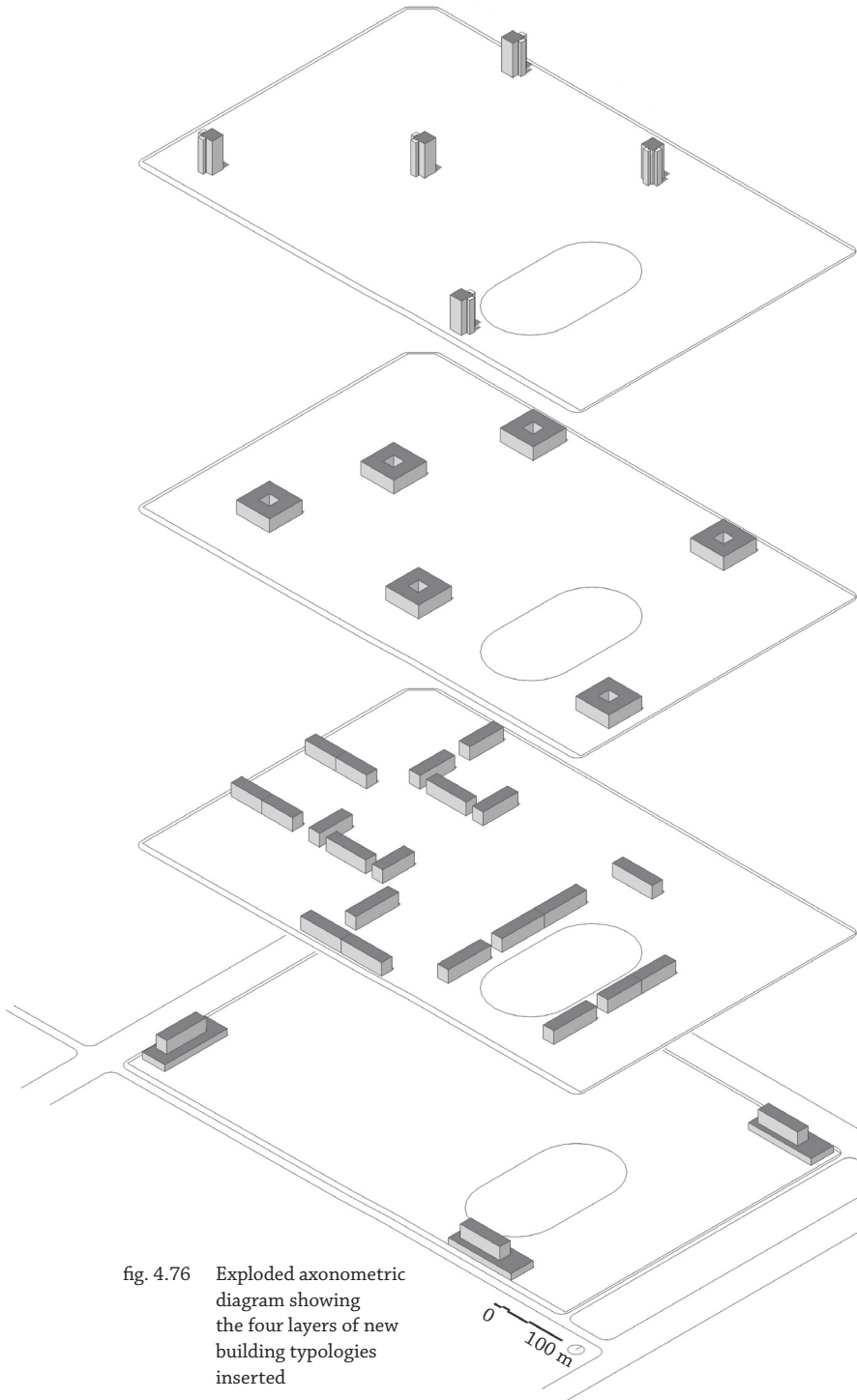
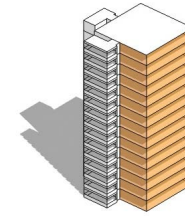
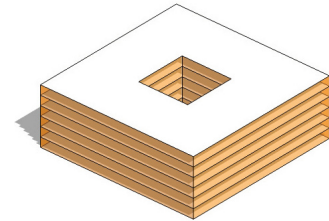


fig. 4.76 Exploded axonometric diagram showing the four layers of new building typologies inserted

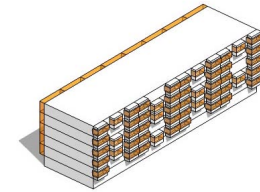
HIGHRISE POINT TOWER
15 stories



MIDRISE COURTYARD BUILDING
6 stories



MIDRISE RECTANGULAR BLOCK
6 stories



MIDRISE PODIUM TOWER
9 stories (3 storey podium + 6 storey block tower)

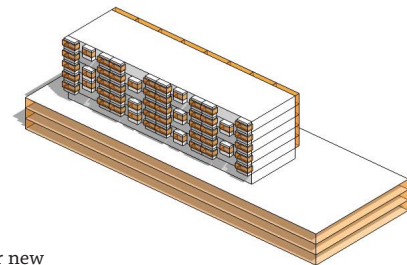


fig. 4.77 Axonometric diagrams of the four new building typologies

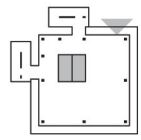


fig. 4.78 Plan diagrams of the four new typologies showing entrances and circulation cores

0 10m



NEW TYPOLOGIES PLAN REFERENCES

fig. 4.79 Plan of studio and office tower with pagoda-like exterior circulation in Wang Shu's Xiangshan Campus

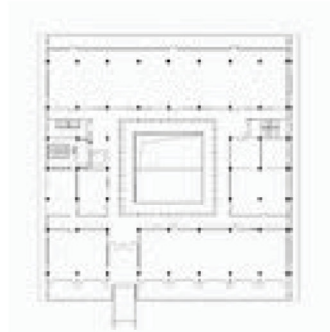
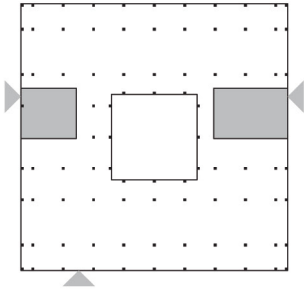


fig. 4.80 Plan of academic workshops and library in Xiangshan Campus

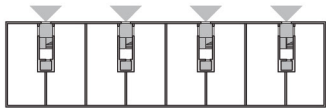


fig. 4.81 Plan of Socialist Era *danwei* housing with enclosed loggia and shared circulation stairs

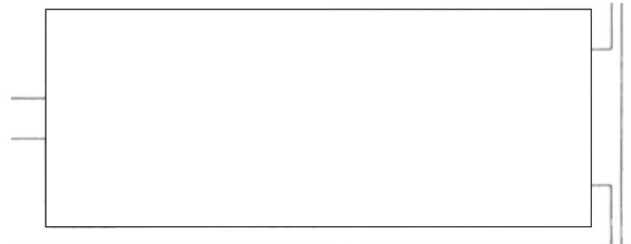
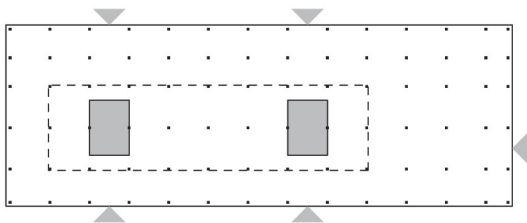


fig. 4.82 Podium size based on Mies' IIT academic halls (*below left*) and tower dimensions based on *danwei* midrise buildings (*below*)



Resultant Retained Existing and New Buildings

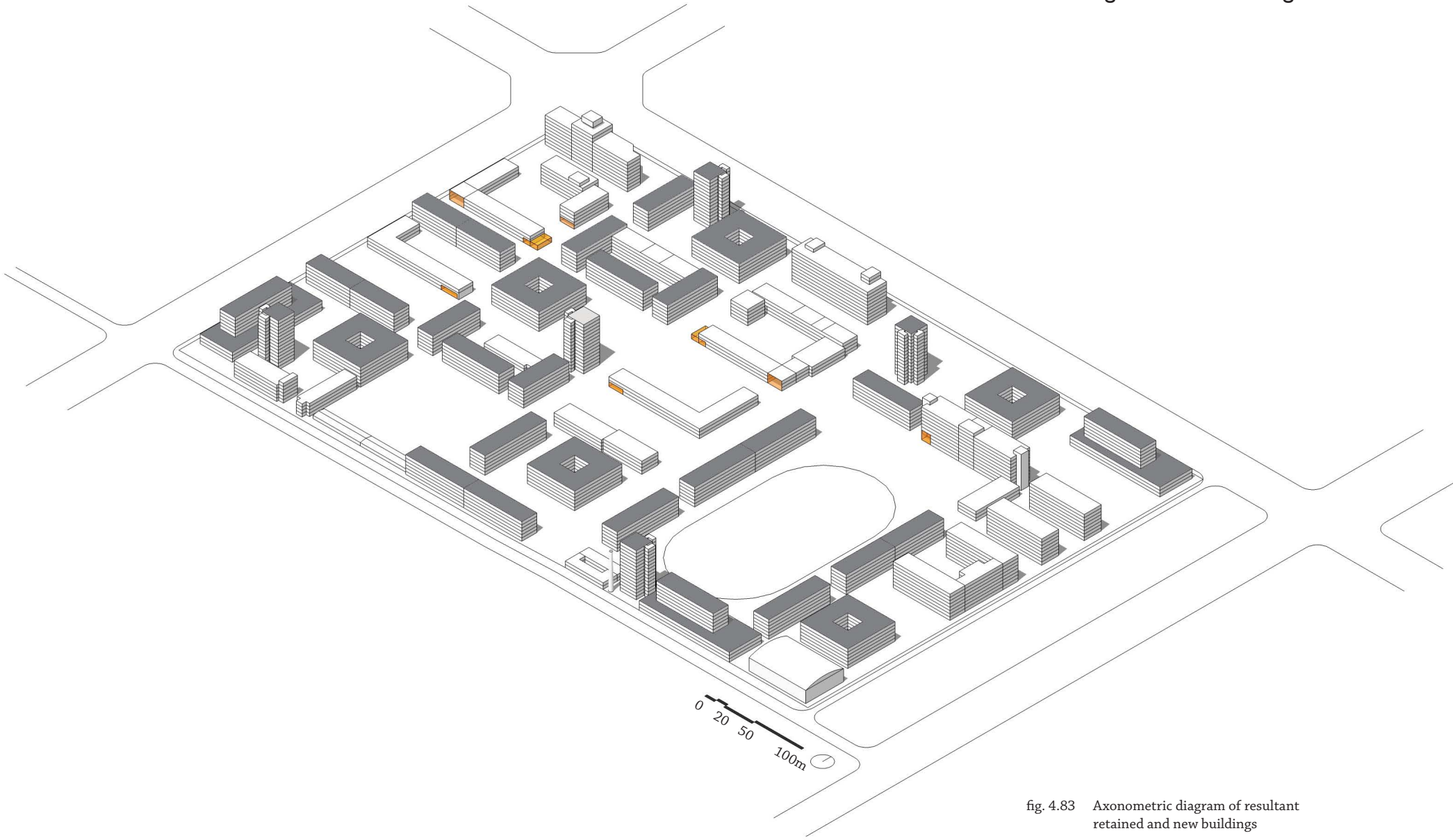


fig. 4.83 Axonometric diagram of resultant retained and new buildings

New Building Typologies Inserted

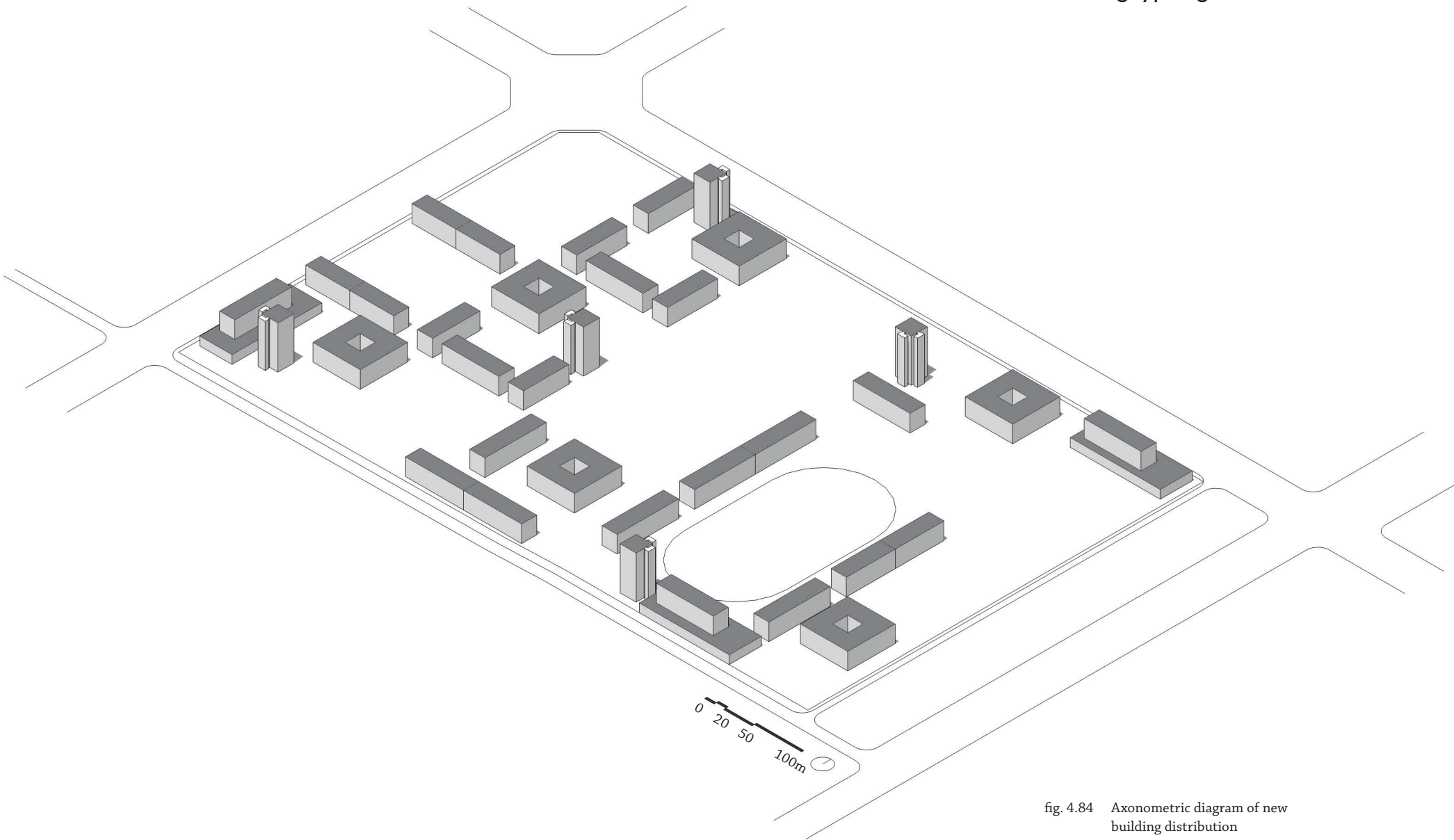


fig. 4.84 Axonometric diagram of new building distribution

Resultant Major Defined Urban Spaces

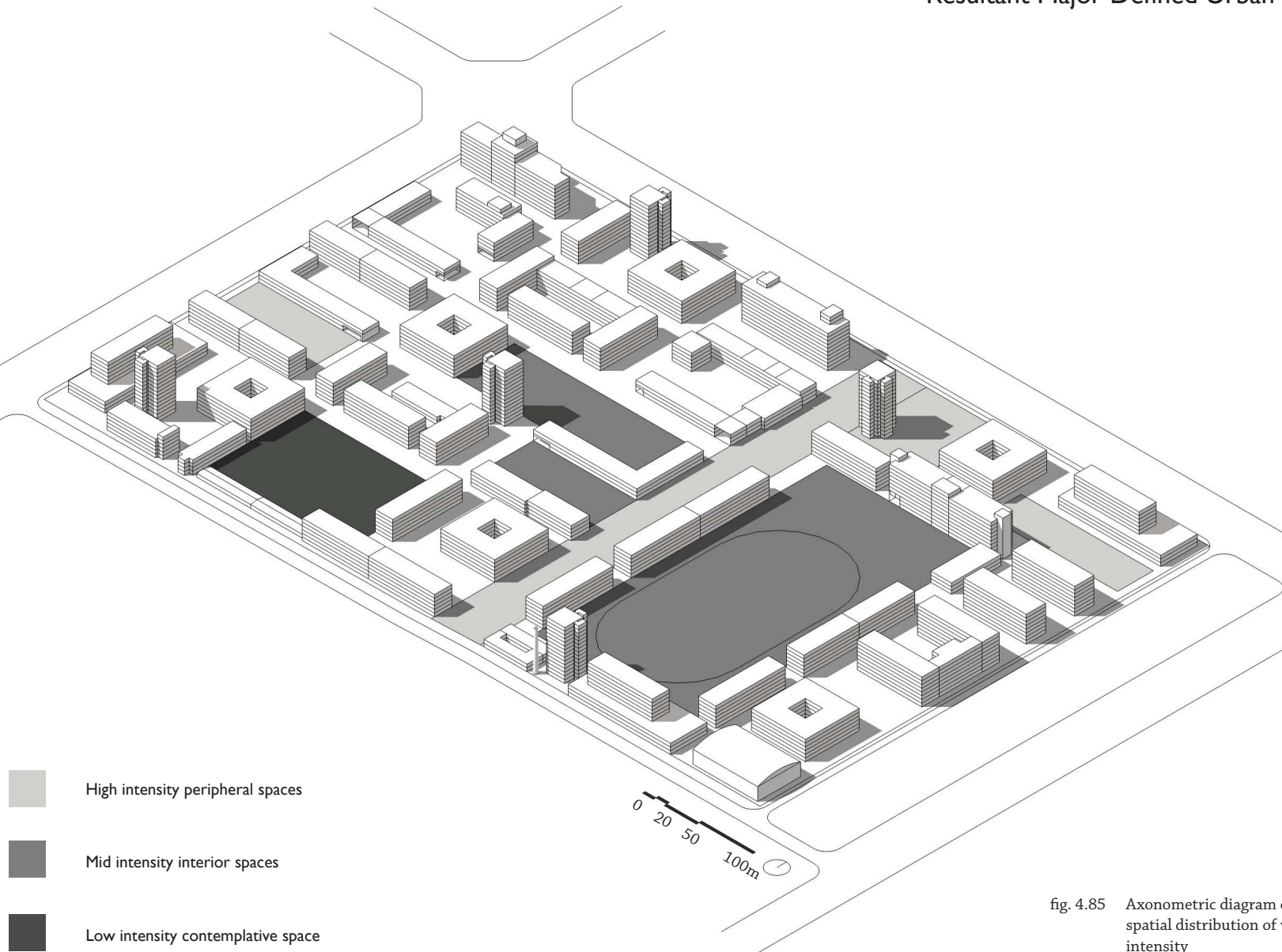


fig. 4.85 Axonometric diagram of resultant spatial distribution of varying intensity

Spatial Disintegration and Formation



fig. 4.86 Plan diagram of existing open spaces and axes

Existing Undefined Open Space + Hierarchical Axial Symmetry

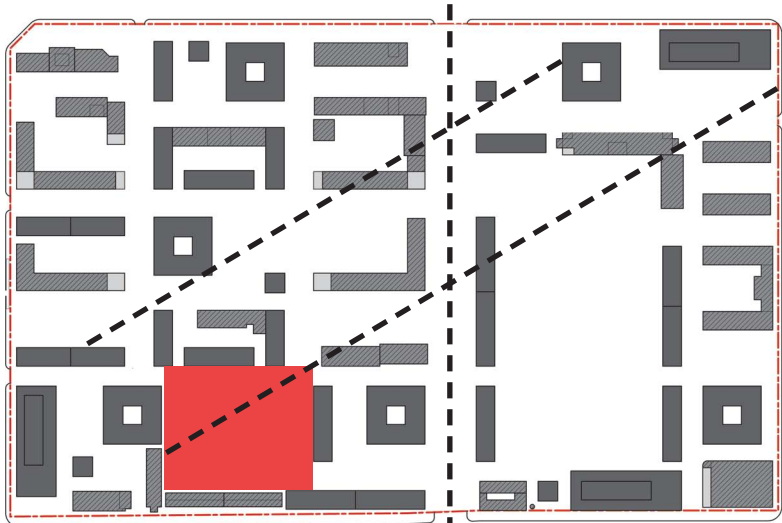


fig. 4.87 Plan diagram of new open spaces and axes

Resultant Defined Public Spaces of Varying Intensities + Diagonal Spatial Distribution

- High Intensity
- Mid Intensity
- Low Intensity
- Major Spatial Axes

Existing Land and Building Use



fig. 4.88 Axonometric diagram of existing programmatic and land use distribution showing the division of the *danwei* into distinct zones for workplace, production/service, leisure, residential, and social amenities

Retained Land and Building Use

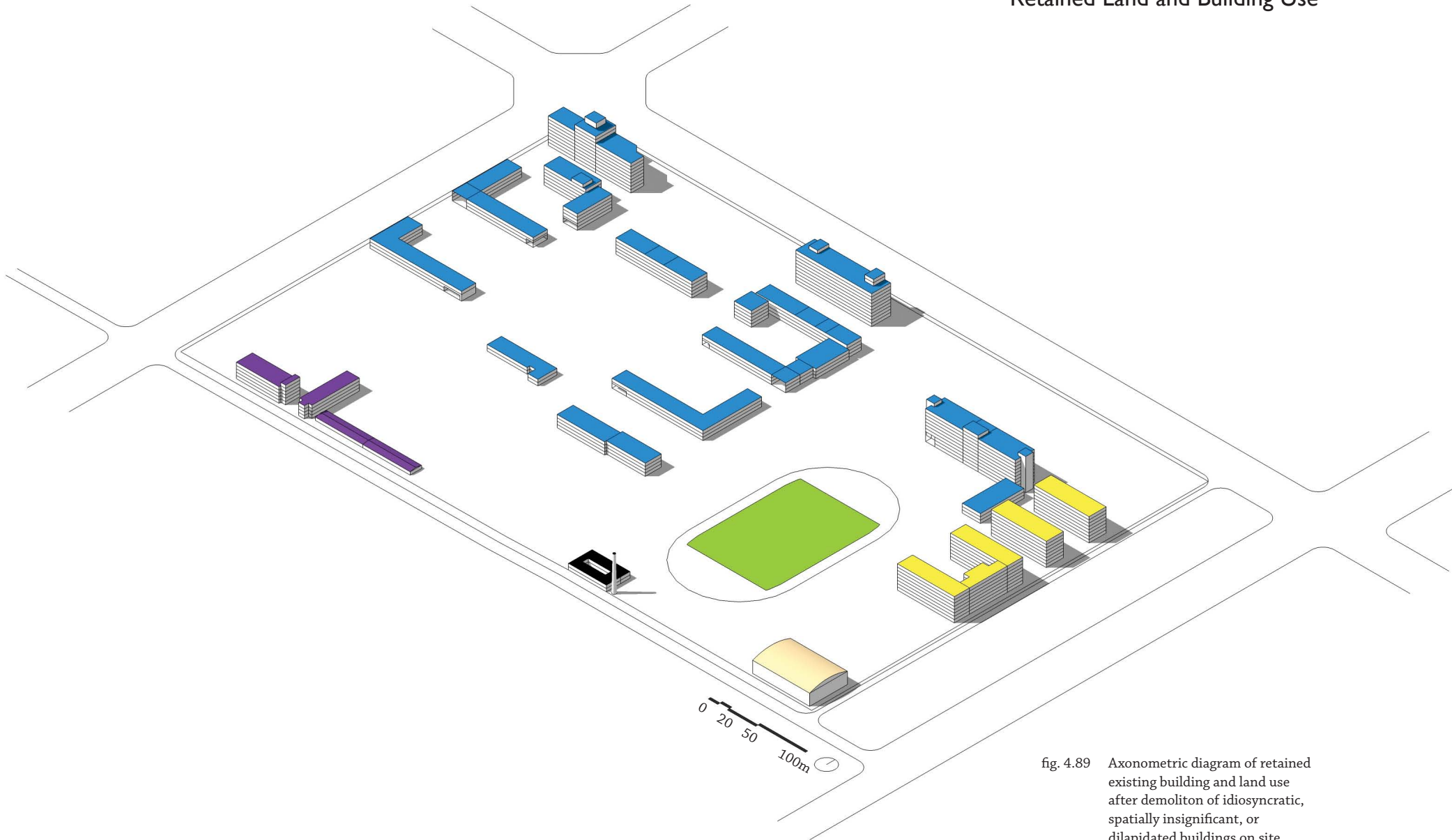


fig. 4.89 Axonometric diagram of retained existing building and land use after demolition of idiosyncratic, spatially insignificant, or dilapidated buildings on site

Programmatic Distribution of New Buildings

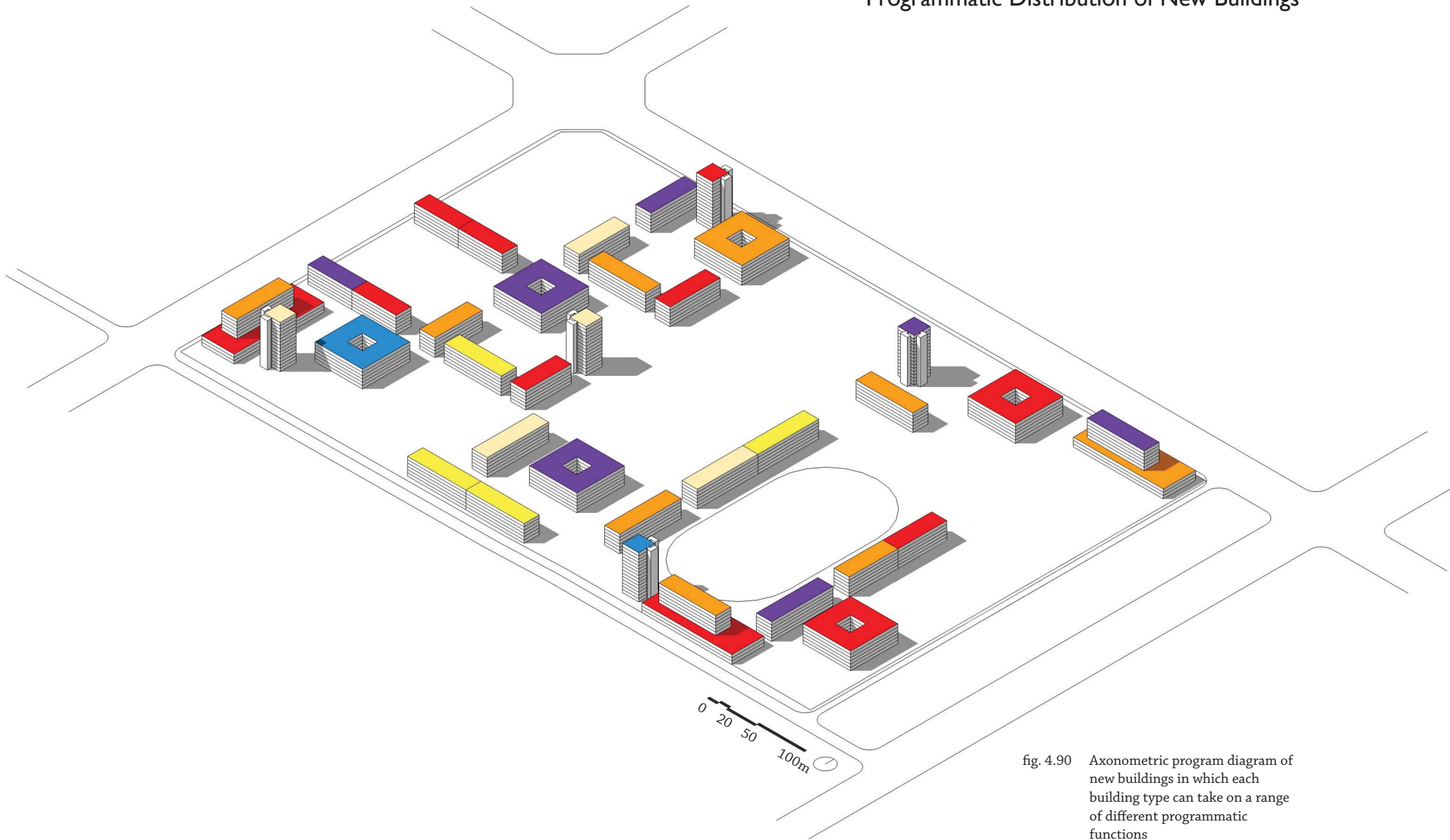


fig. 4.90 Axonometric program diagram of new buildings in which each building type can take on a range of different programmatic functions

Resultant Urban Mosaic

Mixed Use (pharmacy, spas, clinics, training center; medical services, public health center; live/work units, internet cafes, restaurants, shops, staff lounge, cleaning services)

Leisure (indoor recreation and entertainment, studios, and natatorium)

Major Defined Open Public Spaces (plazas, patios, wetland ponds, promenade)

Operational Services
(boiler, cleaning)

Education (classrooms, offices, student and staff lounges, lecture and conference halls)

Production (research and media labs, libraries, workshops, pharmaceutical factory)

Retail/Commercial (medical and student supply shops, printing shop, convenience stores, canteens, cafes, restaurants, small business offices, laundromat, campus hotel)

Residential
(student residences, employee housing)

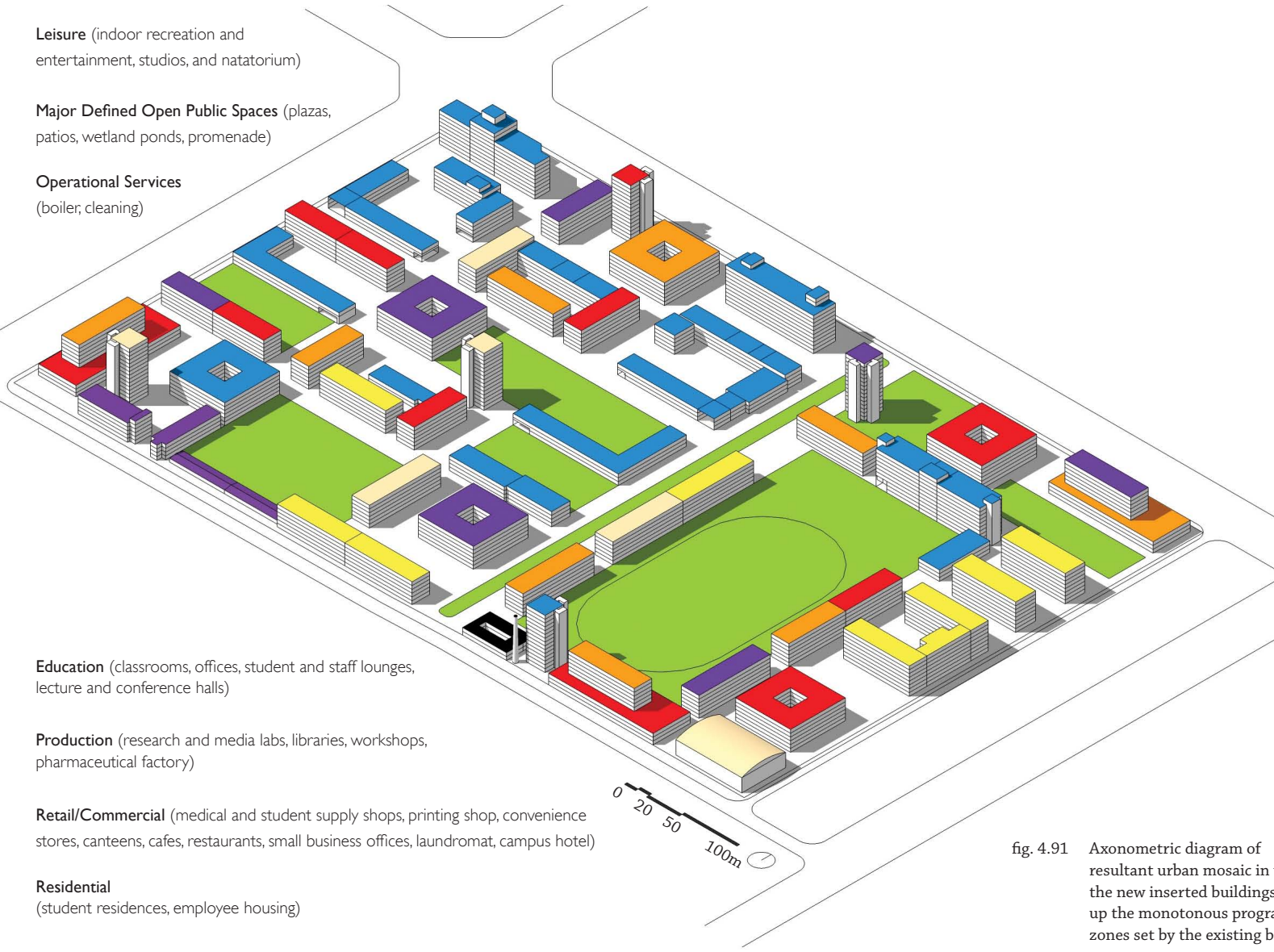


fig. 4.91 Axonometric diagram of resultant urban mosaic in which the new inserted buildings break up the monotonous programmatic zones set by the existing buildings

Existing Trees and Lawn

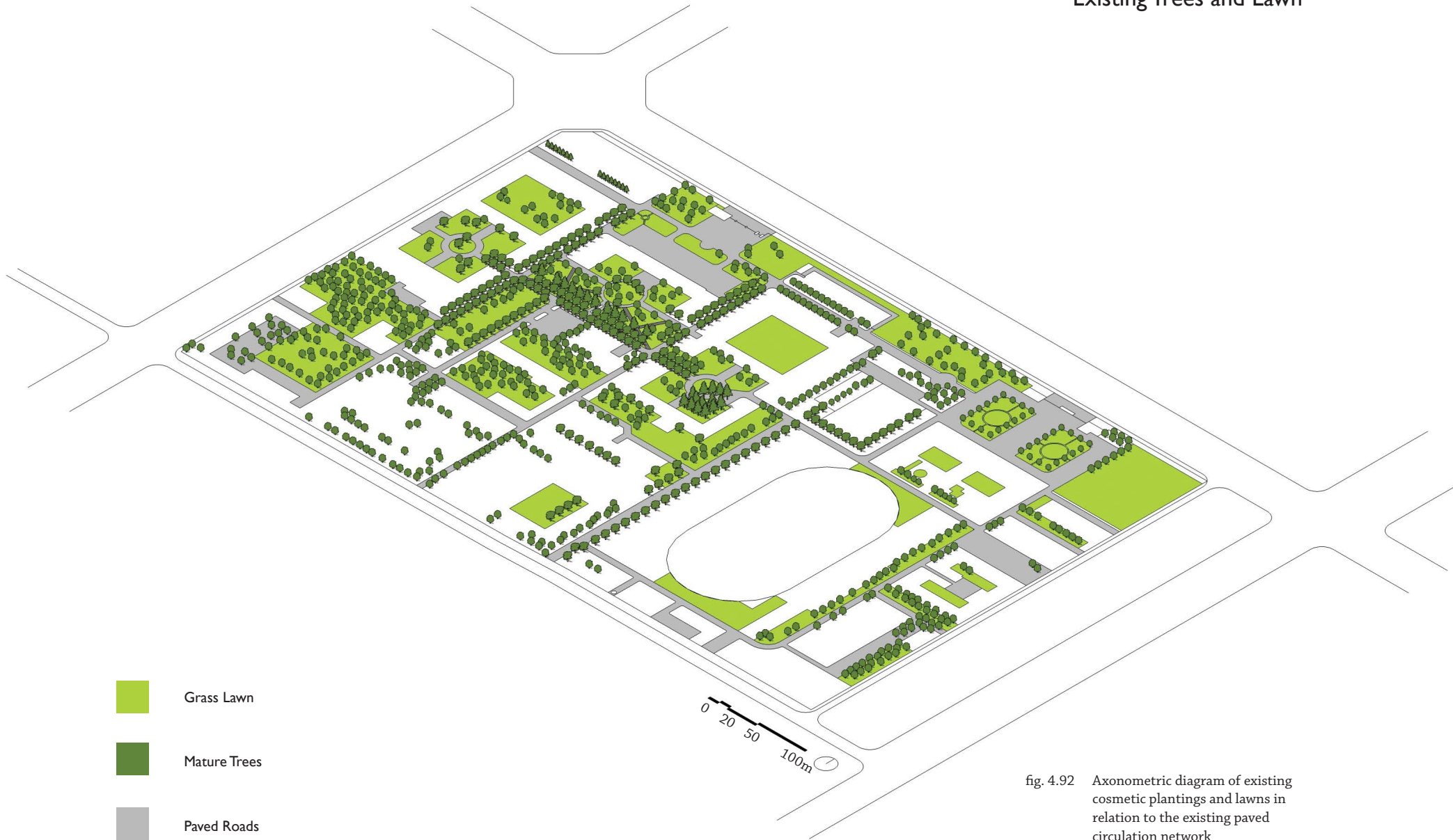


fig. 4.92 Axonometric diagram of existing cosmetic plantings and lawns in relation to the existing paved circulation network

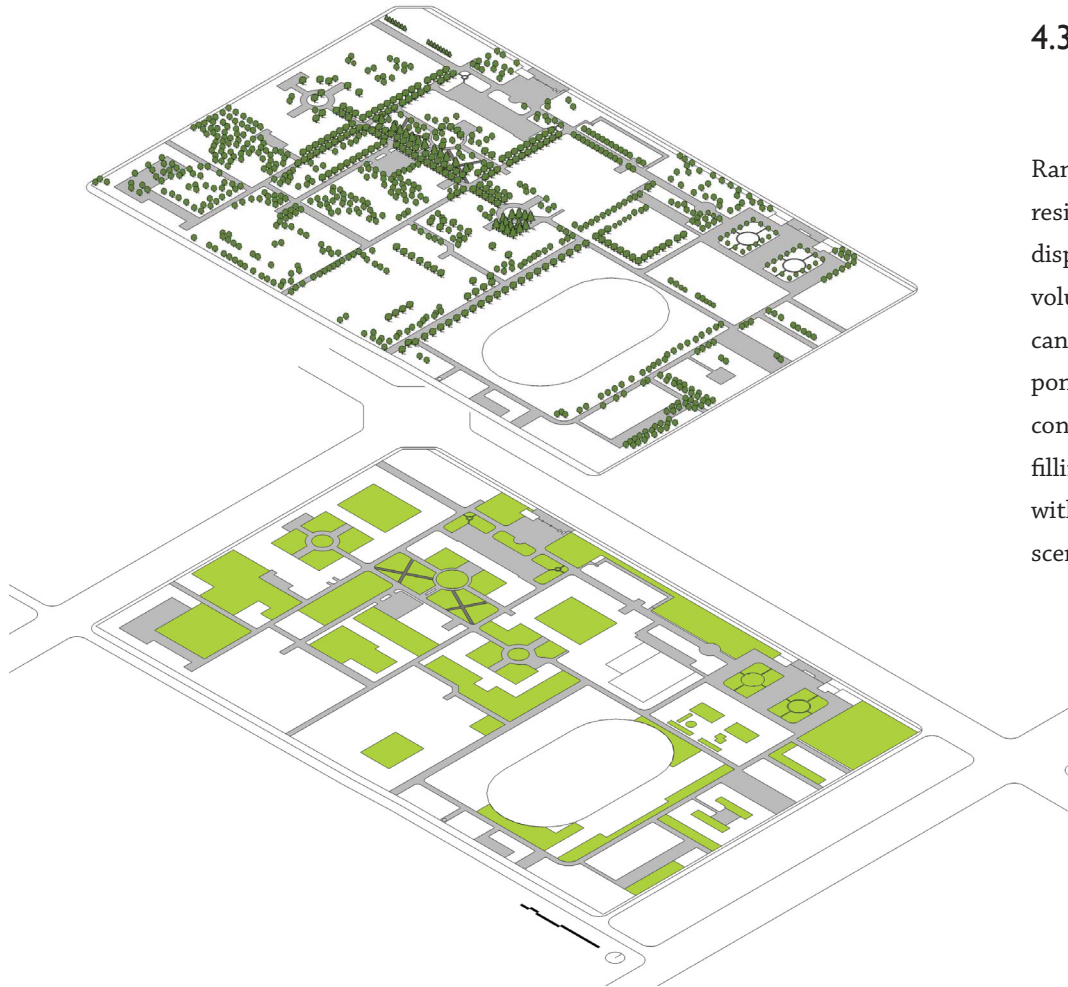


fig. 4.93 Exploded axonometric diagram showing the fragmented and scattered pattern of lawns and trees with the only exception being the continuous mature tree canopies along major *danwei* roads

4.3.2 Ecology of Interstitial Spaces as Absence and Presence

Random patches of cosmetic plantings and lawns are used as infill in the residual spaces not occupied by buildings or roads. This reduces nature to dispersed and surficial applications that are absent because little ecological volume is present to exert pressure in space. Productive ecological mass can accumulate presence in the new *danwei* in the form of stormwater ponds filtered by cattails, sorghum plant screens in a packed dirt field, continuous tree canopies along circulatory corridors, and grid canopies filling or framing urban patios. These ecological systems are associated with campus activities to divide the *danwei* into a sequence of four distinct scenes.

- Select and introduce productive ecological systems that accumulate mass or volume relative to the architectural mass on site. Climate and location should be considered during plant selection.
- Activate and characterize resultant void spaces through the association of cultural activities of varying intensities with existing and added ecologies.
- Divide the site into a sequence of distinct scenes using this association.

This results in the following four cultural ecological scenes in the new *danwei* campus: learn and contemplate in the forest clearing, roam and commune in the planted patio, live and play in the dirt field, and explore and create in the wetland marsh.

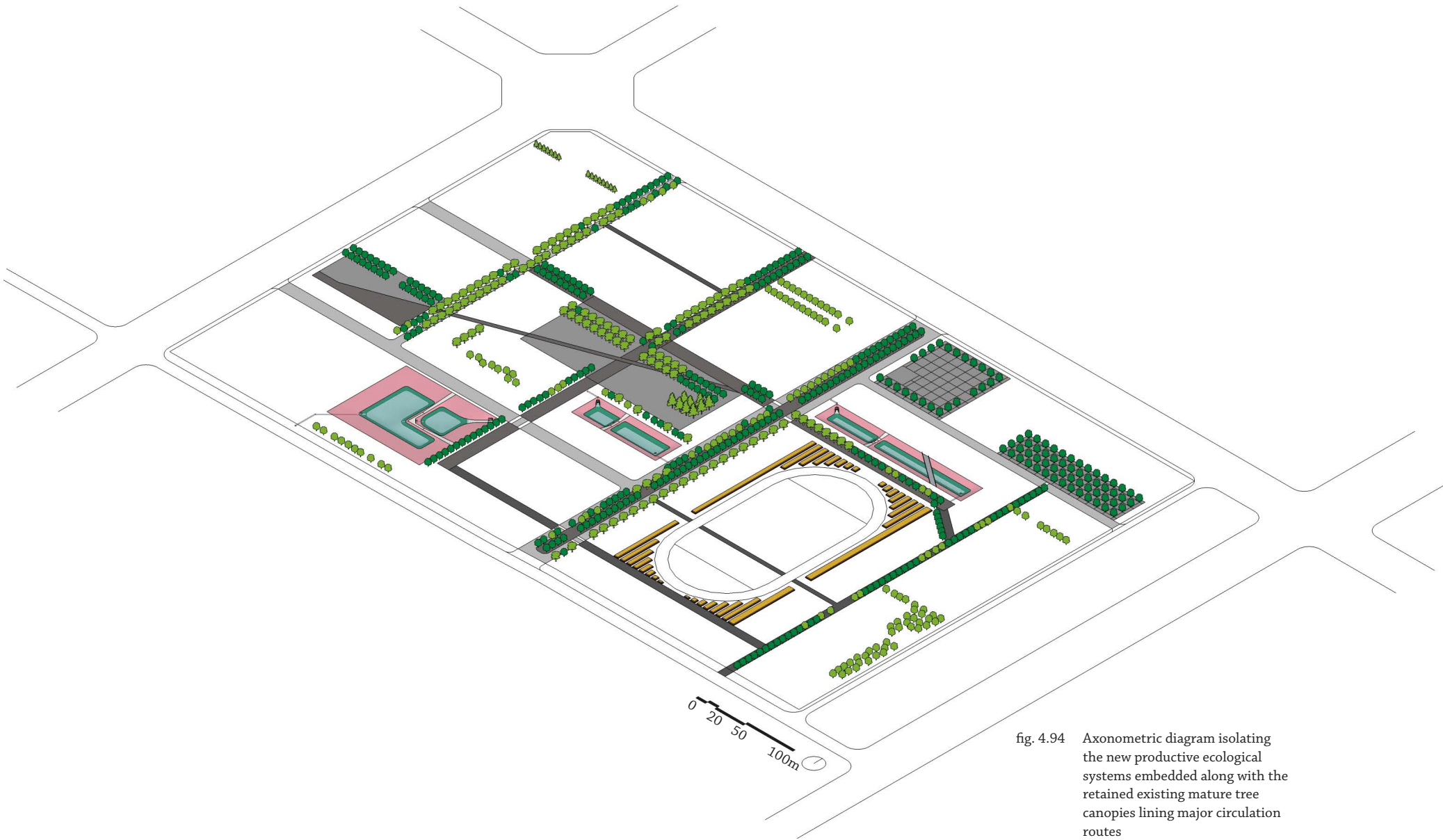









fig. 4.94 Axonometric diagram isolating the new productive ecological systems embedded along with the retained existing mature tree canopies lining major circulation routes

New Productive Ecological Mass

-  Paved Defined Public Urban Space
-  Pedestrian and Bike Paths
-  Paved Roads

-  Retained Mature Tree Canopy
-  New Infill Tree Canopy
-  Sorghum Screen in Dirt Field
-  Cattail Filtered Stormwater Ponds

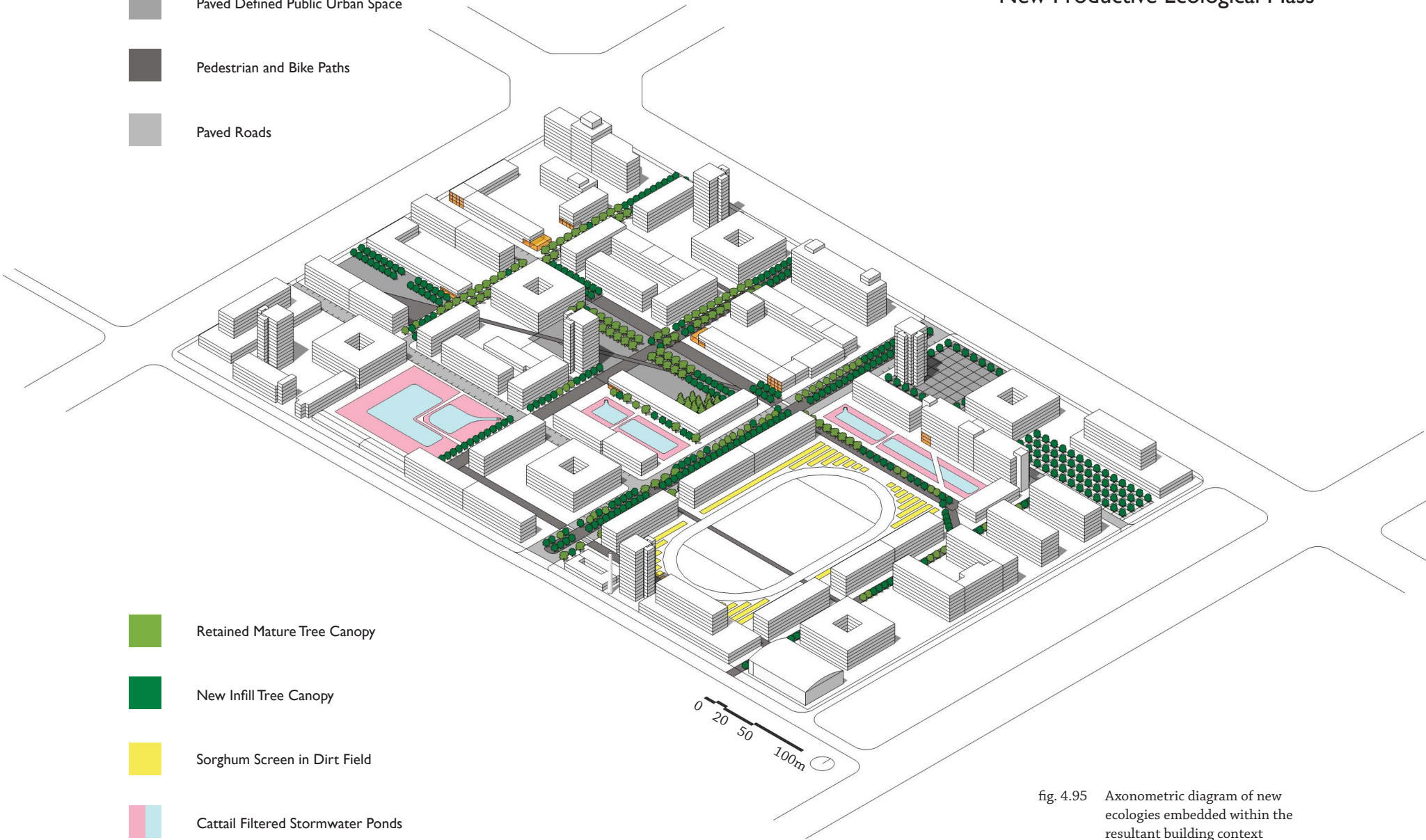


fig. 4.95 Axonometric diagram of new ecologies embedded within the resultant building context

Wetland Filtration Stormwater Ponds in New *Danwei*

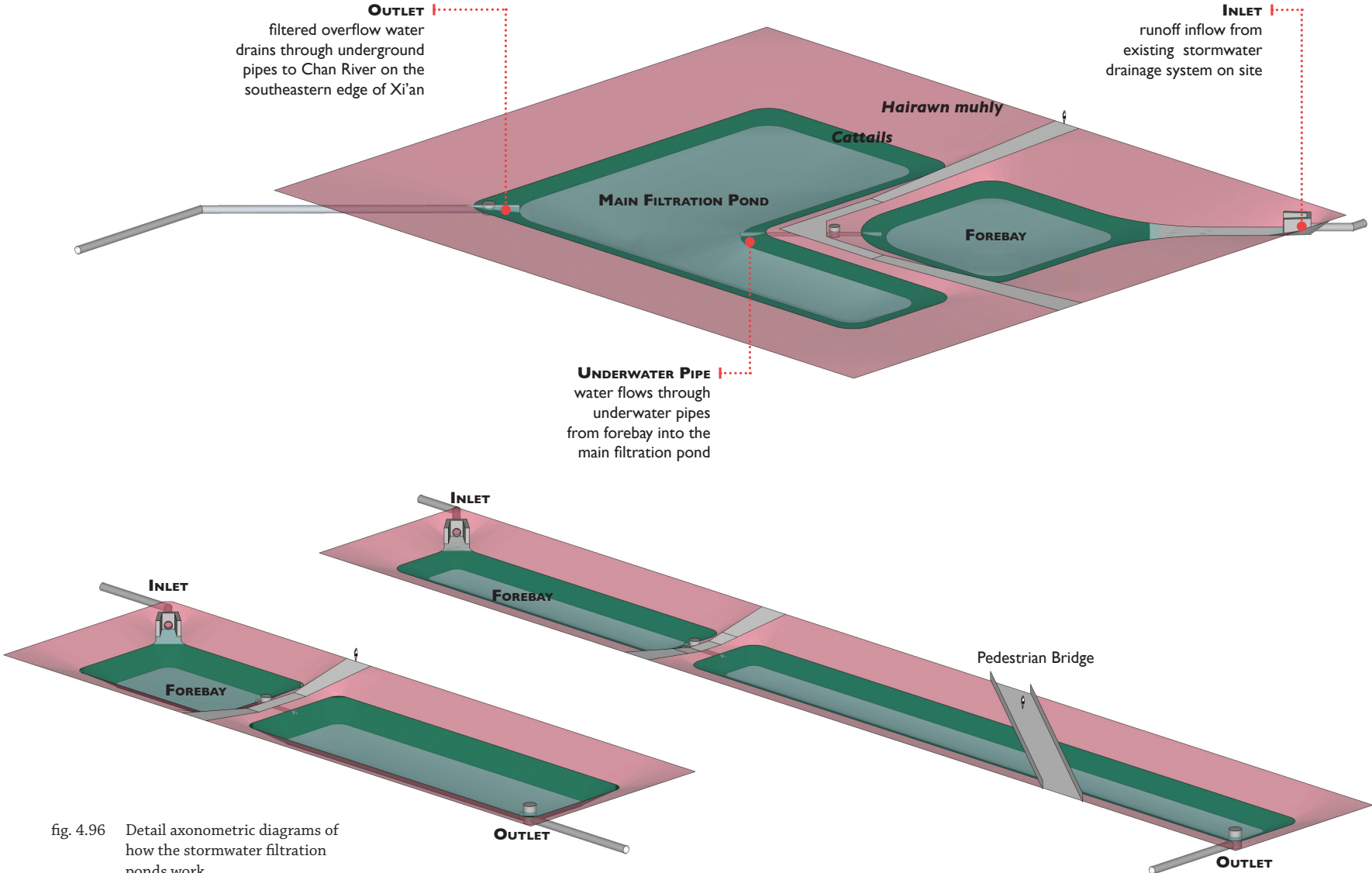


fig. 4.96 Detail axonometric diagrams of how the stormwater filtration ponds work

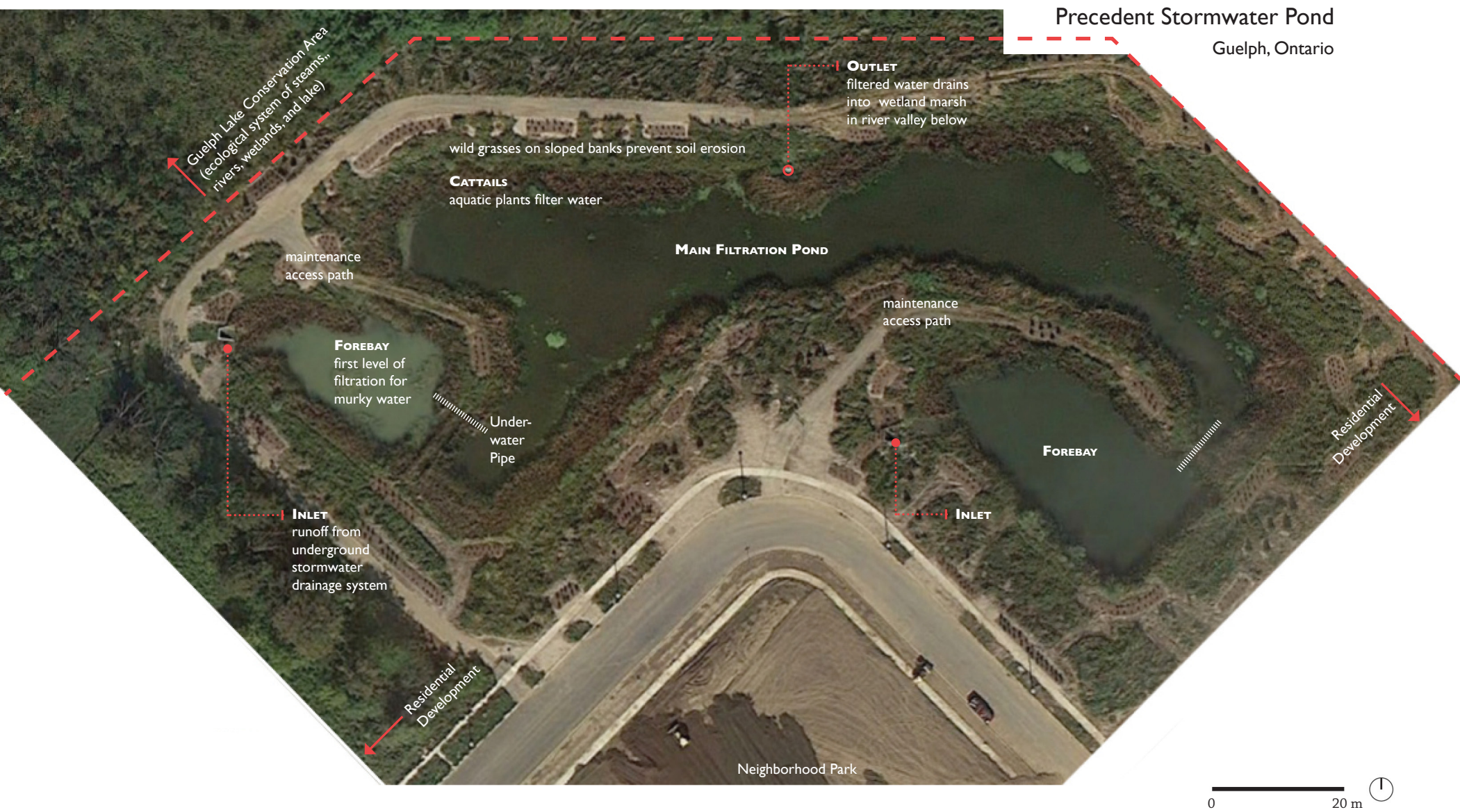


fig. 4.97 Satellite view of cattail-filtered stormwater management pond in residential development near Guelph Lake Conservation Area



fig. 4.98 Photographs of cattail-filtered stormwater pond in Guelph

Plant Selection for Ecological Mass

Wetland Marsh

Cattails are reed-like aquatic plants commonly found in freshwater marshes that filter toxins from the water. They spread quickly once planted and reach a height of approximately a meter. During summer and spring, the plants have brown spikes at the top of green leafy stems. In winter and autumn, leaves and stems turn into dried wheat-colored reeds topped by white puffy down produced from the spike. The following cattail species native to China are planted in ponds for stormwater filtration:

typha davidiana (da xiang pu)

typha lugdunensis (duan xu xiang pu)

typha pallida (qiu xu xiang pu)

Hairawn muhly (*Muhlenbergia capillaris*) are low-maintenance, clumped perennial plants with feathery clouds of pink flowers that last from summer into the end of autumn before turning to reed stalks in the winter. They are drought tolerant and are found along roads and in prairies but can also tolerate wet conditions. Typical height is 30-90 centimeters and wide is 60-90 centimeters. Hairawn muhly are planted on the banks of stormwater ponds in the *danwei* to provide wildlife cover and to create a bright, fluffy groundcover.



fig. 4.99 Photographs of Hairawn muhly field in Jinshan District, Shanghai



Dirt Field

Sorghum is a genus of grasses commonly cultivated for grain production in the Guanzhong Plain and other parts of Northern China. They are red or yellow-green in color and grow over a meter in height. Winter rye, a wheat-like grass grain, is grown during the colder months following the fall sorghum harvest as a cover crop to replenish soil nutrients and prevent erosion. These grains are planted in rows to architecturally define and screen the dirt field and track in the campus *danwei*. Grains are harvested manually by members of the campus community or by city inhabitants for personal consumption and can be served in campus canteens or cafes.



Planted Patio

Chinese persimmon trees (*diospyros kaki*) are planted in a 9 by 9 meter grid filling or defining paved urban patios at the edge of the *danwei*. Trees can grow up to 6 meters in height and are pest-resistant and resilient in urban conditions. Fruit can be plucked by individuals at the end of autumn or can be left alone as decoration. In the *danwei* patios, these trees provide generous shade during the warmer months, and their brightly colored fruit attracts people to the space.

fig. 4.100 Sorghum detail

fig. 4.101 Sorghum field



fig. 4.102



fig. 4.103



fig. 4.104



fig. 4.105

Forest Clearing

Chinese hawthorn trees (*crataegus pinnatifida*) are planted in rows along circulation paths or promenades and in urban plazas in the *danwei* for dappled shade, colorful fruit, and wispy foliage. This tree has white flowers in early spring, red-gold leaves in autumn, and bright red fruit lasting into late autumn after leaves are shed. They are pest-resistant and easily adapt to varying soil conditions. Typical trees can reach up to 6 meters tall and have a spread of 4.5 meters.

fig. 4.102 Chinese persimmon tree

fig. 4.103 Chinese persimmon in late fall

fig. 4.104 Tree grid of Patio de los Naranjos in Spain's Seville Cathedral

fig. 4.105 Orange trees in Patio de los Naranjos

fig. 4.106 Chinese hawthorn tree

fig. 4.107 Las Ramblas, tree-lined promenade in Barcelona



fig. 4.106



fig. 4.107

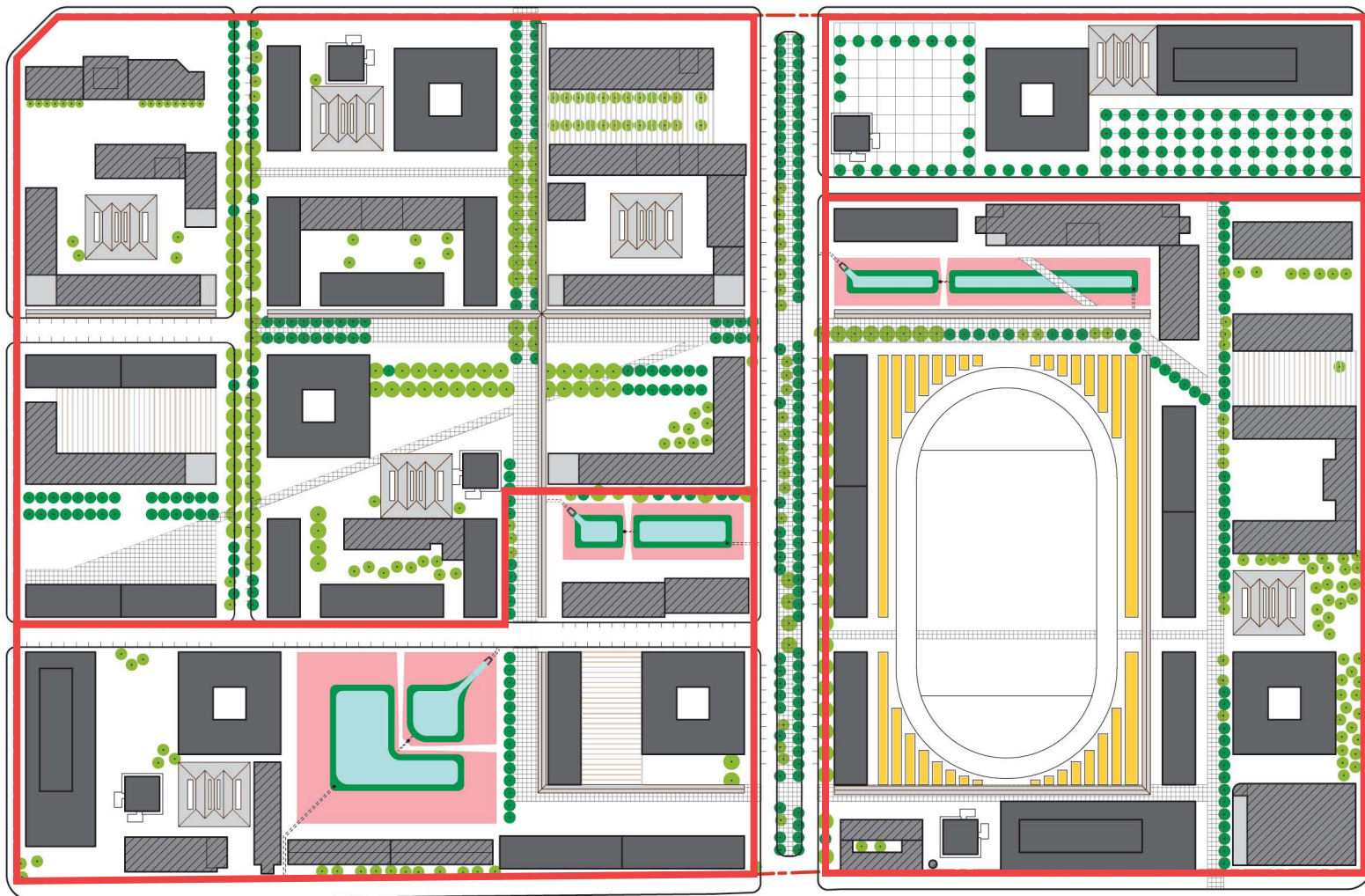


fig. 4.108 Division of site into four distinct scenes centered on ecological features

The Four Scenes

division of site into four scenes by associating productive ecological mass with urban cultural activities

catch glimpses of the four scenes while strolling along the continuous tree-lined urban promenade

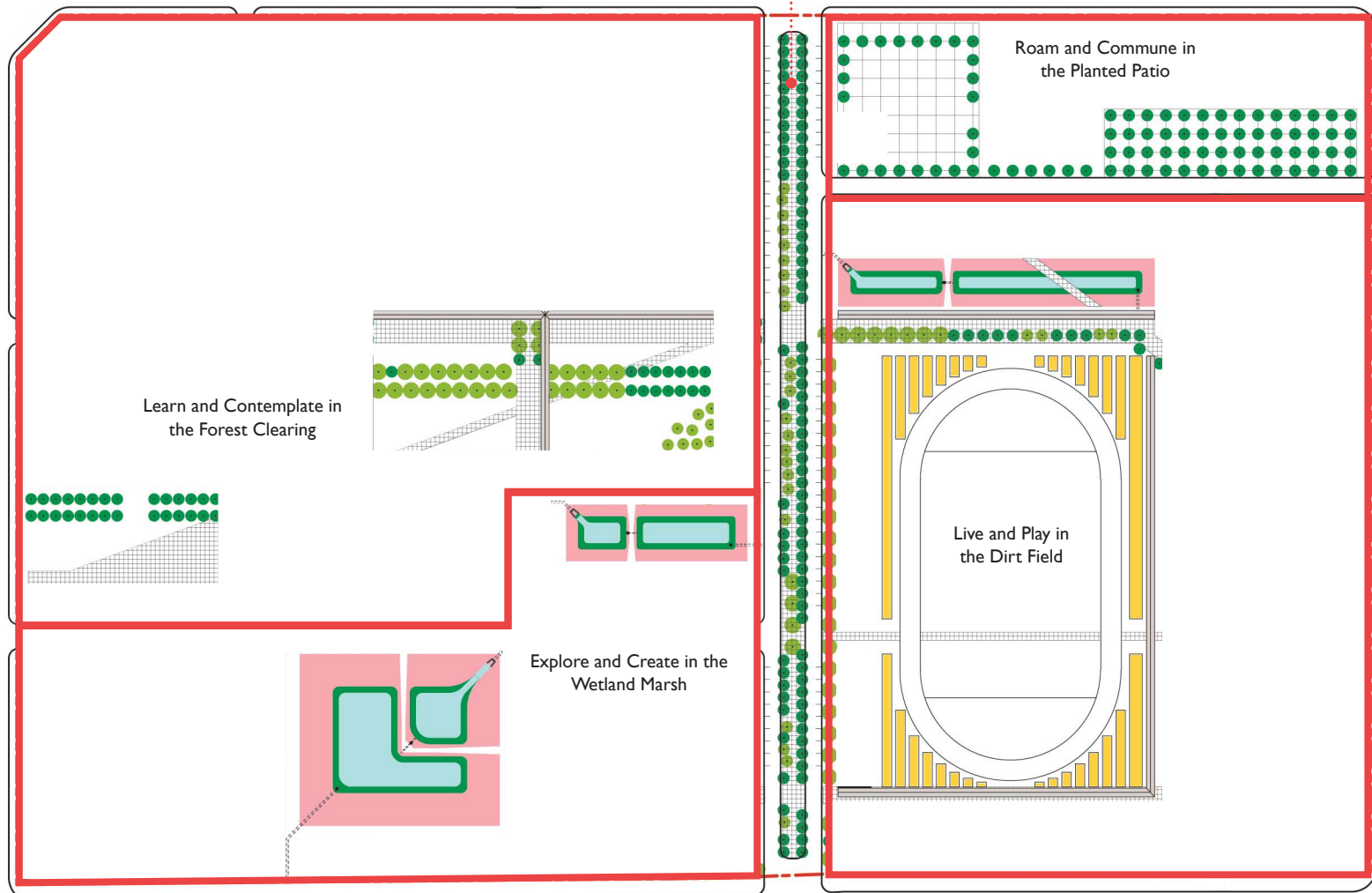


fig. 4.109 Site division from characterization of productive ecologies with cultural activities

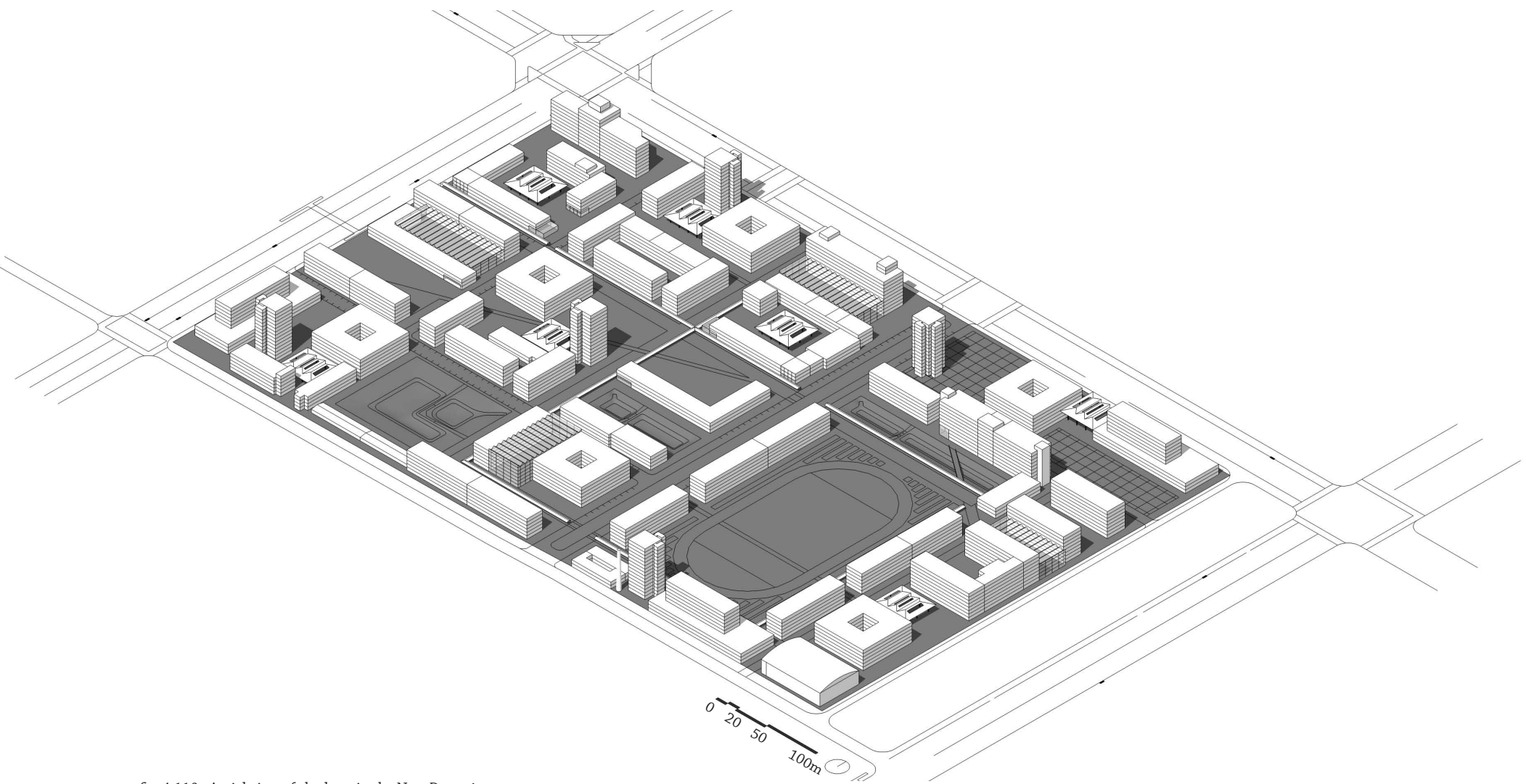


fig. 4.110 Aerial view of shadows in the New Danwei

Shadows in the New *Danwei*

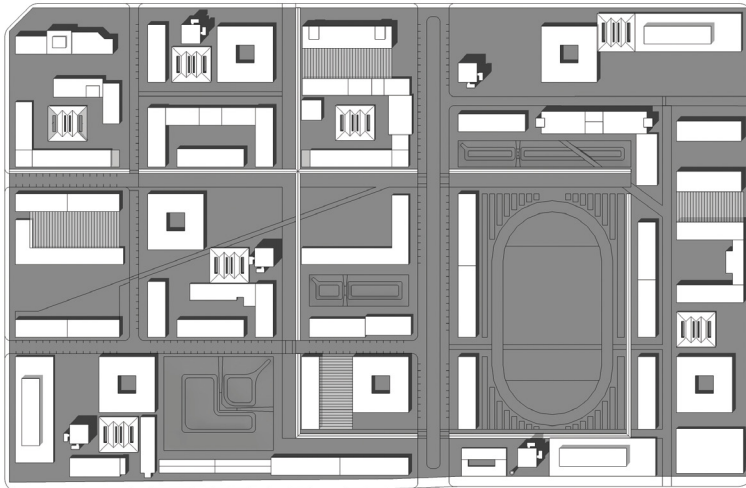


fig. 4.111 Summer solstice shadow plan

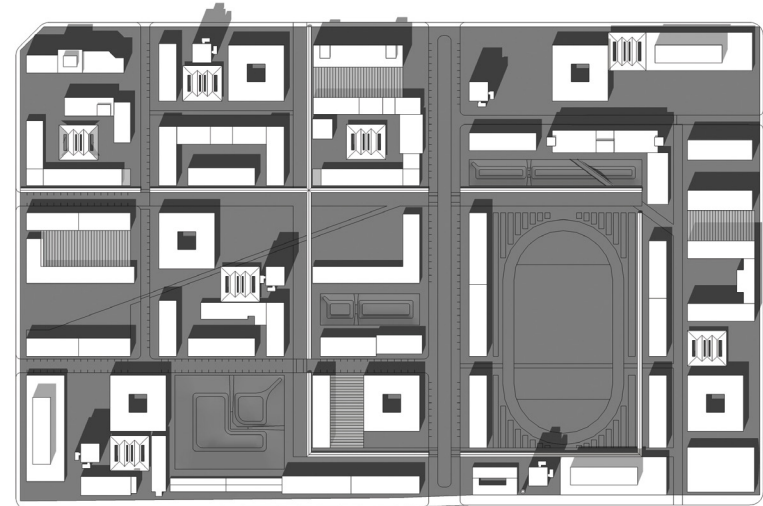


fig. 4.113 Equinox shadow plan

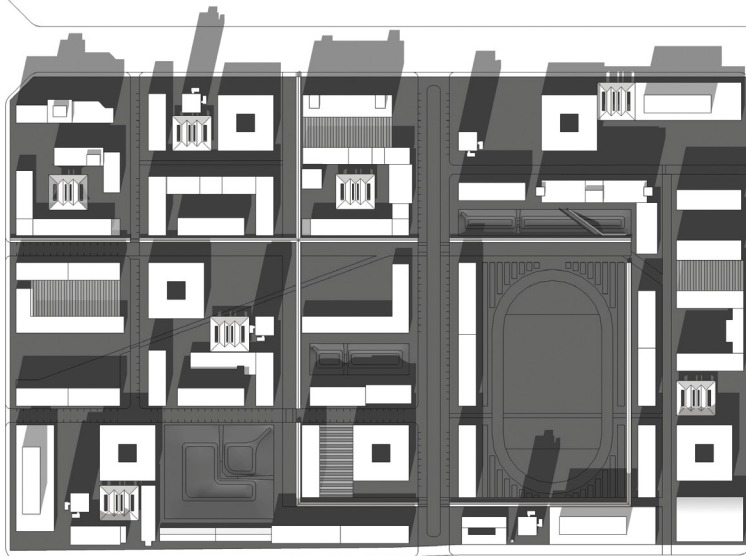


fig. 4.112 Winter solstice shadow plan

Shadows in the New *Danwei* act as sundials that trace patterns onto the ground plane with the progression of the day. Point towers cast shadows with a long bar shape across defined open spaces. This animates the paved surfaces and creates a sense of atmosphere.

4.3.3 Socialization of Covered Spaces as Autonomy and Collectivity

A campus *danwei* can be transformed using an independent pedestrian path system and a continuous and coherent network of covered spaces to mediate between formal, autonomous indoor activities and informal, collective outdoor activities. On the one hand, universities are dedicated to the continuation of an established knowledge base. On the other hand, they are also responsible for the expansion or critique of that knowledge base through interactions with a range of people from diverse backgrounds and real world situations in the surrounding city. Transfers of knowledge are not limited to formal indoor environments such as classrooms. Instead, meaningful and inventive critical ideas are often facilitated by informal social and intellectual exchanges in outdoor spaces.

- Separate pedestrian and bike circulation from car traffic.
- Create loggias in the cutouts produced from partial demolition of existing buildings.
- Connect these loggias with an armature of covered spaces. Covered walkways, large spanning roofs, and greenhouse atria are used in addition to enclosed loggias to mediate between indoor and outdoor activities.

Existing *Danwei* Circulation
Dominated by Car Traffic

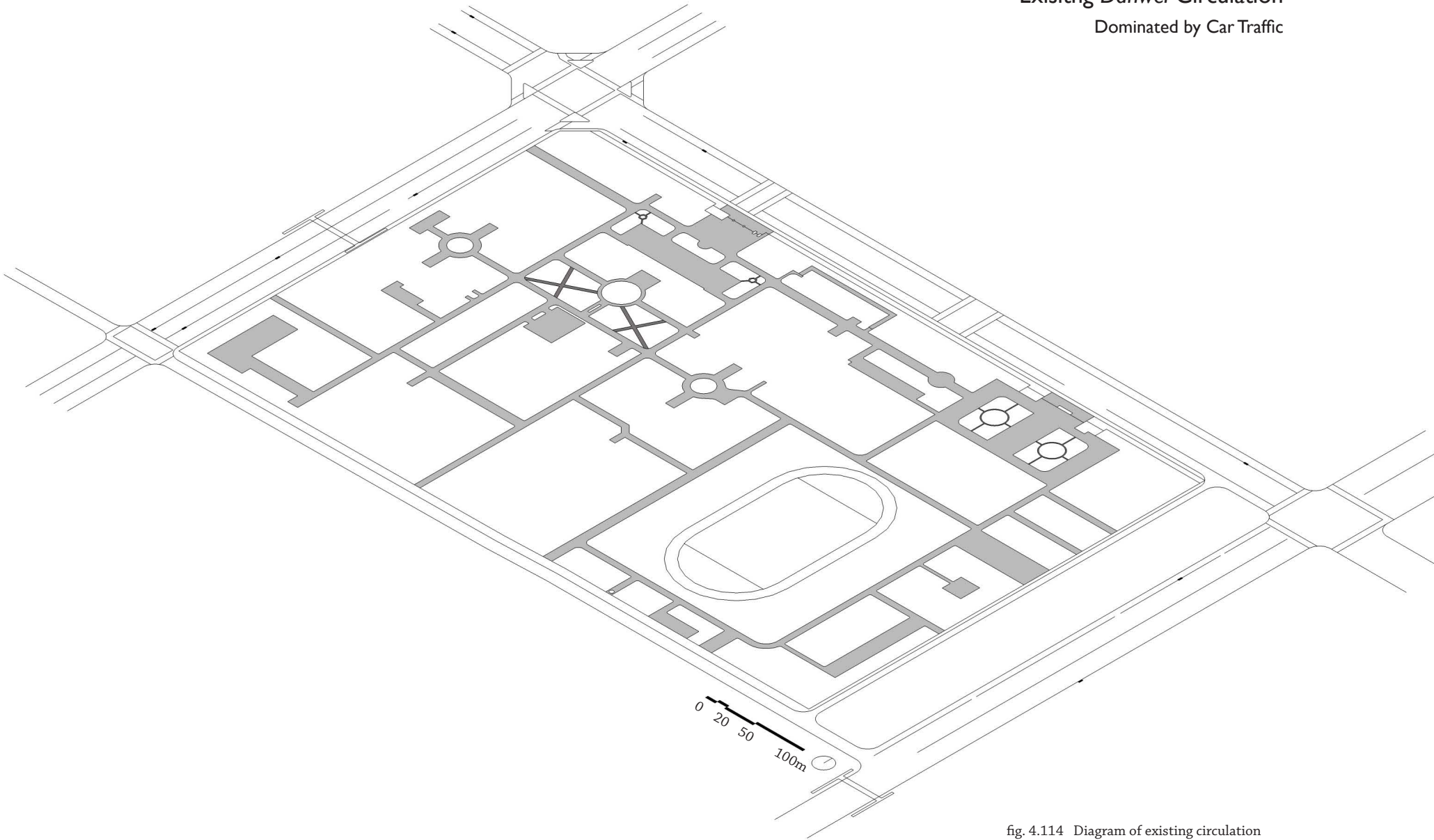


fig. 4.114 Diagram of existing circulation

New Danwei Circulation

Introducing Independent Pedestrian Paths

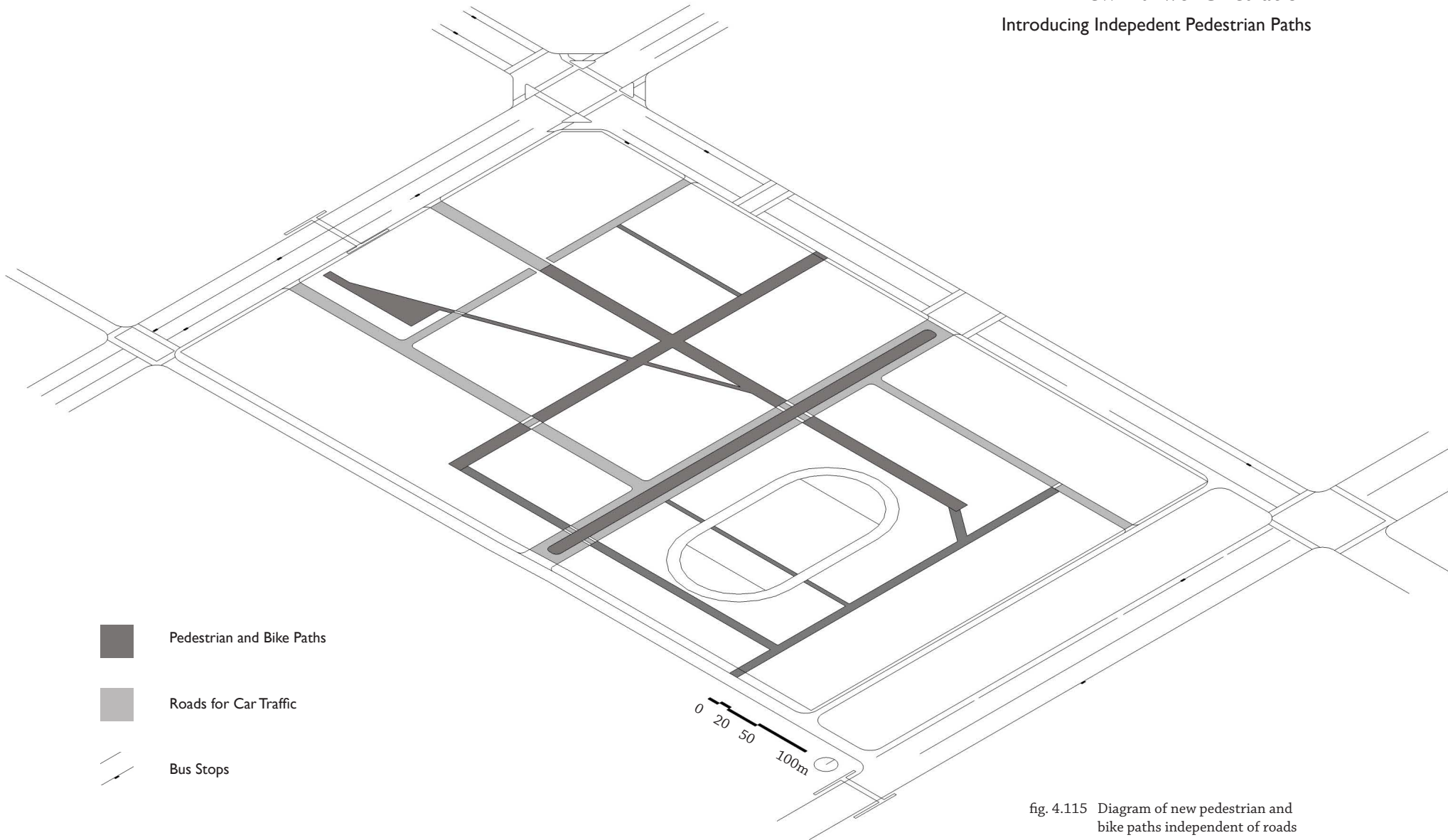


fig. 4.115 Diagram of new pedestrian and bike paths independent of roads for car traffic

Existing *Danwei* Circulation Grid Segmenting Land and Building Uses

- Water Pedestrian and Bike Paths
- Roads for Car Traffic
- Open Space

- Mixed Use
- Education
- Production
- Retail/Commercial
- Residential
- Operational Services

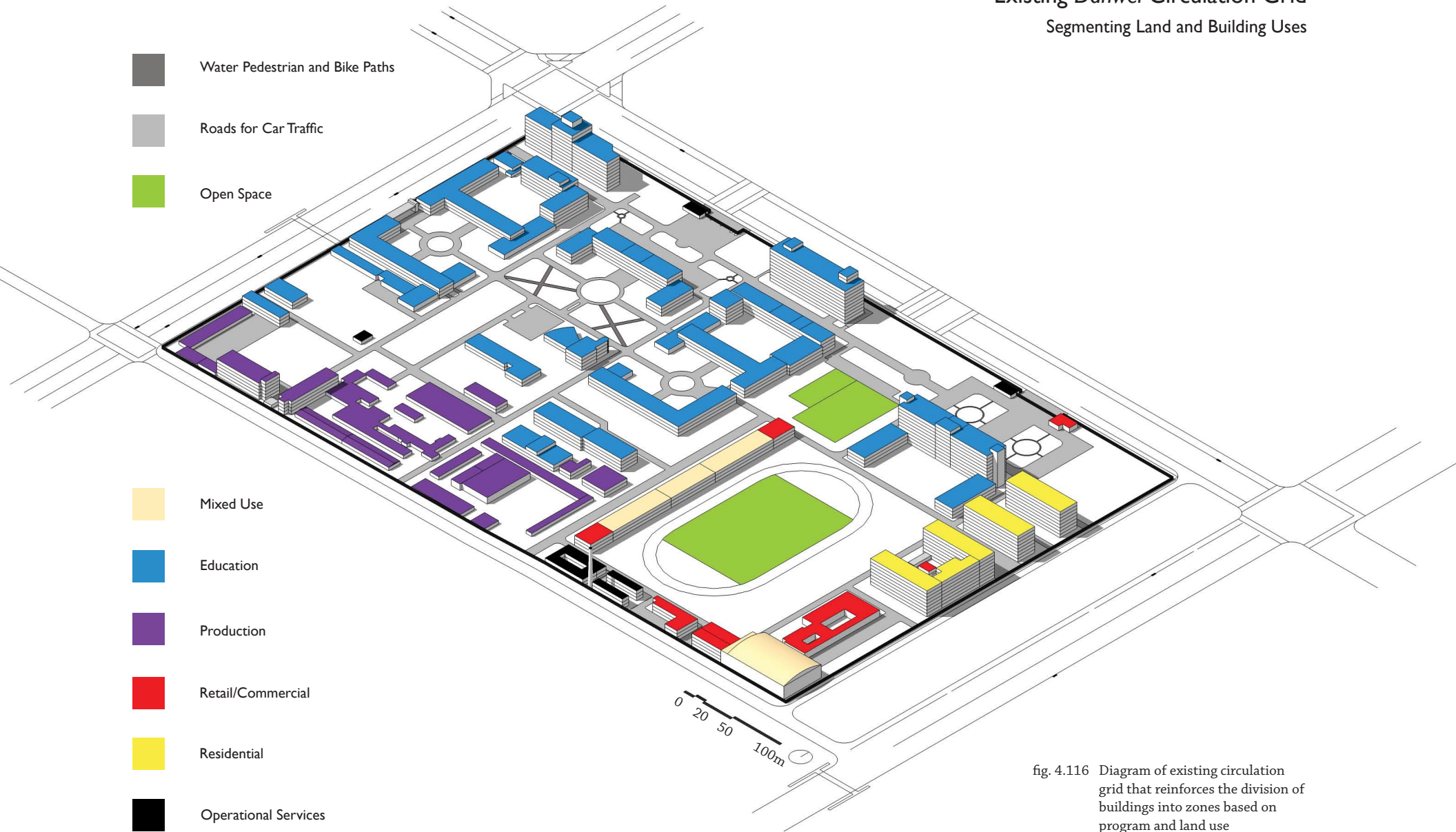


fig. 4.116 Diagram of existing circulation grid that reinforces the division of buildings into zones based on program and land use

Diagonal Pedestrian Circulation in New *Danwei* Mosaic

Connecting Major Defined Urban and Ecological Spaces

- Water
- The Four Scenes + Promenade
- Leisure

- Mixed Use
- Education
- Production
- Retail/Commercial
- Residential
- Operational Services

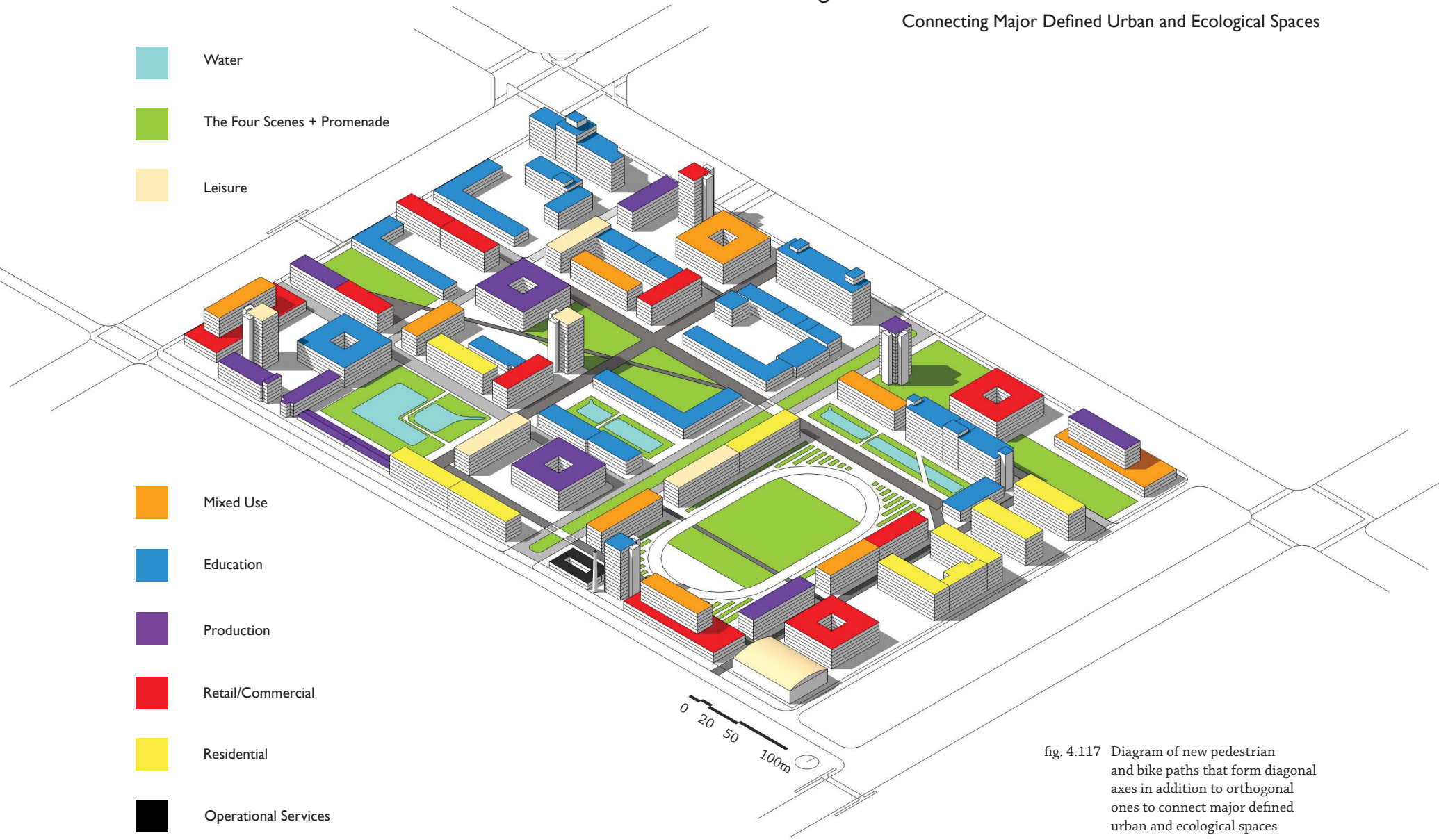
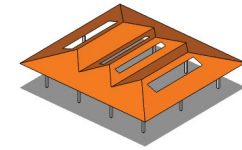


fig. 4.117 Diagram of new pedestrian and bike paths that form diagonal axes in addition to orthogonal ones to connect major defined urban and ecological spaces



fig. 4.118 Use of the large spanning roof in Preston Covered Market, Lancashire, U.K.

Large Spanning Roof



Greenhouse Atrium

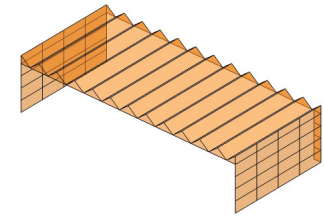
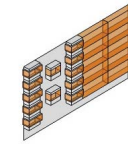


fig. 4.119 Greenhouse structures forming atria between laboratories and educational buildings, Institute for Forestry and Nature Research in Wageningen University

Enclosed Loggia



Covered Walkway

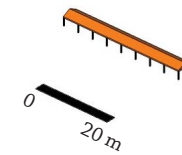


fig. 4.120 Covered typologies in the New *Danwei*

Typology of Covered Spaces



fig. 4.121 Loggia enclosed by sliding glass windows in *danwei* housing



fig. 4.122 Covered walkway in the Seattle Center

Layer of Continuous Covered Spaces Ground Level

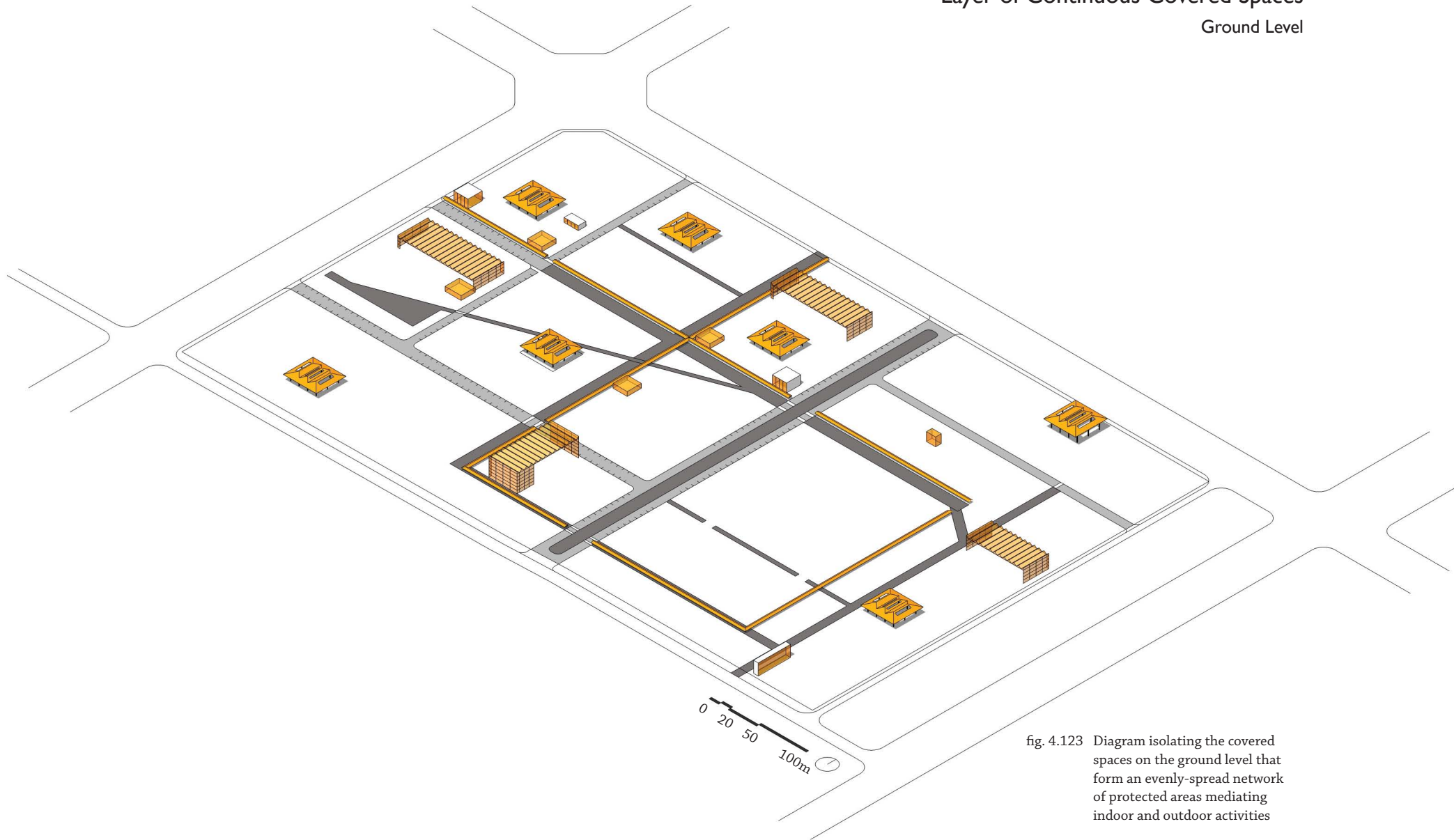


fig. 4.123 Diagram isolating the covered spaces on the ground level that form an evenly-spread network of protected areas mediating indoor and outdoor activities

Covered Spaces Embedded in the New *Danwei*
Ground Level

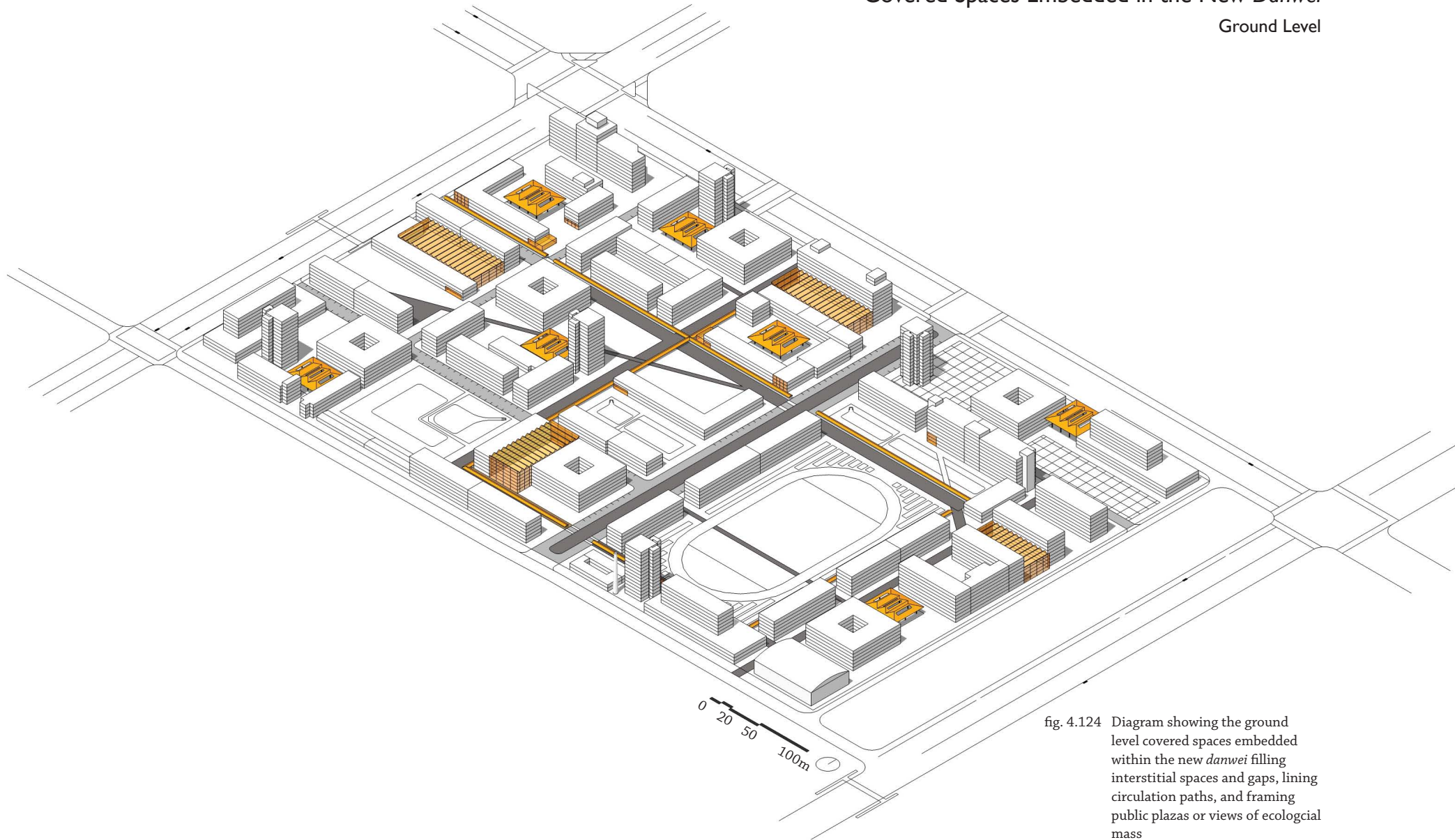


fig. 4.124 Diagram showing the ground level covered spaces embedded within the new *danwei* filling interstitial spaces and gaps, lining circulation paths, and framing public plazas or views of ecological mass

Layer of Continuous Covered Spaces Loggia Extending from Building Faces Above the Ground Plane

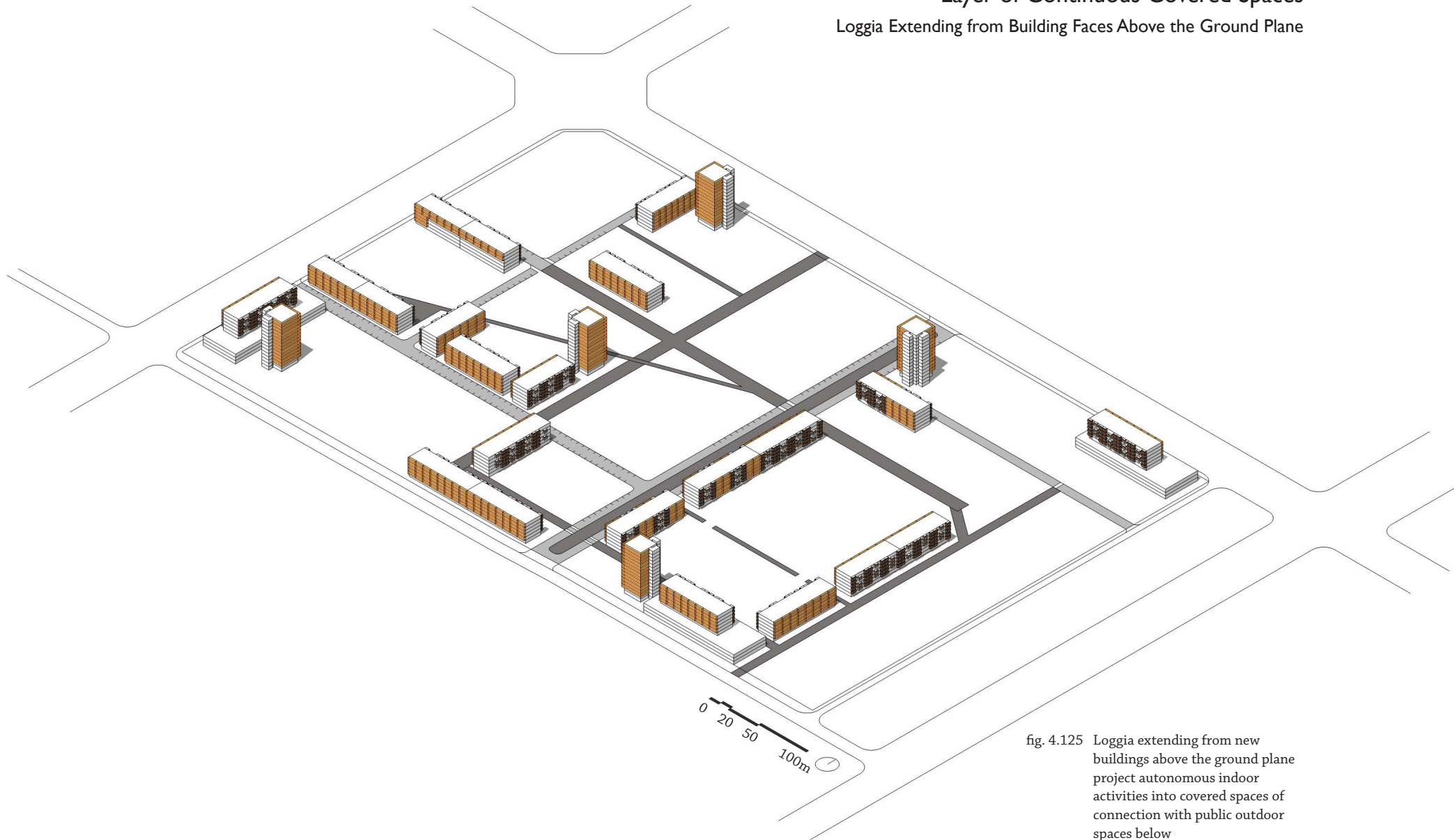


fig. 4.125 Loggia extending from new buildings above the ground plane project autonomous indoor activities into covered spaces of connection with public outdoor spaces below

Covered Spaces Embedded in the New *Danwei*
Loggia Extending from Building Faces Above the Ground Plane

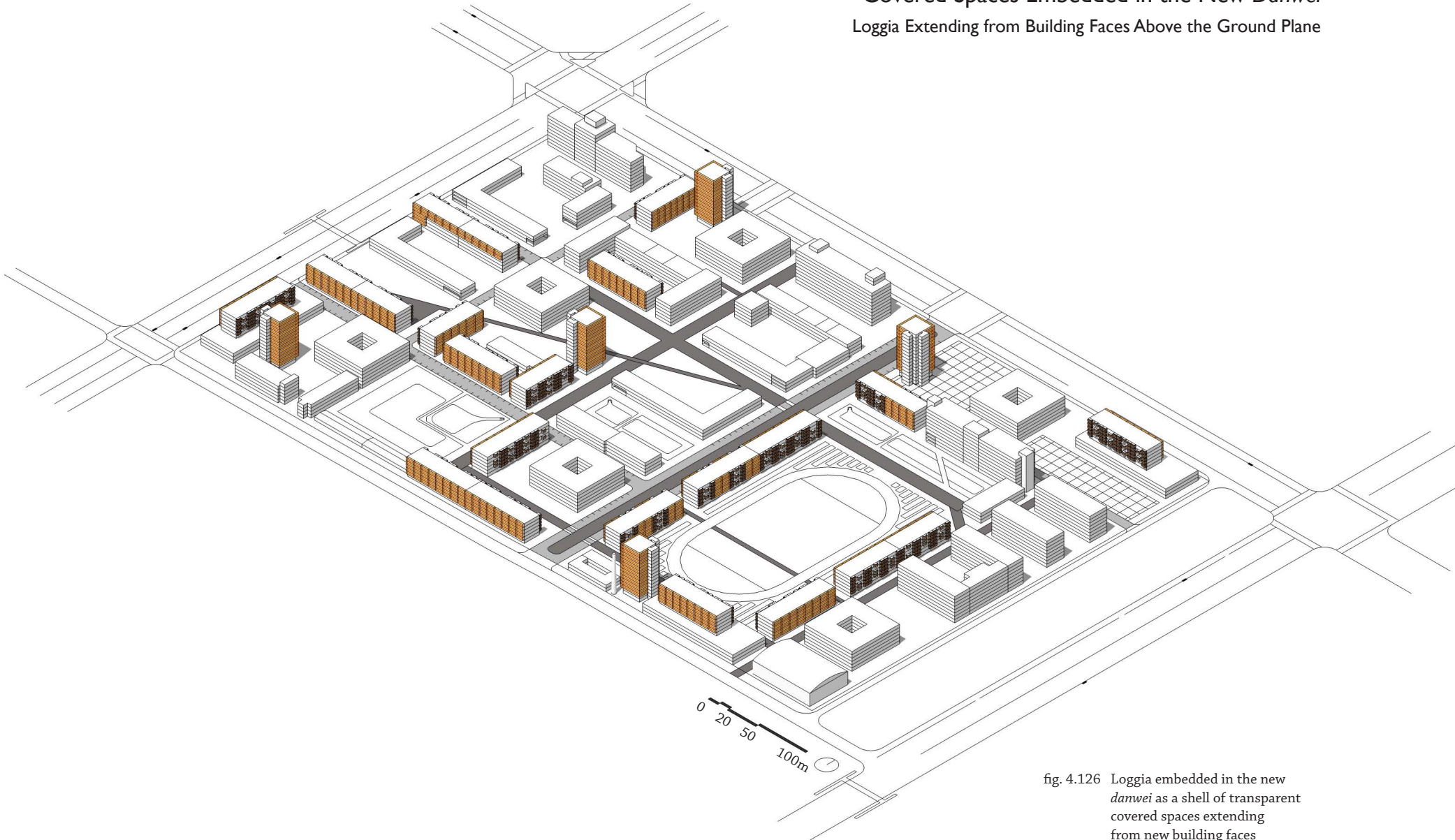


fig. 4.126 Loggia embedded in the new *danwei* as a shell of transparent covered spaces extending from new building faces

Resultant Continuous Covered Spaces

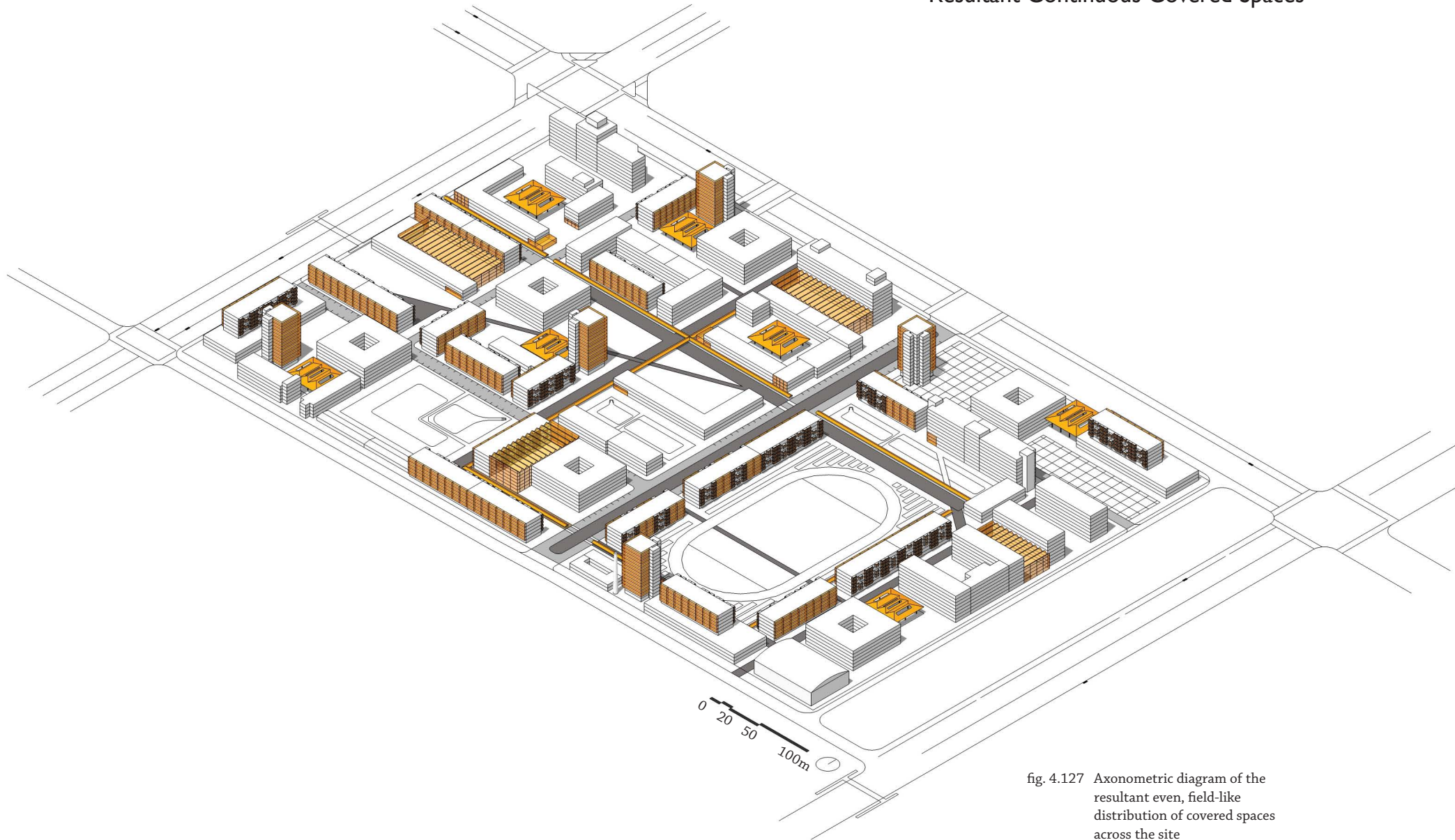


fig. 4.127 Axonometric diagram of the resultant even, field-like distribution of covered spaces across the site

Covered Spaces Connect the Four Scenes

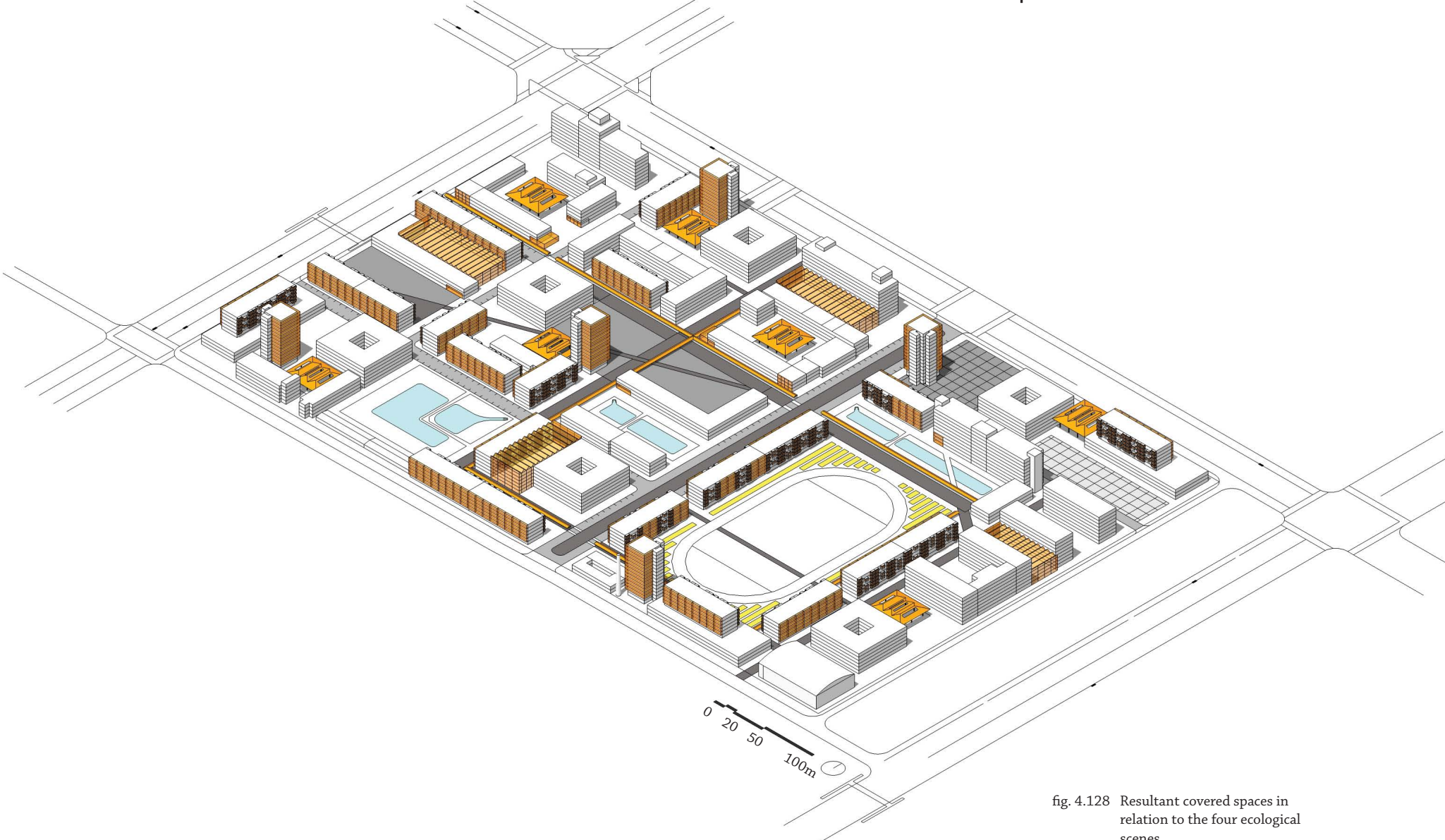
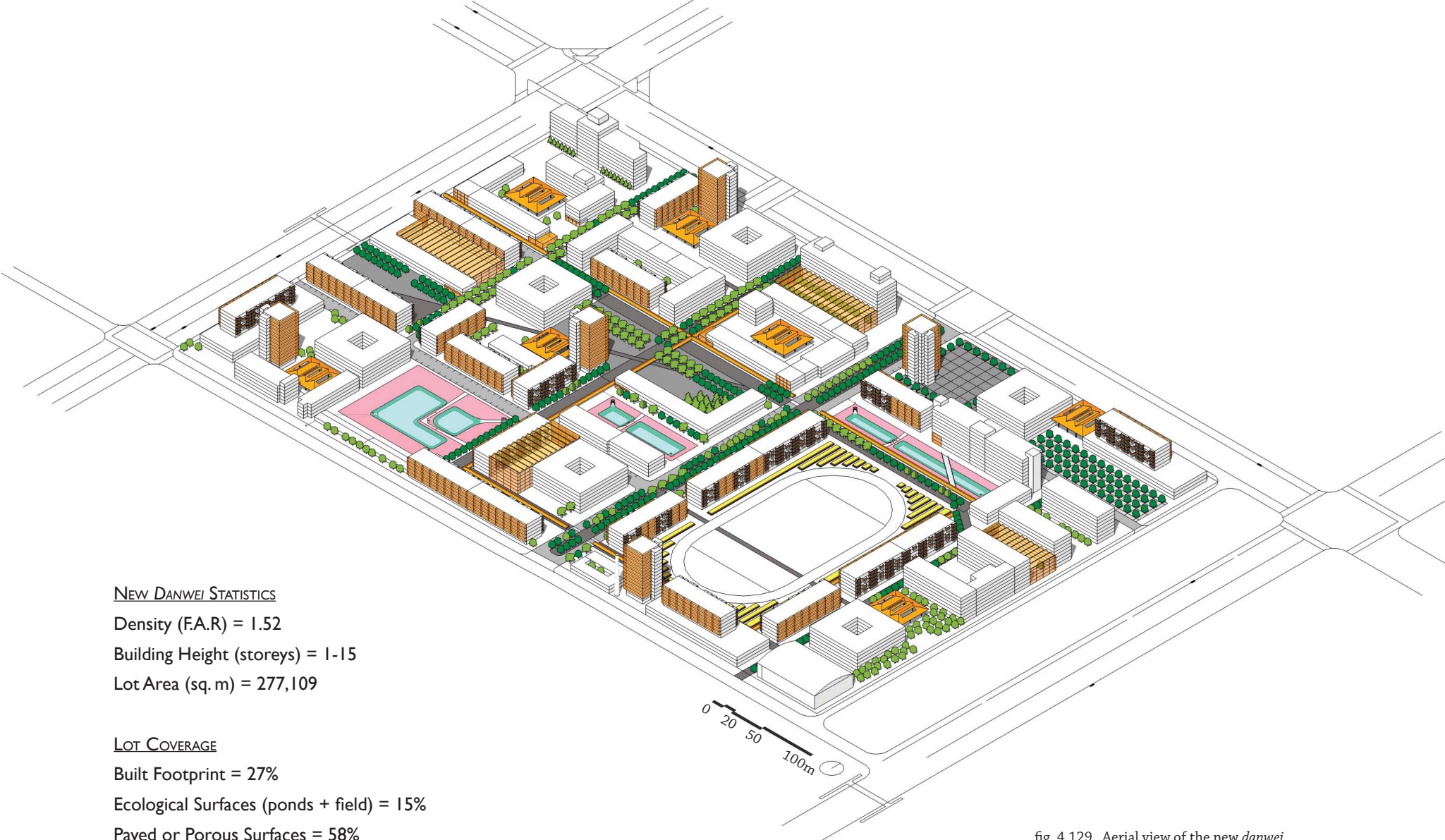


fig. 4.128 Resultant covered spaces in relation to the four ecological scenes

Resultant New *Danwei*



NEW DANWEI STATISTICS

Density (F.A.R) = 1.52
Building Height (storeys) = 1-15
Lot Area (sq. m) = 277,109

LOT COVERAGE

Built Footprint = 27%
Ecological Surfaces (ponds + field) = 15%
Paved or Porous Surfaces = 58%

fig. 4.129 Aerial view of the new *danwei*



Areas of differing intensities are created as defined public spaces in negative space produced from a thinness or emptiness in the overlap of the following three layers: conversion of the physical fabric as disintegration and formation, ecology of interstitial spaces as absence and presence, and socialization of covered spaces as autonomy and collectivity. The resultant spatial order on the site is no longer rigidly hierarchical, uniform, or grid-like. Rather, it is comprised of a diagonal progression of stormwater ponds and paved urban plazas and patios combined with tree-lined pedestrian promenades and planted dirt field.

Autonomy and Collectivity

socialization of covered spaces

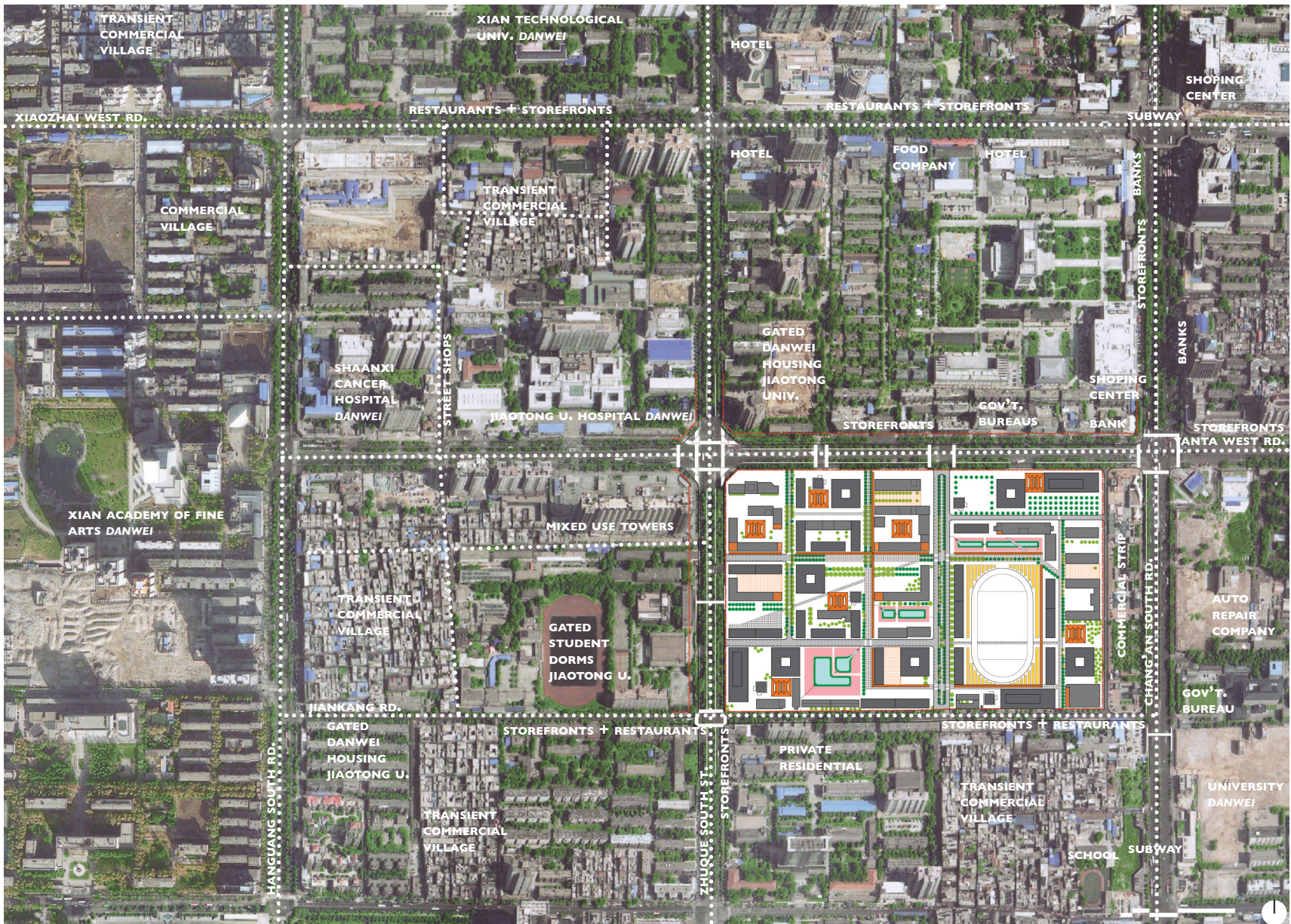
Absence and Presence

ecology of interstitial spaces

Disintegration and Formation

conversion of the physical fabric

fig. 4.130 Exploded axonometric diagram showing the three layers of incomplete architecture




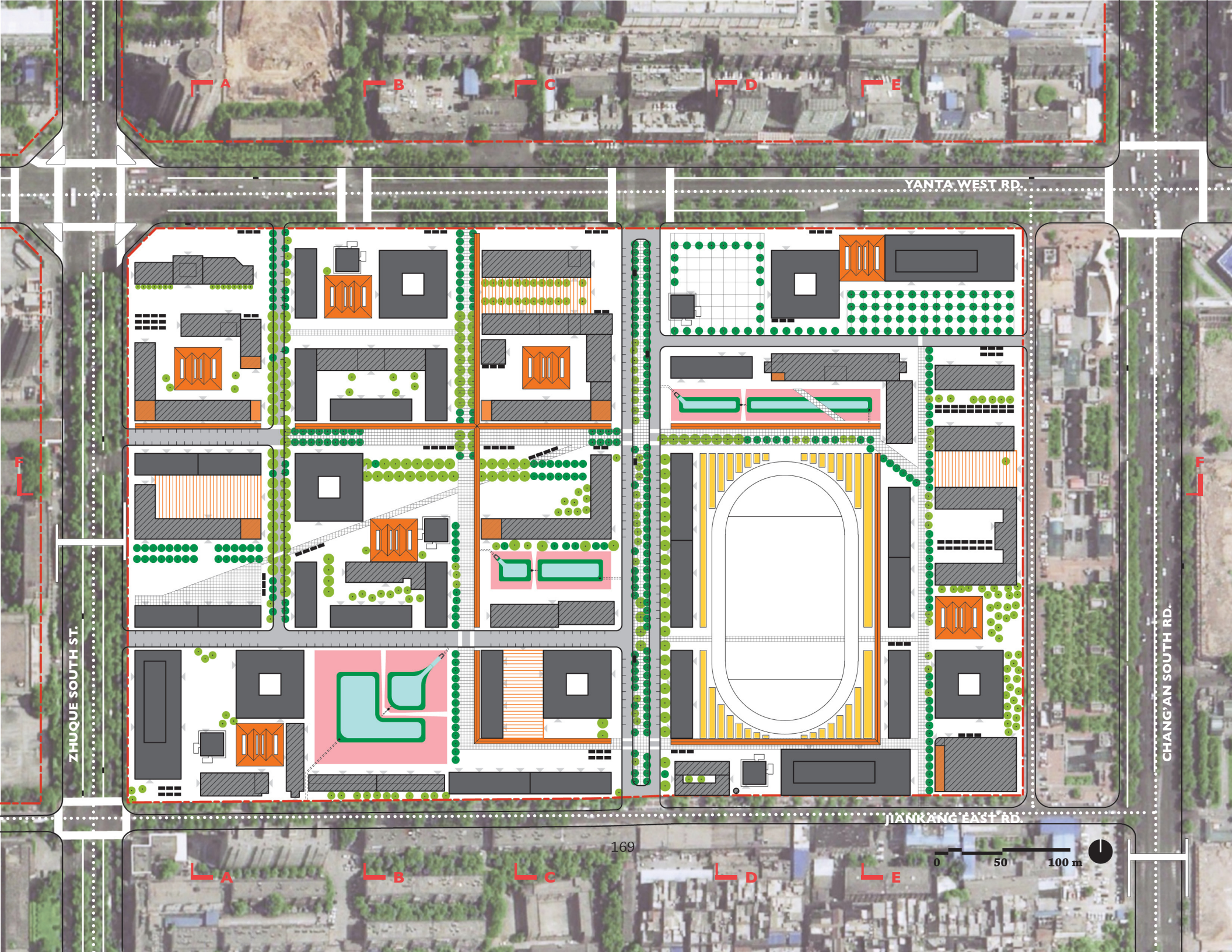
-  Retained Mature Trees
-  New Trees
-  Stormwater Filtration Ponds
-  Cattail Plants for Water Filtration
-  Hairawn Muhly Grasses on Pond Bank
-  Independent Pedestrian and Bike Circulation Paths
-  Sorghum Screen in Dirt Field
-  Covered Spaces (loggja, spanning roofs, and covered walkways)
-  Covered Spaces (greenhouse atria)
-  Existing Retained *Danwei* Buildings
-  New Buildings
-  Roads for Car Access
-  Property Line
-  Bike Shelters
-  Bus Stops
-  Building Entrances

fig. 4.132 Site plan of the new *danwei*



A B C D E

YANTA WEST RD.

ZHUQUE SOUTH ST.

CHANG'AN SOUTH RD.

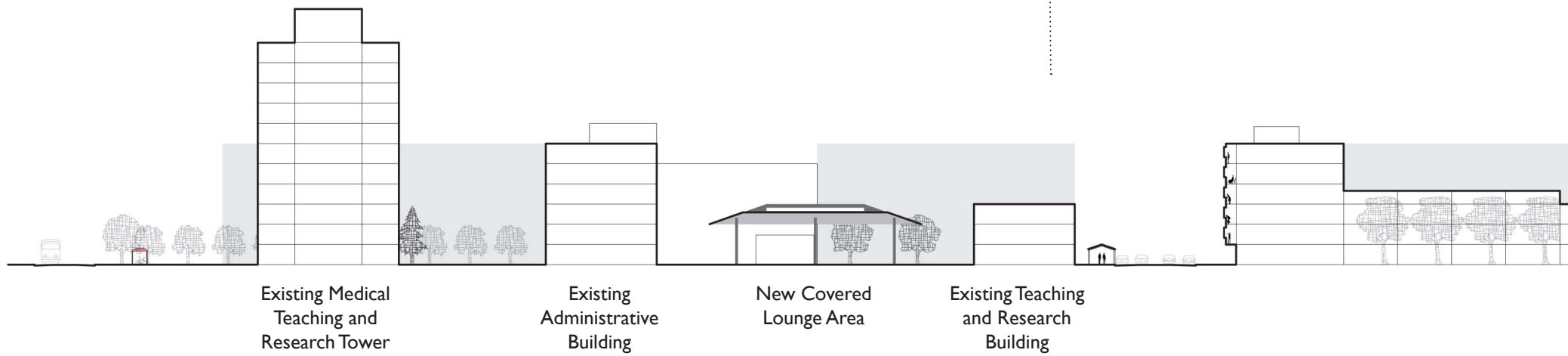
JIANKANG EAST RD.

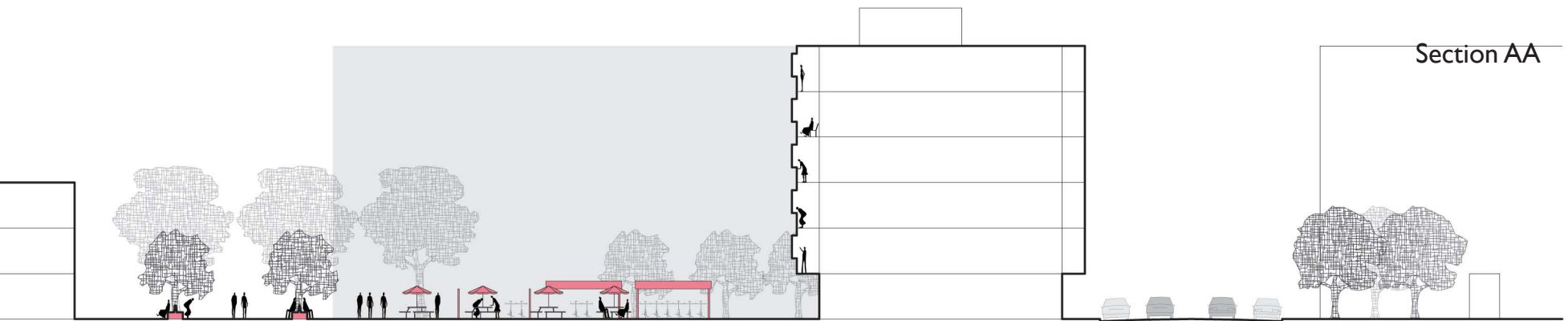
A B C D E

169

0 50 100 m

fig. 4.133 Cross section of the new *danwei* through defined open public plaza for outdoor eating and lounge





Section AA

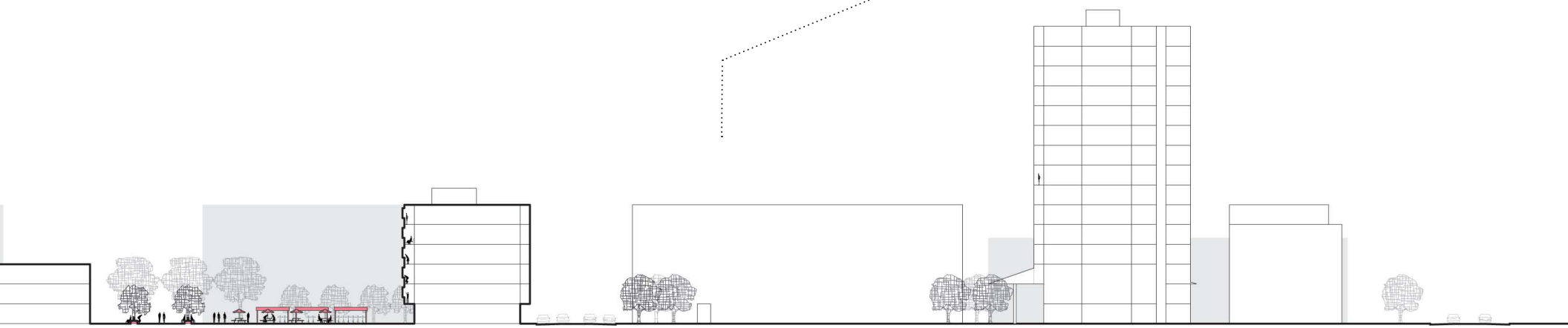
Bench Seating

Path

Outdoor Eating and Lounge Area

New Restaurants, Cafes,
and Retail

0 10 m



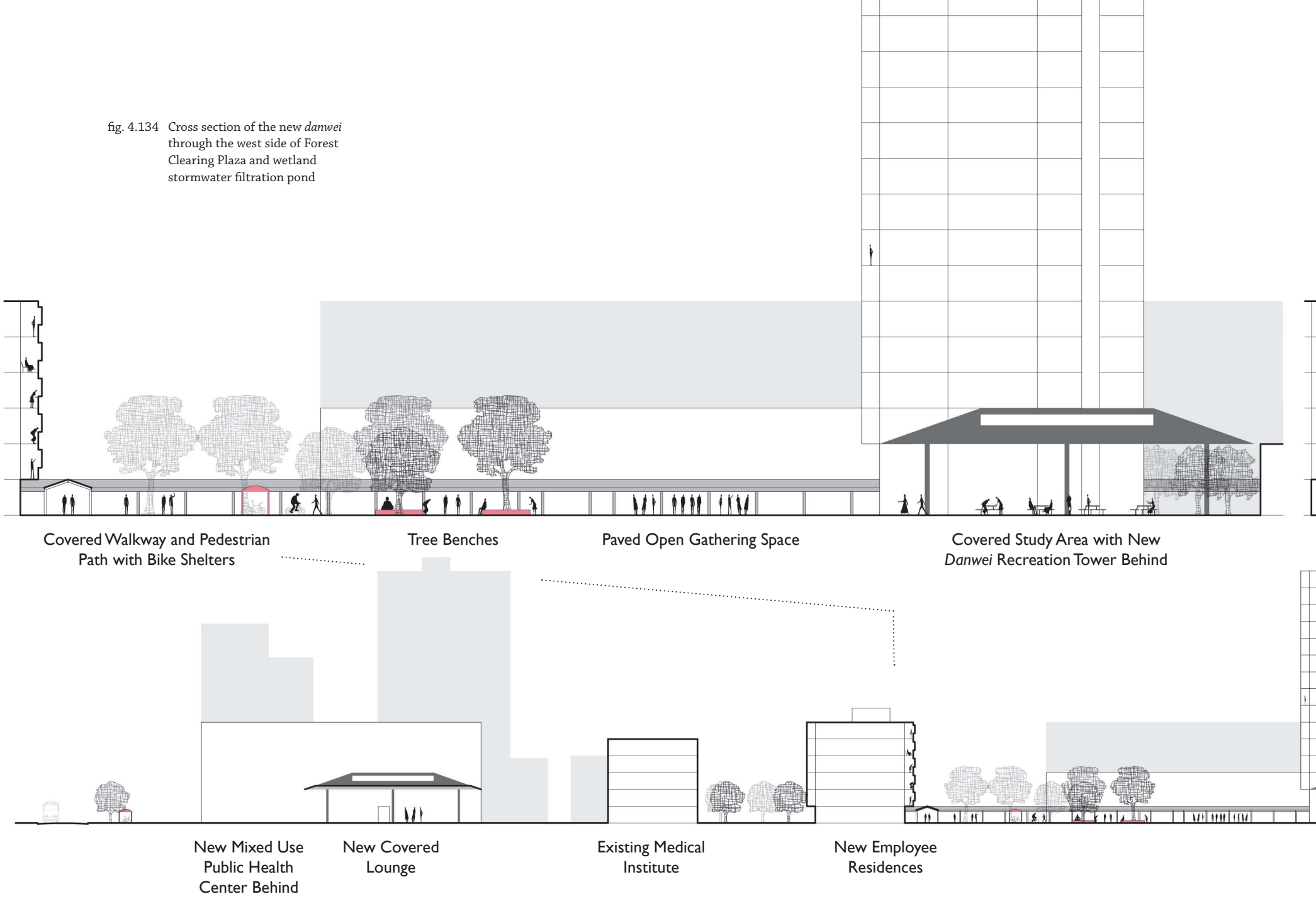
New Teaching and Conference Building

New Leisure
Studio Tower

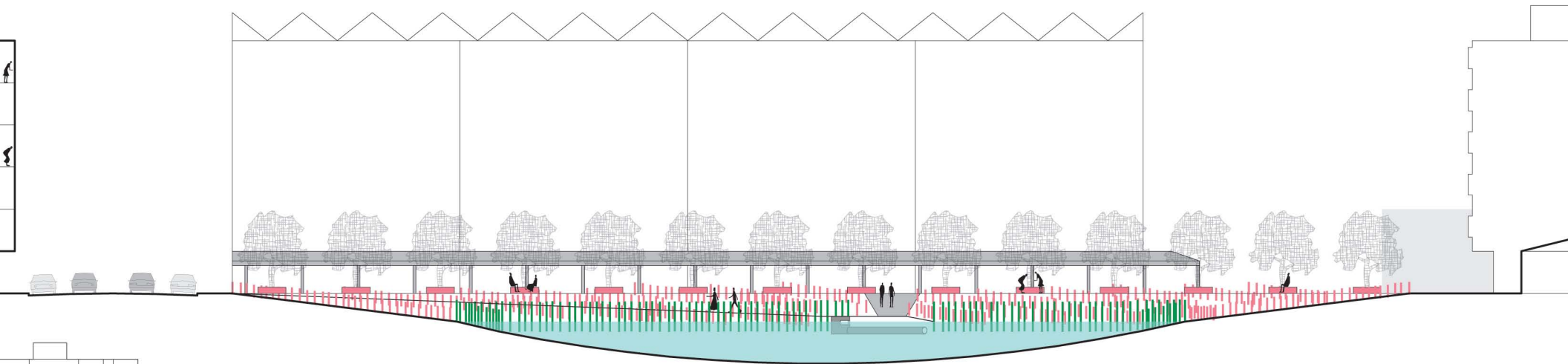
Existing Research
Institute

0 5 10 25 50 m

fig. 4.134 Cross section of the new *danwei* through the west side of Forest Clearing Plaza and wetland stormwater filtration pond

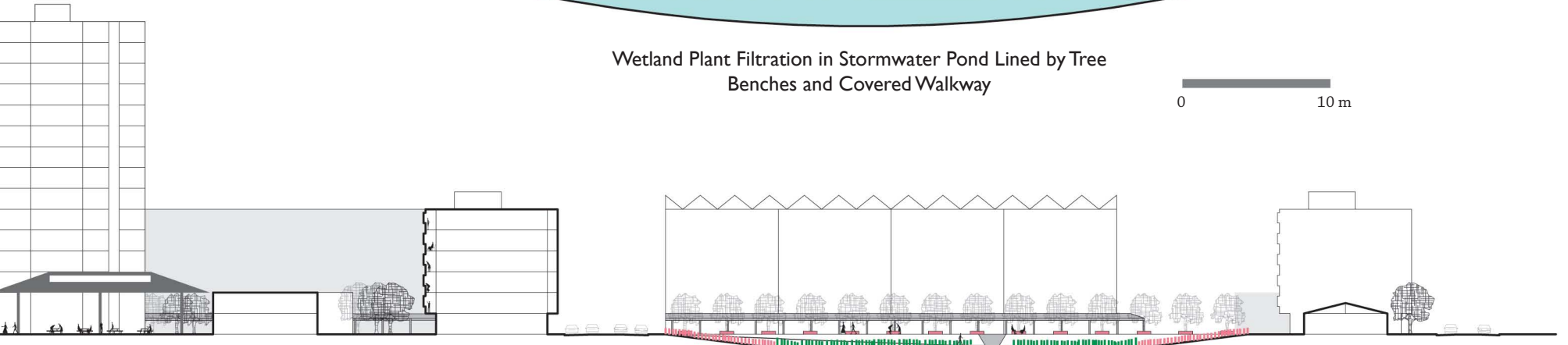


Section BB



Wetland Plant Filtration in Stormwater Pond Lined by Tree Benches and Covered Walkway

0 10 m



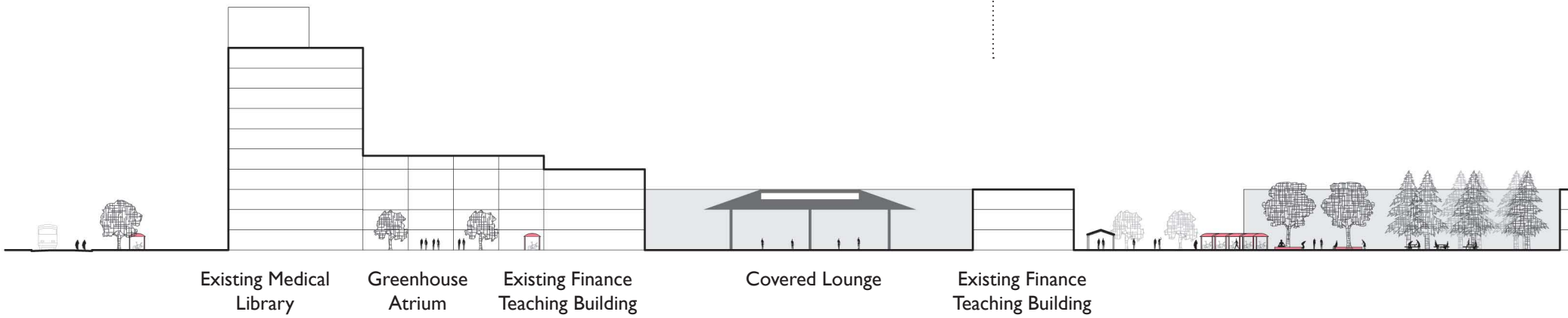
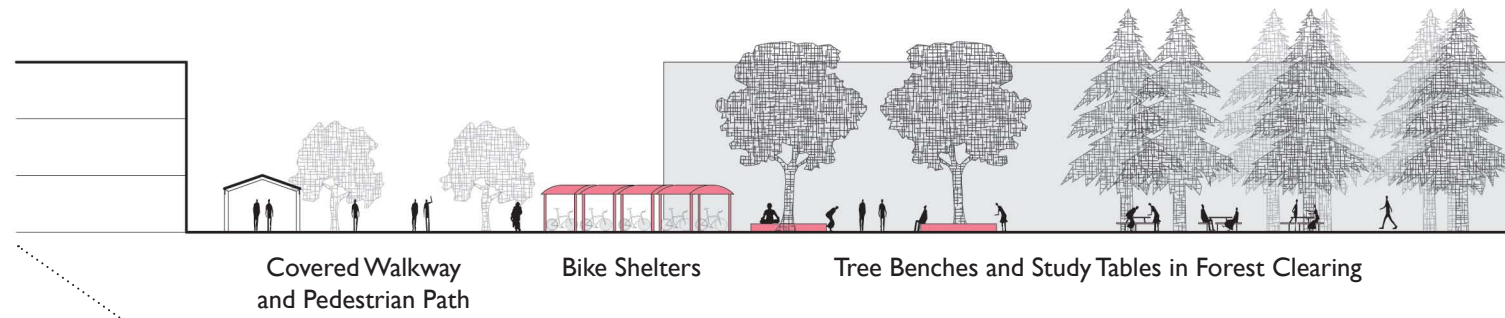
Existing Nursing Building

New Mixed Use Internet Cafes and Student Lounges

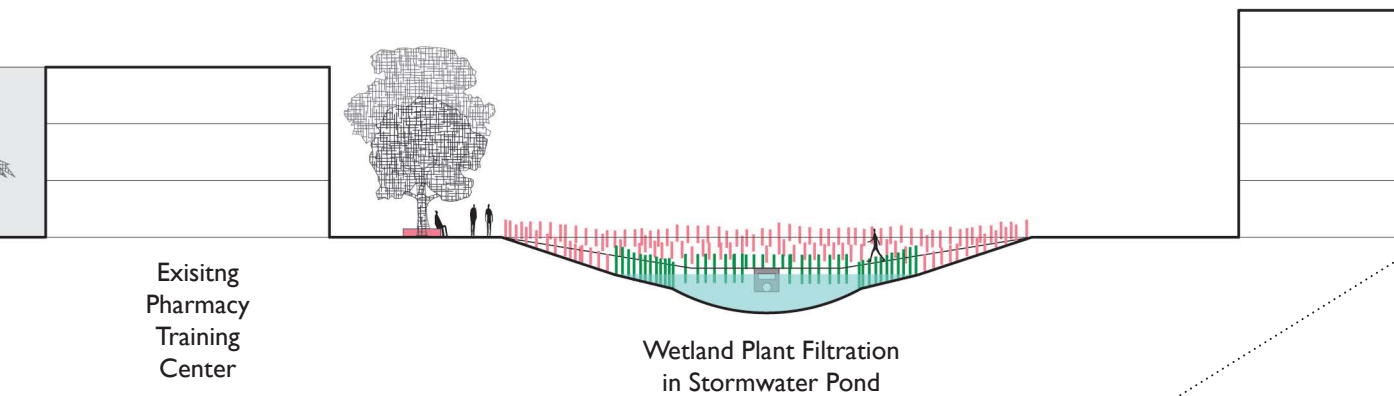
Existing Printing Workshop

0 5 10 25 50 m

fig. 4.135 Cross section of the new *danwei* through the east side of Forest Clearing Plaza and wetland stormwater filtration pond

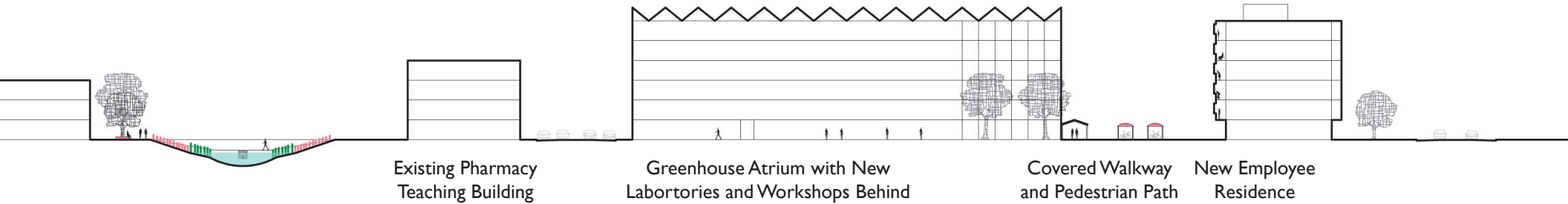


Section CC



Existing Pharmacy Training Center

Wetland Plant Filtration in Stormwater Pond



Existing Pharmacy Teaching Building

Greenhouse Atrium with New Laboratories and Workshops Behind

Covered Walkway and Pedestrian Path

New Employee Residence

175

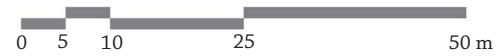
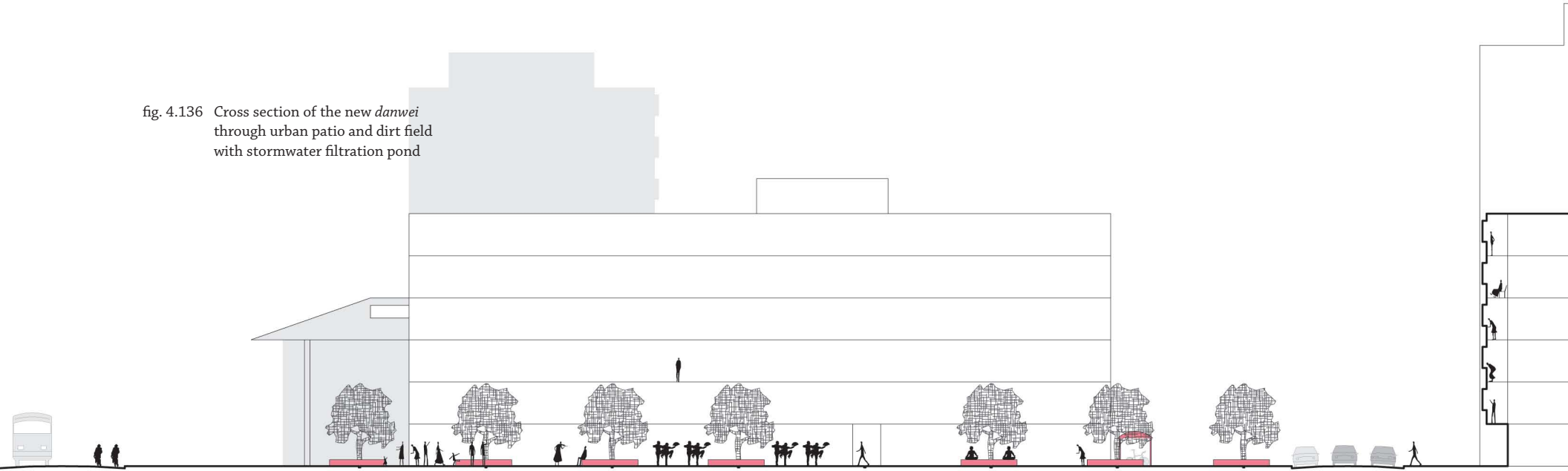
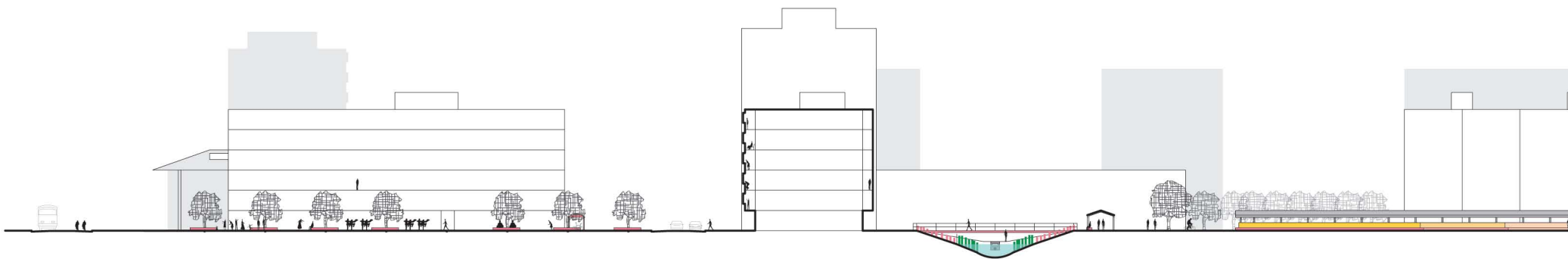


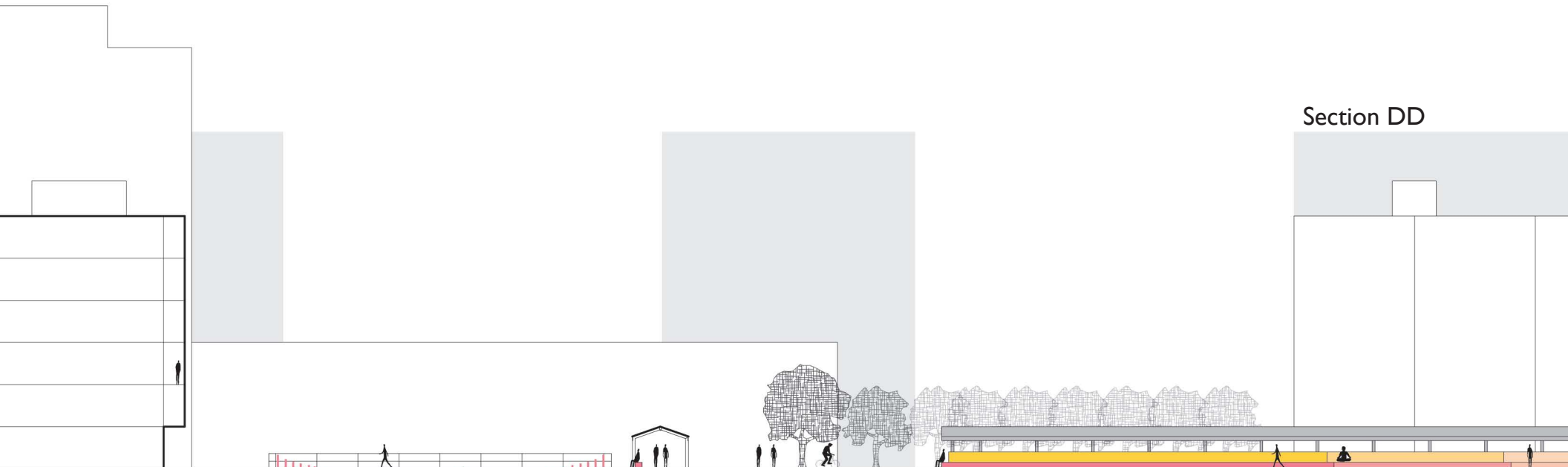
fig. 4.136 Cross section of the new *danwei* through urban patio and dirt field with stormwater filtration pond



Tree Benches in Planted Patio with Shopping Center Behind



Section DD



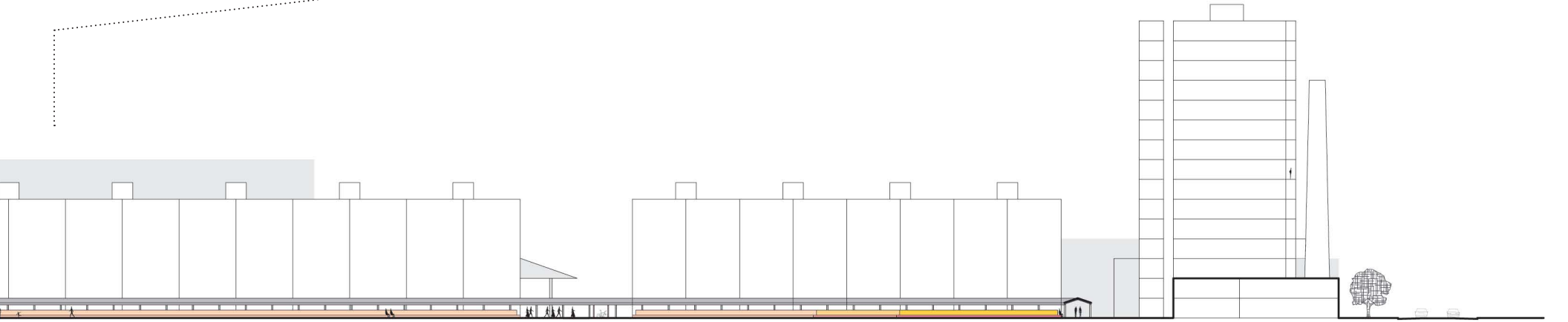
Internet Cafe,
Shops, and Clinics
in Mixed Use
Building

Pedestrian Bridge Across
Stormwater Pond

Covered Walkway and
Pedestrian Path

Sorghum Screen in Dirt Field

0 10 m



Pedestrian
Path

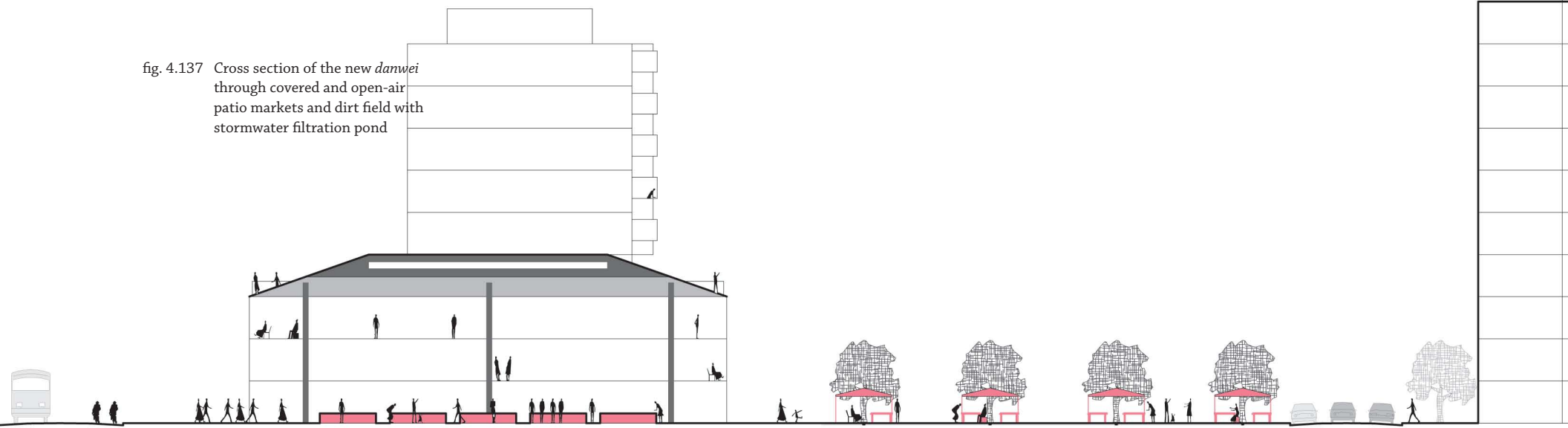
Sorghum Screen in Dirt Field

Covered Walkway
and Pedestrian Path

Existing Boilers with
Teaching Tower Behind

0 5 10 25 50 m

fig. 4.137 Cross section of the new *danwei* through covered and open-air patio markets and dirt field with stormwater filtration pond



Covered Market with Training Center, Pharmacy, Medical Services, and Live/Work Units Behind

Open-air Patio Market



Section EE

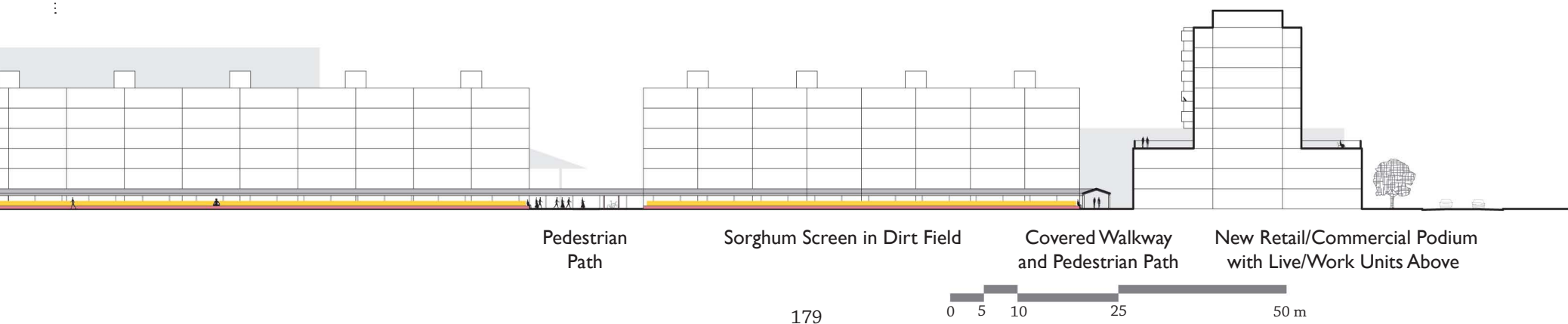
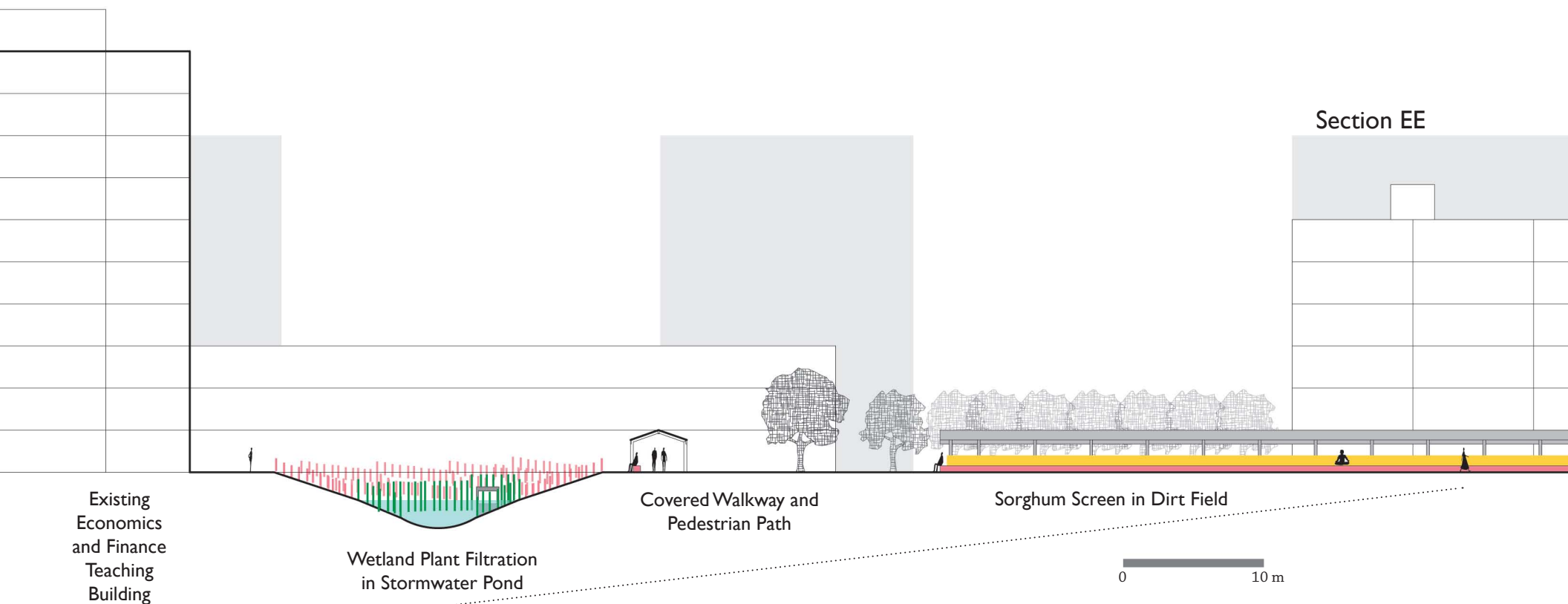
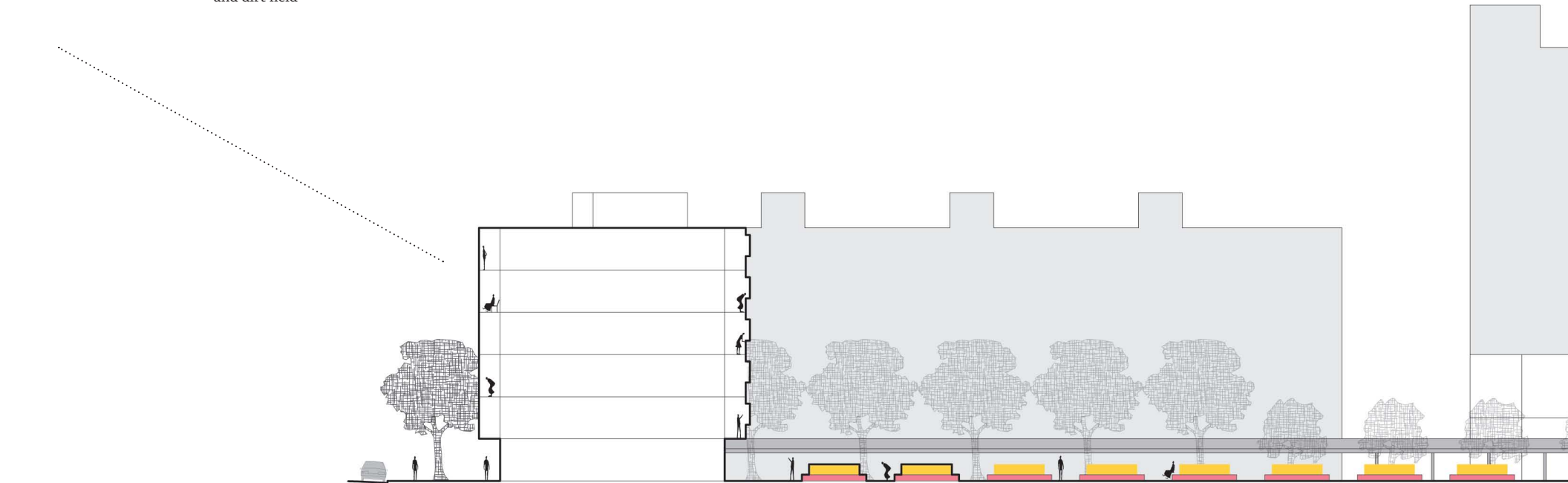


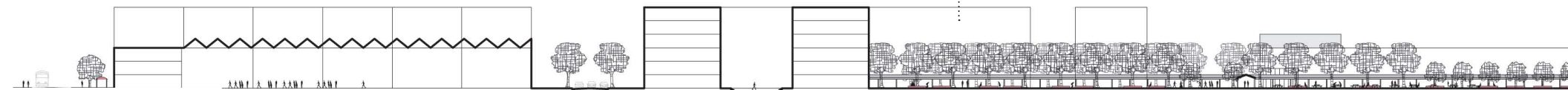


fig. 4.138 Longitudinal section through the Forest Clearing, promenade, and dirt field

Covered Walkway and Tree Benches in the Forest Clearing



New Employee Residences



Existing Labs

Greenhouse Atrium with New Retail/Commercial Behind

New Studios, Labs, and Workshops 180

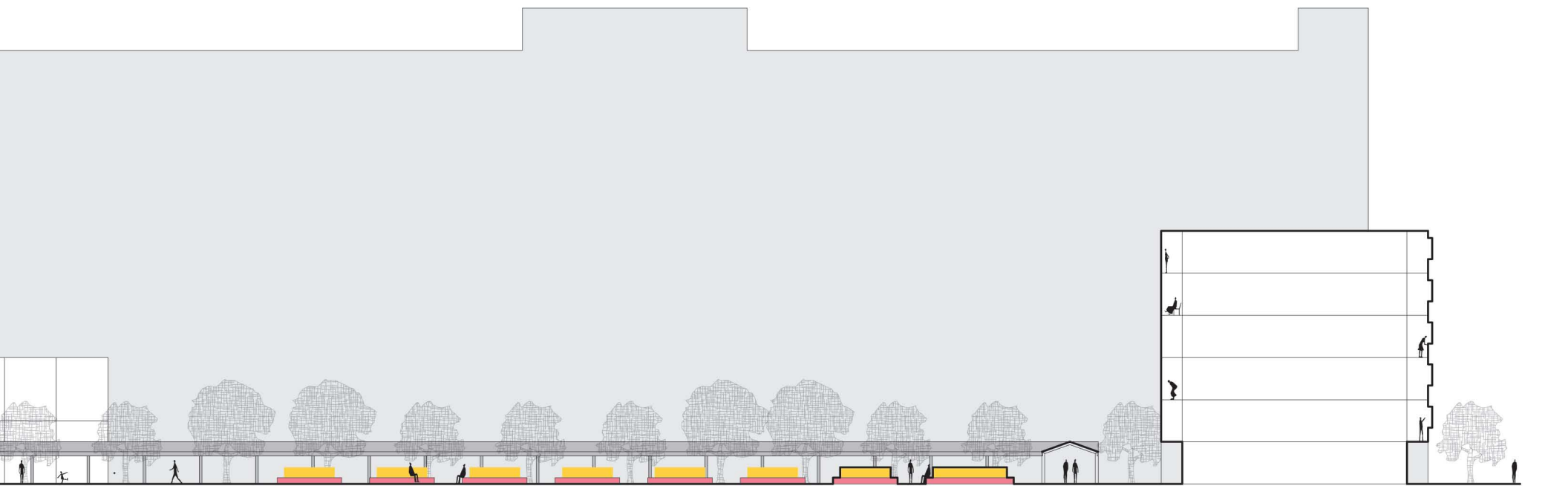


Section FF

Existing Pharmacy Training Center

Tree-lined Transient Commerical Promenade

New Employee Residences



Sorghum Screen in Dirt Field

Covered Walkway

New Cafes, Laundromat, and Convenience Stores



Pedestrian Path

Existing Student Dorms



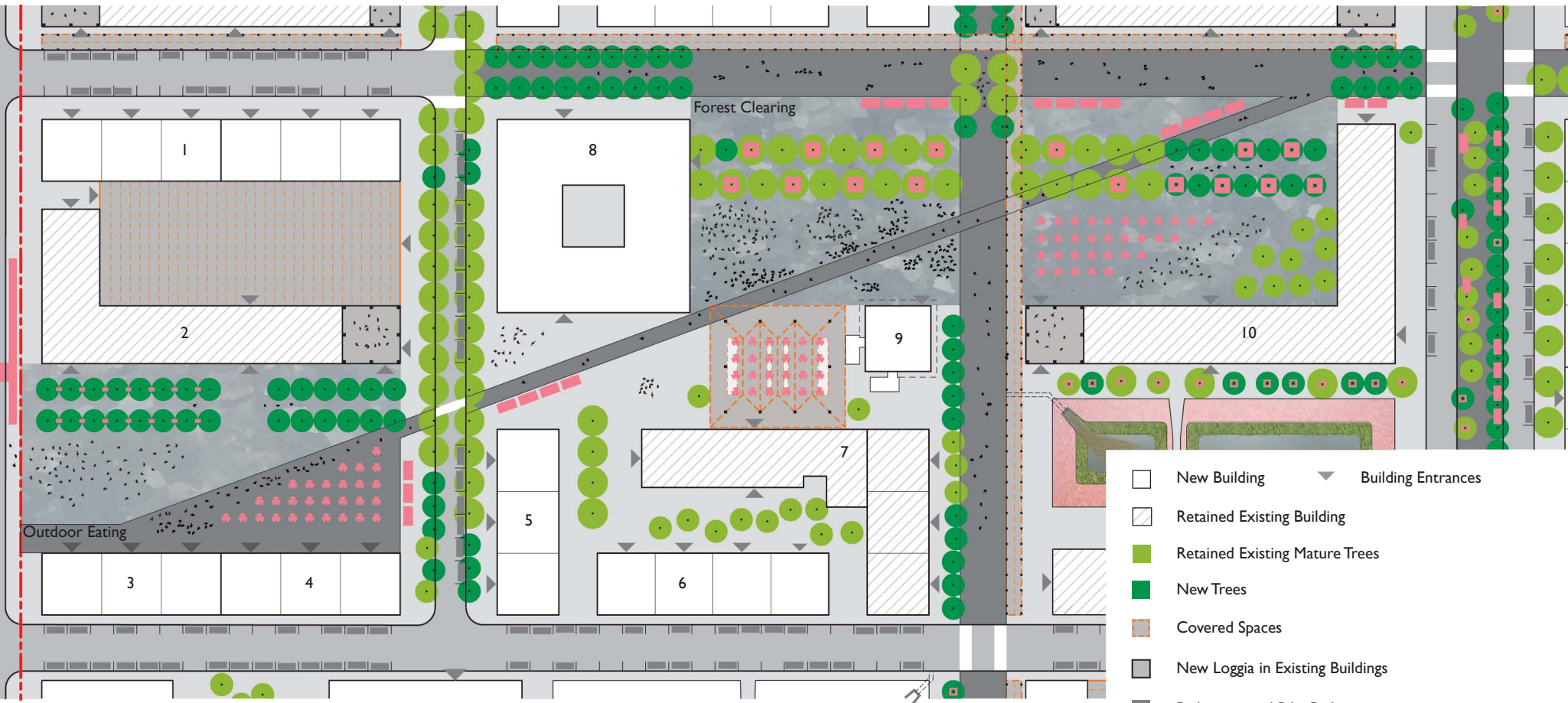


fig. 4.139 Vignette of tree benches in the double row of retained existing French plane trees in the Forest Clearing, the new *danwei* urban center at the heart of the campus

fig. 4.140 Detail plan of the Forest Clearing and diagonal connection to the outdoor eating area

New Danwei Urban Center

Scene = Learn and Contemplate in the Forest Clearing



- | | |
|---------------------------------|--------------------------------|
| 1 Retail/Commercial | 6 Employee Residences |
| 2 Labs | 7 Nursing Teaching Building |
| 3 Research Workshops | 8 Studios, Labs, and Workshops |
| 4 Restaurants, Cafes, and Shops | 9 Recreation Center Tower |
| 5 Mixed Use | 10 Pharmacy Teaching Building |

- New Building
- Retained Existing Building
- Retained Existing Mature Trees
- New Trees
- Covered Spaces
- New Loggia in Existing Buildings
- Pedestrian and Bike Paths
- Urban Furniture
- Building Entrances





fig. 4.141 Vignette of study tables underneath the large spanning roof canopy in Forest Clearing, the urban center located at the heart of the campus *danwei*



fig. 4.142 Vignette of diagonal path leading from the Outdoor Eating Plaza to the Forest Clearing

Is it pollution or is it mist?

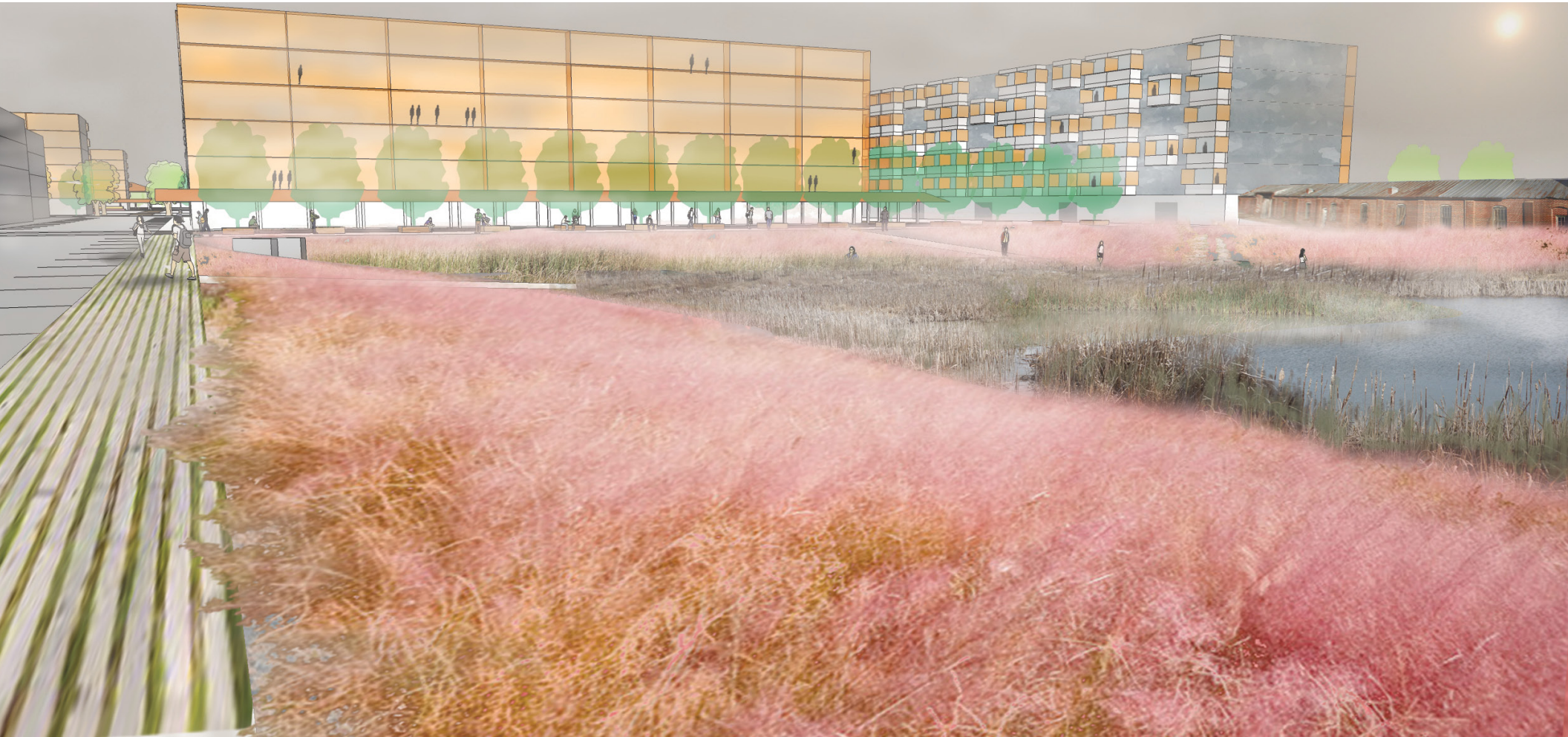



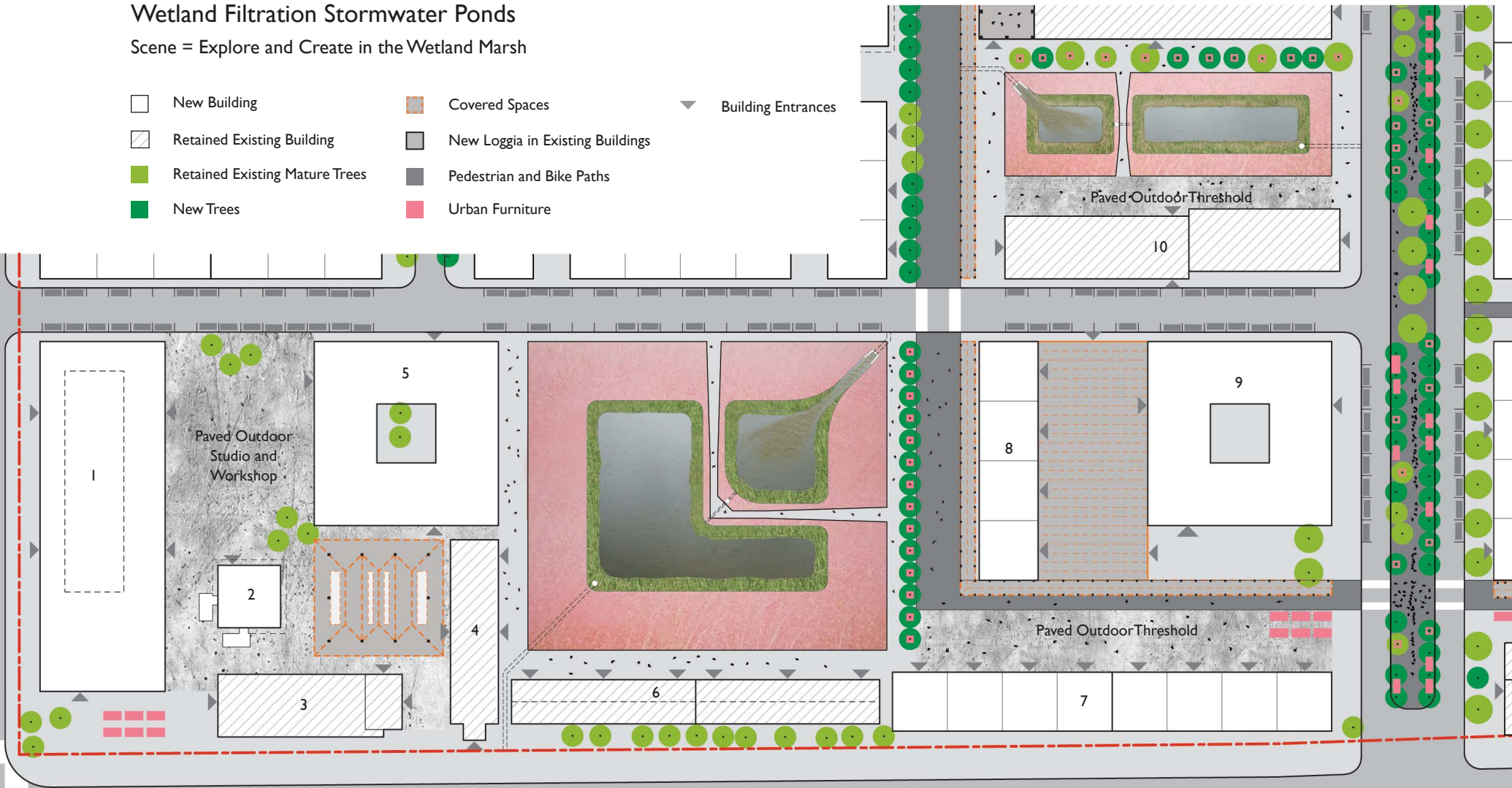
fig. 4.143 Vignette of wetland filtration stormwater pond showing white mist rising up from the pond surface and grey haze settling down from the polluted air

fig. 4.144 Detail plan of the wetland filtration stormwater ponds connected via tree-lined paths and covered walkways

Wetland Filtration Stormwater Ponds

Scene = Explore and Create in the Wetland Marsh

- | | | | | | |
|---|--------------------------------|---|----------------------------------|---|--------------------|
|  | New Building |  | Covered Spaces |  | Building Entrances |
|  | Retained Existing Building |  | New Loggia in Existing Buildings | | |
|  | Retained Existing Mature Trees |  | Pedestrian and Bike Paths | | |
|  | New Trees |  | Urban Furniture | | |



- 1 Commercial Podium with Spas, Clinics, and Live/Work Units Above
- 2 Leisure Studio Tower (exercise, music, and dance)
- 3 Animal Science Research Labs
- 4 Printing Company
- 5 Classrooms, Lecture and Conference Halls

- 6 Printing Workshop
- 7 Employee Residences
- 8 Recreation Clubs
- 9 Research Labs and Workshops
- 10 Pharmacy Teaching Building



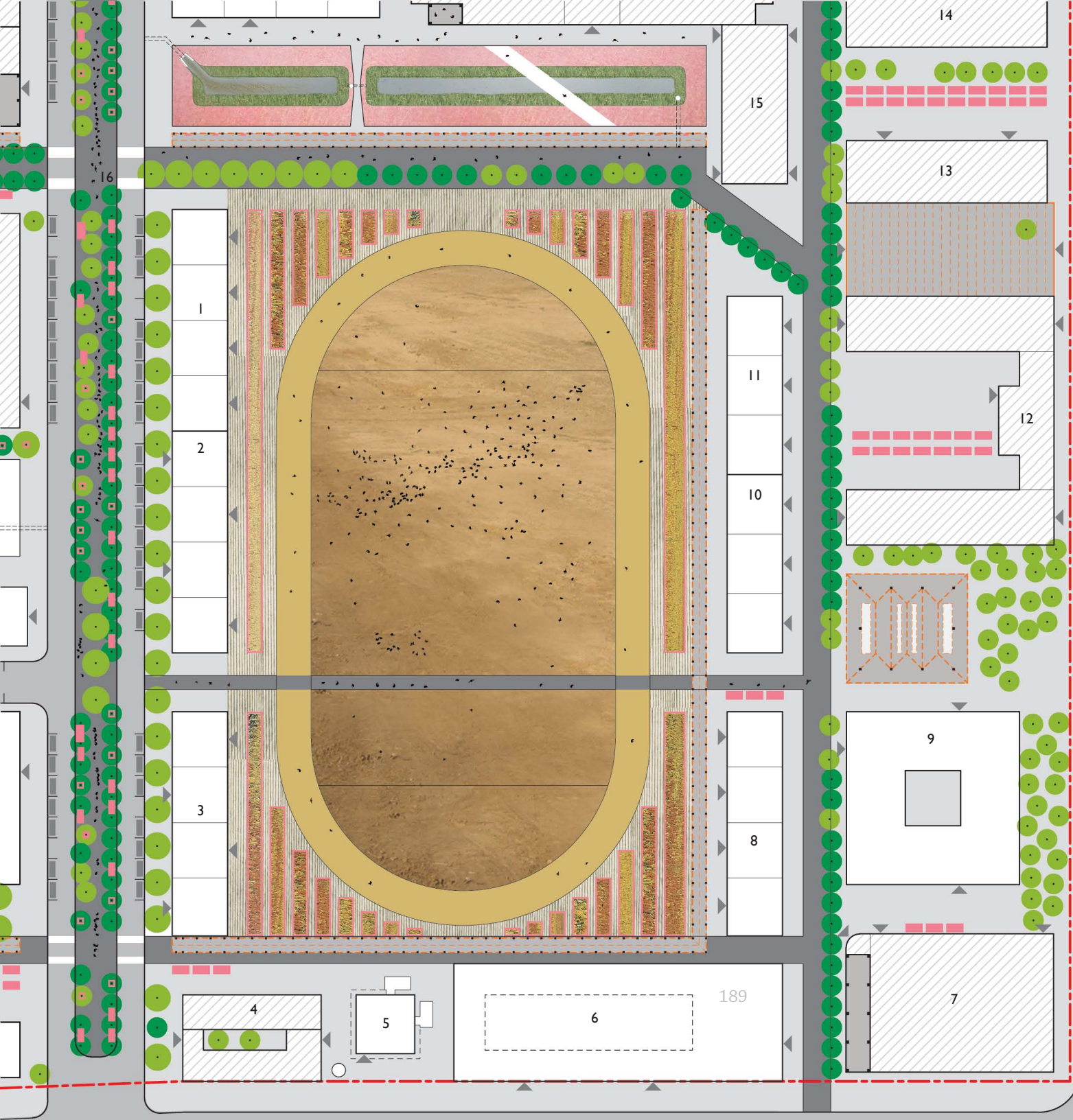
Packed Dirt Field and Track

Scene = Live and Play in the Dirt Field



fig. 4.145 Vignette of packed dirt track and field through the sorghum screen

fig. 4.146 Detail plan of the dirt field and stormwater pond defined by new midrise blocks



- New Building
- Retained Existing Building
- Retained Existing Mature Trees
- New Trees
- Covered Spaces
- New Loggia in Existing Buildings
- Pedestrian and Bike Paths
- Urban Furniture
- Building Entrances

- 1 Employee and Visitor Residences
- 2 Leisure Clubs
- 3 Internet Cafe, Shops, Restaurants, Cleaning Services
- 4 Boilers
- 5 Teaching Tower
- 6 Retail/Commercial Podium with Hotel and Live/Work Units Above
- 7 Natatorium
- 8 Computer Labs and Workshops
- 9 Canteen
- 10 Live/Work Units
- 11 Supply Stores and Laundromat
- 12 Student Dorms 1
- 13 Student Dorms 2
- 14 International Student Dorms
- 15 Economics and Finance Teaching
- 16 Transient Commercial Promenade

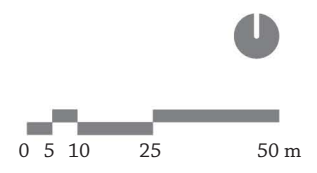


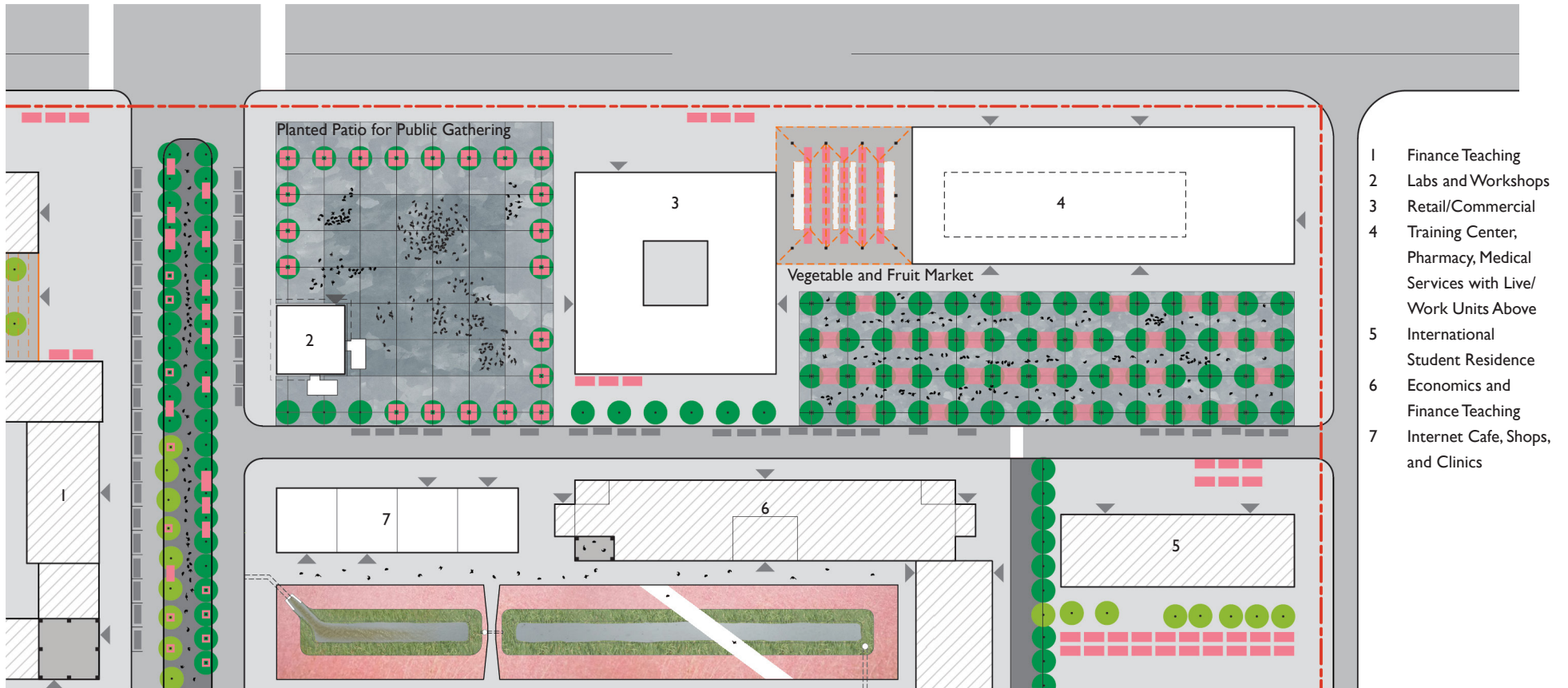


fig. 4.147 Vignette of urban patio framed by trees with benches underneath

fig. 4.148 Detail plan of the two patios for urban gathering and outdoor market

Planted Patio and Market

Scene = Roam and Commune in the Planted Patio



- 1 Finance Teaching
- 2 Labs and Workshops
- 3 Retail/Commercial
- 4 Training Center, Pharmacy, Medical Services with Live/Work Units Above
- 5 International Student Residence
- 6 Economics and Finance Teaching
- 7 Internet Cafe, Shops, and Clinics

- New Building
- Retained Existing Building
- Retained Existing Mature Trees
- New Trees
- Covered Spaces
- New Loggia in Existing Buildings
- Pedestrian and Bike Paths
- Urban Furniture
- Building Entrances



CONCLUSION

Primary challenges threatening the livability and longevity of the contemporary Chinese city include excessive tendencies towards formulaic accumulation of buildings resulting in monotonous urban blocks, denial of human-scale spaces and productive ecologies, and increasing polarization between distinct entities in the city. As a result, urban China has become increasingly standardized, abstracted, polluted, and segmented under a Capitalist market-driven economy. These developments are anti-cultural in that they inhibit a cohesive yet varied urban lifestyle for city dwellers in favor of de-humanizing efficiencies for the production of capital accumulation. While conservation policies have been implemented in many cities to protect historic areas of cultural significance, they tend to produce architecture that is stylistically imitative of the past rather than interpretive of traditional concepts into the contemporary urban setting. Since the opening up of China to foreign influence in 1978, methods for transforming the city have primarily alternated between extreme modernization through demolition and complete preservation through conservation or imitation of historic, cultural urban formations. These extreme options have been based on utopic, symbolic, or market-driven visions and hierarchies of an abstract nature, which have alienated the contemporary urban dweller and produced wasteful lifestyle habits. Capitalist tendencies towards excess are no longer a socially, psychologically, or ecologically viable direction for future Chinese urbanization. China should transition into a post-Capitalist phase of Socialism that establishes informal connections between distinct entities in the urban block and invests in collective needs while retaining

autonomy at the local level.

Neither extreme modernization through demolition nor complete perpetuation of the traditional city has generated a cohesive yet varied lifestyle in the contemporary urban setting. A new form of Chinese urbanism is necessary to explore the middle ground in which demolition and preservation are combined in the process of urbanization. City makers have primarily focused on the productive economic efficiency of Western urbanization patterns at the expense of cultural efficiencies generated from the interconnection and proximity of distinct entities found in traditional and Socialist-Era Chinese urbanisms. Socialist-Era *Danwei* Urbanism is revisited for its potential to facilitate efficiencies from the sharing of resources between various parts of daily life existing in the same urban block. This operates at the scale of the university campus. The thesis argues for a New *Danwei* Urbanism founded on a shift in orientation from complete compositional systems to incomplete layered systems that encompass the dialectical complexity of post-Capitalist Socialist urbanity. These layers comprise an alternative approach to the campus *danwei* as the facilitator for informal social and intellectual exchanges.

New *Danwei* Urbanism does not follow a formulaic definition of rules for urban design. Instead, it is informed by the intuitive application and adjustment of guiding principles to a variety of existing site conditions. The design moves are embedded as sensitive and subtle layers of intervention that avoid the application of overarching abstract concepts, rules, or mechanisms to create habitable urban conditions for daily life. Intensity in the new *danwei* occurs in defined open public spaces resulting from a residual thinness in the overlapping of layers applied to the site.

A main limiting factor for this dialectical and open-ended approach to the new *danwei* may be that the design can easily slip into being too disordered or incomprehensible if there is no underlying structure to organize the site. Creating building alignments, limiting the number of residual spaces, and definition of coherent, continuous circulatory or ecological systems are strategies that can be utilized to overcome this. Another challenge is that *danwei* are longer able to provide subsidized services or housing to the same degree, and many workers have had to turn to private housing developments far from the workplace. This may be addressed through the densification of the *danwei* with retail spaces, offices, restaurants, and places for cultural leisurely activity open to the general public and to the campus community. Surplus generated through these spaces can be reallocated to subsidize various needs of the campus community, including housing projects that are closer to the workplace.

Future considerations of a New *Danwei* Urbanism for situations in which *danwei* are built in new towns or on undeveloped sites with no existing buildings is the next step. The thesis focuses on the embedding of new systems within existing *danwei*, but there is also the possibility, as was the case in the Socialist Era, of a *Danwei* Urbanism that expands into and generates new parts of the city. These *danwei* may perhaps be more similar to Fumihiko Maki's Group Forms in which a few elements are repeated at similar distances across the site. Building may start from one part of the block, and the rest can be organically generated as the need arises from a repetition of certain common elements. However, this may create village-like formations with few variations of spatial or visual intensity. One possibility for creating intensity in this case is from the embedded layering of overarching systems, armatures, or frameworks operating at a scale that unifies the entire block. It can be similar to Maki's description

of Megaforms as the provision of a large frame with smaller appendages that grow or recede locally. Another option is that these overarching systems can be distributed relatively evenly across the site as, what Stan Allen terms, an architectural field with intense moments of thickness or concentration. It can be noted that Allen does not mention the possibility of the inverse condition in which intensity is also created by moments of thinness or dispersion in the field.

A New *Danwei* Urbanism acknowledges the dialectical relationships between distinct entities in the Chinese city as complimentary and not contradictory. It occupies a liminal condition in which intermediate linkages mediate, define, connect, envelope, or shelter opposing systems. At the same time, the new *danwei* strives to provide these connections without losing variation to accommodate a post-Capitalist Socialist urbanity that facilitates the sharing of resources through collectivity and proximity.

REFERENCES

Alitto, Guy S. "Rural Reconstruction during the Nanking Decade: Confucian Collectivism in Shantung." *The China Quarterly*, no. 66 (June 1976): 213-46. <http://www.jstor.org/stable/652822>.

———. *The Last Confucian: Liang Shuming and the Chinese Dilemma of Modernity*. Berkeley: University of California Press, 1979.

Allen, Stan. "Field Conditions." In *Points and Lines: Diagrams and Projects for the City*, 90-103. New York: Princeton Architectural Press, 1999.

Blaser, Werner. *Mies van der Rohe IIT Campus: Illinois Institute of Technology, Chicago*. Basel, CH: Birkhäuser, 2002.

Bray, David. *Social Space and Governance in Urban China: The Danwei System from Origins to Reform*. Stanford: Stanford University Press, 2005.

Cachola Schmal, Peter and Wenjun Zhi, eds. *M² in China: Contemporary Chinese Architects*. Berlin: Jovis, 2009.

Cerdà: *Urbs i Territori: Planning Beyond the Urban*. Edited by Francesc Magrinyà and Salvador Tarragò. Barcelona: Fundació Catalana per a la Recerca; Madrid: Sociedad Editorial Electa España, 1996. Exhibition catalog.

Chang, Yung Ho. "The Necessity of Banality: Plans for a Post Euphoria

Architecture in China.” *Volume Special Issue Ubiquitous China: Craft the Agenda for the World to Come* 8, no. 2 (2006): 84-89.

———. “Architectural Education.” *Architectural Design: Back to School* 74, no.5 (2004): 87-90.

Chen, Xiaojian. “The Models of Urbanization and Their Impacts on Spatial Evolution of Built-up Area—Case Studies of Cities in Shaanxi in Northwest China.” Paper presented at the 49th ISOCARP Congress, Brisbane, AU, October, 2013. http://www.isocarp.net/Data/case_studies/2286.pdf.

Cheung, Steven N.S. *Economic Explanation: Selected Papers of Steven N.S. Cheung*. Beijing: China CITIC Press, 2012. First published 2005 by Arcadia Press.

Corner, James, “Ecology and Landscape as Agents of Creativity.” In *Projective Ecologies*, 40-60. Edited by Chris Reed and Nina-Marie Lister. Cambridge: Harvard University Graduate School of Design; New York: Actar Publishers, 2014.

“Designing for Growth: The Metamorphosis of a Rural Campus into a University Town.” *Architectural Record* 151, no. 5 (May 1972): 89-98.

Dramstad, Wenche E., James D. Olson, and Richard T. T. Forman. *Landscape Ecology Principles in Landscape Architecture and Land Use Planning*. Cambridge, MA: Harvard University Graduate School of Design, 1996.

Druot, Frédéric, Anne Lacaton, and Jean-Philippe Vassal. *Plus: Large Scale*

Housing Developments: An Exceptional Case. Barcelona: Editorial Gustavo Gili, 2007.

Eisenman, Peter. *The Formal Basis of Modern Architecture*. PhD diss., University of Cambridge, 1963. Published, Baden, CH: Lars Müller, 2006.

———. *Written into the Void: Selected Writings 1990-2004*. New Haven, CT: Yale University Press, 2007.

Escherick, Joseph. *Remaking the Chinese City: Modernity and National Identity, 1900-1990*. Honolulu: University of Hawaii Press, 2000.

Gutierrez, Laurent, and Valérie Portefaix, eds. *Yung Ho Chang / Atelier Feichang Jianzhu: A Chinese Practice*. Hong Kong: Map Book Publishers, 2003.

Haar, Sharon. *The City as Campus: Urbanism and Higher Education in Chicago*. Minneapolis: University of Minnesota Press, 2011. □

Harvey, David. “The Urban Process Under Capitalism: A Framework for Analysis.” *The International Journal of Urban and Regional Research* 2 (1978): 101-31.

He, Congrong [贺从容]. *Ancient Capital City Xi'an [古都西安]*. Beijing: Tsinghua University Press [清华大学出版社], 2012.

Henderson, Gail E. and Myron S. Cohen. “The Individual and the Institution.” In *The Chinese Hospital: A Socialist Work Unit*, 27-46. New Haven, CT: Yale University Press, 1984.

Jaeger, Falk, ed. *Behnisch Architekten*. Berlin: Jovis, 2009.

Jiang, Jun. "Controlled by Chaos," *Volume Special Issue Ubiquitous China: Craft the Agenda for the World to Come* 8, no. 2 (2006): 20-31.

Johnston, R. Stewart. *Scholar Gardens of China: A Study and Analysis of the Spatial Design of the Chinese Private Garden*. Cambridge: Cambridge University Press, 1991.

Keswick, Maggie. *The Chinese Garden: History, Art, and Architecture*. Cambridge, MA: Harvard University Press, 2003.

Khan, Hasan-Uddin, ed. "Fenghuo Production Brigade." *Mimar* 3 (Singapore: Concept Media, 1982): 28-31. <http://archnet.org/publications/3885>.

Knapp, Ronald G. *Chinese Houses: The Architectural Heritage of a Nation*. North Clarendon, VT: Tuttle Publishing, 2005.

———, ed. *Chinese Landscapes: The Village as Place*. Honolulu: University of Hawaii Press, 1992.

Koolhaas, Rem. "Miestakes." *Architect* 23 (April 2004): 10-19.

Lao-tzu. *Tao Te Ching*. Translated by Stephen Addiss and Stanley Lombardo. Boston: Shambhala, 2007.

Li, Minqi. *Peak Oil, Climate Change, and the Limits to China's Economic Growth*. Abingdon, Oxon: Routledge, 2014.

Li, Shiqiao. *Understanding the Chinese City*. Los Angeles, CA: Sage, 2014.

Lin, Wusun, trans. *Sunzi: The Art of War*. Beijing: Foreign Languages Press; Changsha: Hunan People's Publishing House, 1999.

"Liu Jiakun: Luyeyuan Stone Sculpture Art Museum, Chengdu, Sichuan, China." *GA Document* 112 (2010): 70-81.

Liu, Jiakun. "Right Now Right Here." Lecture at the University of Hong Kong Faculty of Architecture, Hong Kong, November 16, 2012. http://www.arch.hku.hk/event_/liu-jiakun-about-my-work/?subcat=fall-2012-public-lecture-series.

Loos, Adolf. "On Thrift." In *On Architecture*, translated by Michael Mitchell, 178-183. Riverside, CA: Ariadne Press, 2002. Originally published as "Von der Sparsamkeit," *Wohnungskultur*, no. 2/3 (1924).

Lu, Duanfang. *Remaking Chinese Urban Form: Modernity, Scarcity and Space, 1949-2000*. London: Routledge, 2006.

Li, Xiaobo and Elizabeth J. Perry, eds. *Danwei: The Changing Chinese Workplace in Historical and Comparative Perspective*. Armonk, NY: M.E. Sharpe, 1997.

Maki, Fumihiko. *Urbanizing Dreams: Collected Essays on Architecture and the City*. Cambridge, MA: The MIT Press, 2008.

Mao, Tsetung. "On Contradiction." In *Selected Readings from the Works of*

Mao Tsetung, 85-133. Peking: Foreign Languages Press, 1971.

Pearson, Clifford A. "Luyeyuan Stone Sculpture Museum: Jiakun Liu Creates a Dramatic Setting for Art." *Architectural Record* 192, no. 3 (2004): 86-89.

Pirazzoli-t'Serstevens, Michèle. *Living Architecture: Chinese*. Translated by Robert Allen. London: Macdonald, 1972.

Rainer, Roland. *Die Welt als Garten: China*. Graz, AT : Akademische Druck- und Verlagsanstalt, 1979.

Riberd. "Learning from Hong Kong Part II: A Case Study of Citywalk, Tsuen Wan Town Centre." *Asian Urban Epicenters* (blog). July 14, 2014 (3:55 p.m.). <http://www.asianurbanepicenters.com/?p=2820>.

"Riken Yamamoto & Field Shop: Saitama Prefectural University." *The Japan Architect* 36 (January 1999): 54-59.

Rinaldi, Bianca Maria. *The Chinese Garden*. Basel, CH: Birkhäuser, 2011.

Saunders, William S., ed. *Designed Ecologies: The Landscape Architecture of Kongjian Yu*. Basel, CH: Birkhäuser, 2012.

Sit, Victor F.S. *Chinese City and Urbanism: Evolution and Development*. Singapore: World Scientific, 2010.

———, ed. *Chinese Cities: The Growth of the Metropolis Since 1949*. Oxford: Oxford University Press, 1985.

Supersized Cities: China's 13 Megalopolises. The Economist Intelligence Unit Ltd., 2012. http://www.liaa.gov.lv/files/liaa/attachments/eiu_accesschina_megalopolises_0.pdf

Swaffield, Simon, ed. *Theory in Landscape Architecture*. Philadelphia: University of Pennsylvania Press, 2002.

Tanizaki, Junichiro. *In Praise of Shadows*. Translated by Thomas J. Harper and Edward G. Seidensticker. Stony Creek, CT: Leete's Island Books, 1977.

The World Bank. "Rural Population." Accessed November 14, 2015. <http://data.worldbank.org/indicator/SP.RUR.TOTL.ZS/countries>.

Wang, Jun. *Beijing Record: A Physical and Political History of Planning in Modern Beijing*. Singapore: World Scientific, 2011.

Wang, Rongpei, trans. *Zhuangzi*. 2 vols. Beijing: Foreign Languages Press; Changsha: Hunan People's Publishing House, 1999.

Wang, Shu. *Imagining the House*. Zürich, CH: Lars Müller, 2012.

——— [王澐]. "The Philosophy of Architecture [建筑的哲学]." *Civilization Tour* [文明之旅]. CCTV 4 (August 8, 2012). <https://www.youtube.com/watch?v=6Gy1-bLNXAE>.

———. "From Heart to Hands: To Reconstruct the Living Places in Collapsing Traditional Cities." Lecture, Harvard GSD, Cambridge, MA, February 27, 2008. <http://www.gsd.harvard.edu/#/media/from-heart-to>

hand-wang-shu.html

“Wang Shu & Lu Wenyu: Ningbo History Museum, West of Central Park of Yinzhou District, Ningbo, Zhejiang, China.” *GA Document* 112 (2010): 94-109.

Wang, Yaping. “Planning and Conservation in Historic Chinese Cities: The Case of Xi’an.” *The Town Planning Review* 71, no. 3 (July 2000): 311-32. <http://www.jstor.org.proxy.lib.uwaterloo.ca/stable/40112419>

Xi’an Jiaotong University. “Medical Department.” Accessed March 8, 2015. http://www.xjtu.edu.cn/new_yxb_xynr.jsp?urltype=tree.TreeTempUrl&wbtreeid=1757.

Xu, Miao and Zhen Yang. “Design History of China’s Gated Cities and Neighbourhoods: Prototype and Evolution.” *Urban Design International* 14, no. 2 (December 2009): 99-117.

Xu, Yinong. *The Chinese City in Space and Time: The Development of Urban Form in Suzhou*. Honolulu: University of Hawaii Press, 2000.

Yamamoto, Riken. “Riken Yamamoto: Saitama Prefectural University, Saitama, Japan.” *GA Document* 63 (2000): 106-19.

Yamamoto, Riken and Wilhelm Klauser. *Riken Yamamoto*. Basel, CH: Birkhäuser, 1999.

Yen, Y.C. James. *The Ting Hsien Experiment in 1934*. Peking: Chinese National Association of the Mass Education Movement, 1934.

Yu, Kongjian. “Creating Deep Forms in Urban Nature: The Peasant’s Approach.” In *Nature and Cities: Urban Ecological Design and Planning*. Austin, TX: UT Austin School of Architecture; Cambridge, MA: Lincoln Institute of Land Policy, 2014.

———. “Think Like a King, Act Like a Peasant.” Lecture, ETH Zurich, Zurich, CH, June 21, 2013. http://www.multimedia.ethz.ch/episode_play/?doi=10.3930/ETHZ/AV-bd5d7aeb-ac3b-4a90-a490-ee593a9cb12f.

Yu, Kongjian and Mary Padua, eds. *The Art of Survival: Recovering Landscape Architecture*. Mulgrave, Australia: The Images Publishing Group, 2006.

Zhou, J., B. Liang, J. Yan, and W. Zhao. “Lou Soil: A Fertile Anthropogenic Soil with Thousands of Years of Cultivating History.” Abstract. *American Geophysical Union* (December, 2012). <http://adsabs.harvard.edu/abs/2012AGUFM.B23J.05Z>.

Zhou, Rong. “Upon the Ruins of Utopia.” *Volume Special Issue Ubiquitous China: Craft the Agenda for the World to Come* 8, no. 2 (2006): 44-47.

Zhu, Jianfei. *Architecture of Modern China: A Historical Critique*. Abingdon, Oxon: Routledge, 2009.

Zhu, Tao. “Building Big with No Regret.” *AA Files* 63 (2011): 104-10.