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The European Transect: An Organic Way for Architecture to Develop Towns, Cities, and Metropolises

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The first exposure I had to the idea of a rural-urban transect came in Toronto in 1997, at the Congress for New Urbanism. Andrés Duany gave me a huge in-folio volume to “do a cultural translation for the European context.”¹ It was the most exciting material about urban planning and architecture I had seen since Leon Krier’s criticism of modernist suburban developments.

The transect’s great value is that it provides practitioners, students, developers, and public officials with a comprehensive system to help guide the rational, organic development of towns, cities and metropolises. New Urbanism is most frequently criticized on the European continent for its romantic and outdated profile.² When attacks are not ideologically motivated, comments usually go something like: “Yes, the drawings are elegant, the theory is interesting, but it doesn’t belong to our time, and, worst of all, it cannot be applied on a large scale.”

Duany’s folio, however, offered an answer in the form of a comprehensive collection of references and an efficient

“operating system” to design settlements in balance with the natural environment, from the rural house to the metropolis.

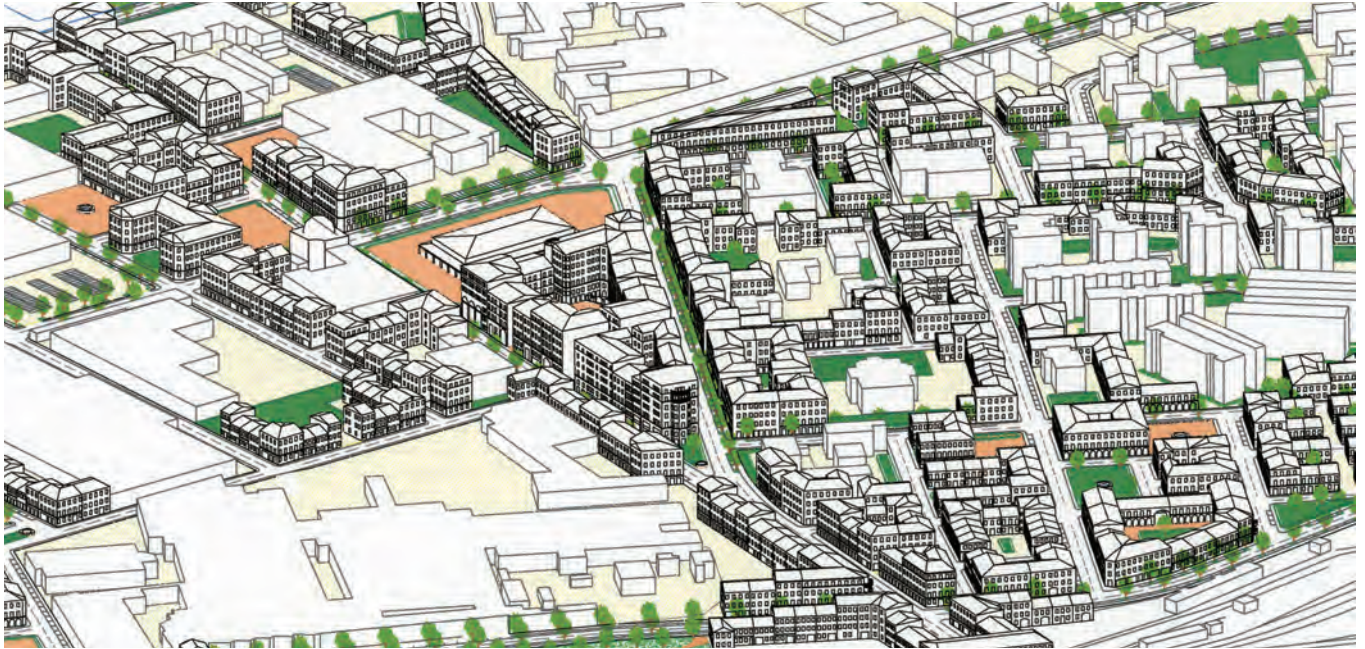
Understanding the European City through the Transect

The task of making a cultural translation of such essentially American ideas immediately raised important questions. Could the transect keep its strength in the European context? Could it explain the nature of the existing European city and guide future organic developments? How could a simple and straightforward tool work in an extremely complex environment? Was it sufficiently adaptable to the new panorama? Could it be implemented?

Since 1998, together with colleagues and teaching assis-

Above: Bologna was the first European city where transect-based analysis helped with planning for physical expansion and population growth. This photo shows a section of the city core (T6). Views of the city corresponding to other T zones are on p.52.

Opposite: Research on transect zones and building types was used to generate a plan for infill development in a peripheral area of Ferrara along the Via Modena.



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LO SPAZIO COMMERCIALE COME MATRICE
 DEL NUOVO RECUPERO URBANO:
 IL QUARTIERE INTEGRATO DI VIA MODENA A FERRARA

TAV. N. 23
 Claudio Urbani

Tipologie	Palazzo			Lotto Pieno	Palazzina	Lotto Gotico
Prospetto						
Dimensioni in Pianta						
Vani Scala						
Elementi di Facciata						
Posizione nell'Isolato						
Parcheggi						
Altezze e Destinazioni d'Uso						

tants, I have developed a series of courses at the University of Ferrara to test the case. This has involved selecting a number of European cities and assigning them as studio exercises to students at different levels in the program. In each case we have asked students to analyze the city’s morphological structure and the nature of its public and private realms, making extensive use of figure-ground techniques. After this, students are instructed to look more deeply into each city’s idiosyncratic nature by subdividing it into neighborhoods, districts, corridors, etc.

All the European cities studied have positively responded to the ideas of the transect. But in the course of this work a very peculiar situation has come to our attention: the need to introduce an intermediate category to the transect classification to identify a common level of European urban settlement with neither the strength, size, nor mixed-use complexity of the neighborhood.

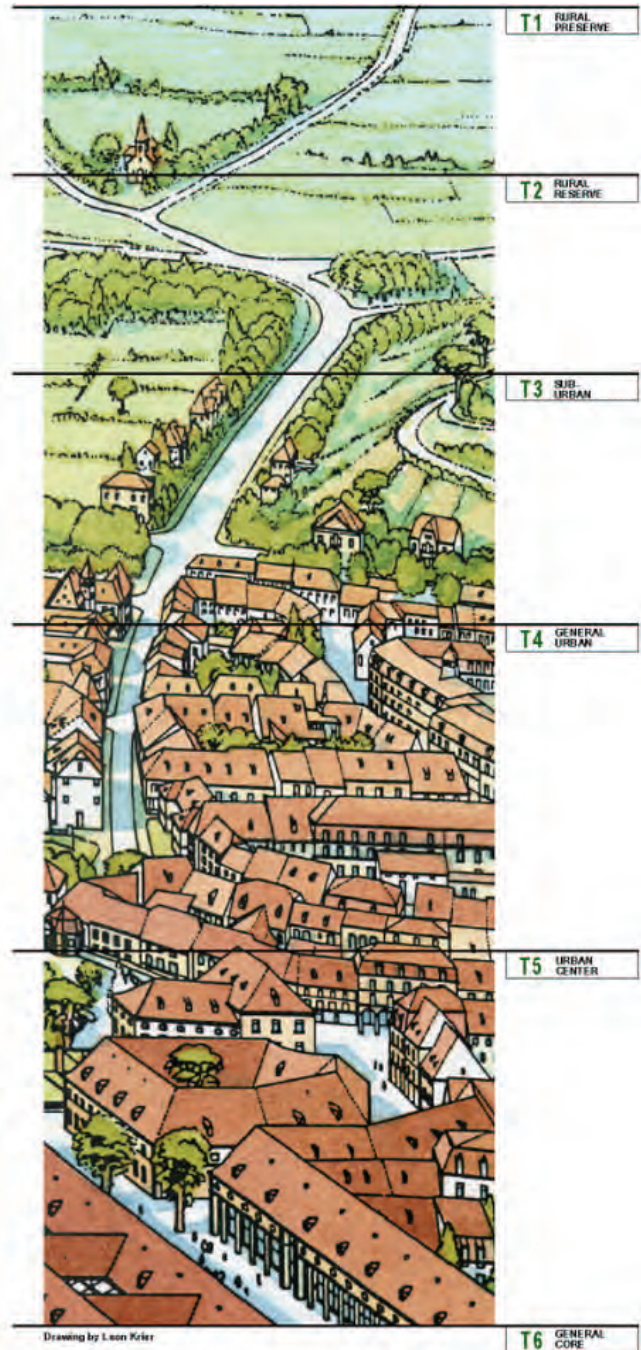
The reason is related to history. Most European cities were once surrounded by walls, and outside the walls—or even inside in their vicinity—a specific area began to develop as a form of transition between urban neighborhoods and the countryside. There is no doubt this is an urban and not a suburban element. Buildings are typically aligned on streets and often have shops, offices and restaurants. The area is dense, compact, and usually defined by a clear architectural identity. However, it cannot live without the adjacent urban elements of a higher rank: the city, the neighborhood, and the district.

Eventually, we identified this transition element as the “faubourg” (the second syllable of which is rendered as “borgo” in Italian and “burg” in German). Often it takes linear form and grows along a street connecting the city’s gate with the countryside and with other cities. But it can also be identified with a nonlinear shape.

With the introduction of such a transition element, the transect classification system now performs in a very convincing way. At the regional scale, we have identified neighborhoods, districts, faubourgs, and villages as components of the city or the metropolis—or, in Italian, *quartieri*, *distretti*, *borghi*, and *villaggi*.

The first official work produced in Italy according to the transect was a master plan we helped design for the City of Bologna in 1999-2002. It called specifically for a federation of cities, neighborhoods, districts, faubourgs and villages to allow the municipality to grow from its current population of 365,000 to 500,000 by 2025.

Opposite: To understand the heritage of European urbanism, students made detailed examinations of individual city spaces at a variety of scales. This drawing is taken from work on Monaco.



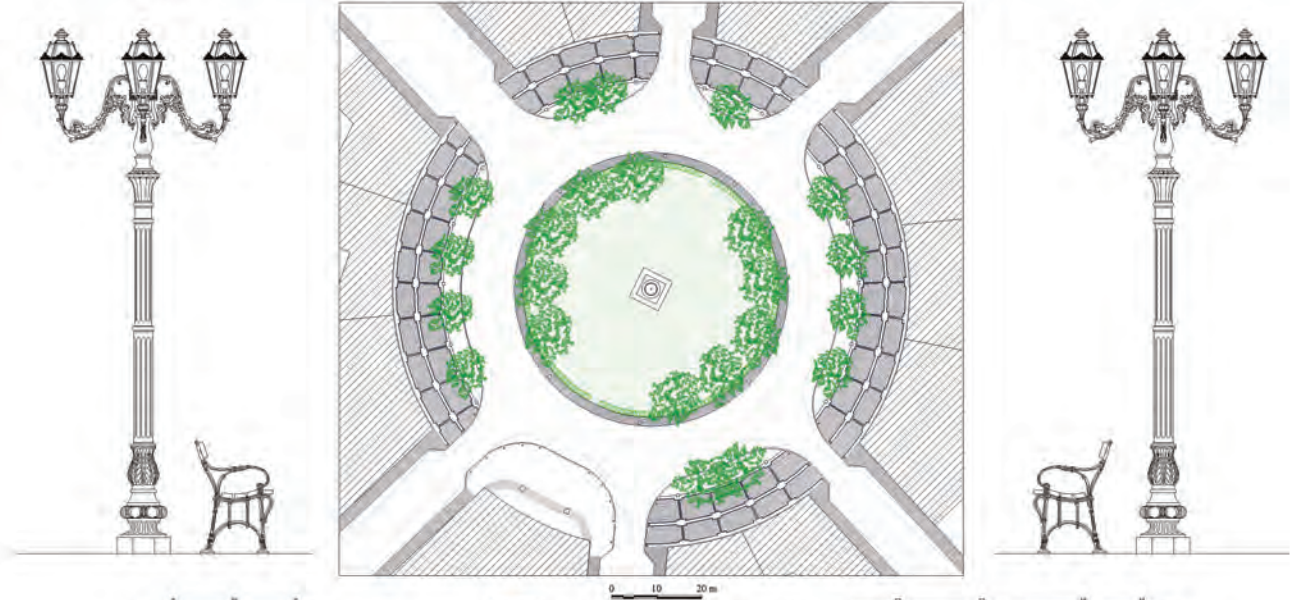
Above: This illustration is from the early plan for Echternach in Luxembourg by Leon Krier. It is a vignette extracted from a full drawing that is eight times the width. In retrospect, the implied transect is obvious. The calibrations were subsequently applied by DPZ. Drawing courtesy of Duany Plater-Zyberk and Co.



Vista A-A

Vista B-B

Vista C-C



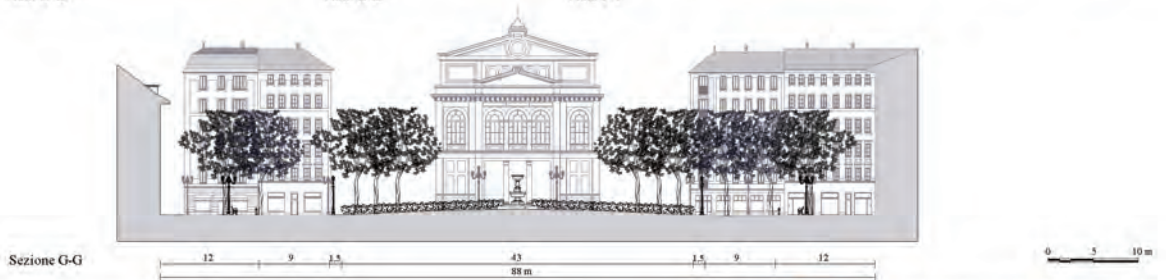
0 10 20 m



Vista D-D

Vista E-E

Vista F-F



Sezione G-G

0 5 10 m





As we were developing this plan we made other interesting discoveries about the translation of the ideas of the transect to a European context. One concerned the way districts were traditionally formed. Medieval cities had many industrial and religious districts, with hospitals often lending them a precise character. For example, the largest Italian hospital—the S. Orsola Polyclinic in Bologna—is within the 1889 master plan’s boundaries, and its individual buildings are located within blocks that continue the surrounding urban grid.

Another discovery involved the size of a typical neighborhood, established by the transect at approximately 160 acres—64 hectares in Europe.³ Though in many cities the central neighborhoods are smaller than peripheral ones, it is surprising to see how most cities work according to this principle. Even in Paris the average of the 96 neighborhoods that comprised the city in 1860—after Haussmann’s reform of twenty *arrondissements*—was around 100 hectares, a kind of extreme limit for a big neighborhood.

The key factor in the creation of such neighborhoods remains walkability. Unlike the modernist city, residents of the traditional city could normally be expected to walk a reasonable distance. Many urban neighborhoods built in big cities such as Rome, Lisbon and Madrid in the 1950s and 60s still worked along these lines, even when their architecture was modernist. In all such cases, however, the urban structure uses a vertical mixing of uses in individual buildings: retail at ground floor, offices on the second and third floors, and residential above.

Opposite Above: A general European transect drawing.

Opposite Below: Analysis of typical patterns of European urbanism led to the development of small “t” building forms and their correlation to capital “T” transect zones.

Above: The positive/negative (figure/ground) technique as applied to central Paris.

Capital T, Small t

The transect as a key to understanding the European city finds an exciting challenge when confronted with the plurality of European building typologies. This is not a problem in transect zones T₁, T₂, T₃. The rural world is based upon elementary rules that do not change by crossing the Atlantic. But the complexity of European history makes things more complicated when one deals with the urban world.

In relation to the urban zones (T₄, T₅, T₆) an interesting debate emerged, with students actively participating. They were extremely interested in the potential of the transect as a tool for replanning the old continent. But they realized we also needed to analyze the wide spectrum of European building types to see if they could be reduced to the three categories. This work ultimately led to the introduction of the “small t,” developed as a corollary architectural typology to allow assemblage of the various urban blocks described by the transect’s “capital-T” zones.

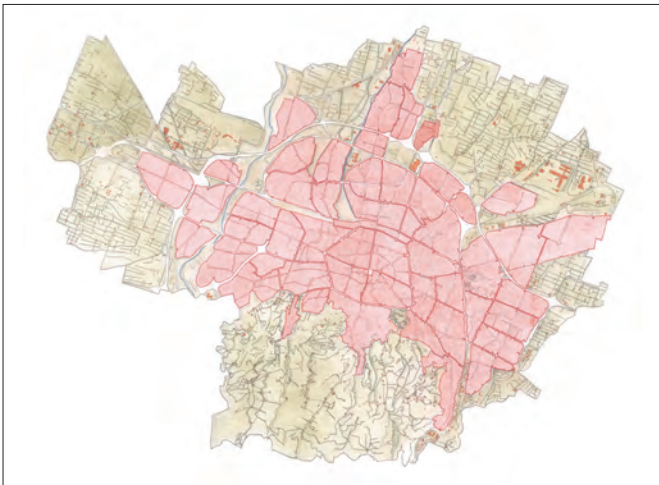
In Europe the building types t₁, t₂, and t₃ were found to be basically the same as in America. They involve free-standing structures that eventually become the single-family house in the center of the lot. But in urban areas things become more complex. There, we established the t₄ as the urban pavilion aligned on a lot edge, as in many European additions of the late nineteenth and early twentieth centuries, especially along peripheral boulevards and drives. Next, the t₅ is the French *hotel particulier*, which represents a transition between the rural and the urban. And the t₆ is the famous “Gothic lot” whose incremental development led to the townhouse. The upper series covers courtyard urban types such as the palace for apartments, t₇; the palace for singular residence, t₈; the intensive courtyard building, t₉; and the dense t₁₀, where the building type occupies the entire lot.

In our analysis we found that small t and capital T could work perfectly together. The analysis showed many combinations that make T₄ out of t₄, t₅ and t₆; T₅ out of t₅, t₆, t₇, and t₈; and the core’s T₆ out of t₇, t₈, t₉, and t₁₀.

Using the Transect to Reform the European City

The second part of our studio exercise typically involves designing urban interventions in specific locations. Here the transect has proved a fantastic tool to relate the metropolitan scale to the refined scale of architectural detail. Students are always fascinated by the possibilities of the transect to produce an inventive and efficient architectural design rooted in local culture and traditions. It seems to be the best tool to effectively start a process of urban reform.

Because European cities have been so polluted in the



last fifty years, it is sometimes difficult to identify their historical inner cores. The famous case of Nancy, Lorraine, in France illustrates the situation well. The jewel of its medieval and Baroque urbanism, the elegant plazas designed by Emmanuel Heré to link with the Gothic core, are today lost amidst a modern sprawl of such magnitude that the ancient core is hardly recognizable.⁴

One project we have worked (illustrated on p.47) is the design for a peripheral area in Ferrara, Italy, along the historical road connecting with Modena. It is an area of wide-open lands where scattered residential “towers” and “bars” float in an ocean of gas stations, abandoned warehouses, malls, and industrial units. The proposal calls for a radical urban reform based on the principles of the polycentric city. On an area of 150 hectares, it accommodates 14,500 inhabitants in three small neighborhoods—one central

with high density; two peripheral with medium density. Building types are designed according to the Ferrara transect and coded.

In Europe we found that the transect provides architects with the chance to devise practical solutions to the problems of sprawl. It should be adopted by municipal building departments as a law, and by practitioners as a guide.

It is time that European students get back in touch with their urban patrimony. The transect allows them to make a clear connection between analysis and design, leading to a successful organic development. It is time that European urbanism again learn to build those beautiful neighborhoods we still admire. It is time that the countryside and the city find true reconciliation.

Notes

- 1 The tradition in architecture of publishing in-folio volumes dates back to J.N.L. Durand and his “Recueil et parallèle des edifices,” first published in Paris in 1800.
2. See Jonathan Glancey, “Castles in the Sand,” *Abitare* 276 (1989).
3. See Duany Plater-Zyberk & Company, *The Technique of Town Planning: Operating System of the New Urbanism* (May 1997), *CI: The Neighborhood Structure*.
4. The sharp contrast in Nancy between the harmony of the eighteenth century and the brutal interventions of the twentieth was the subject of a special issue of the French magazine *Le Figaro*, which called Nancy the “capital city of vandalism.” See “Patrimoine du XX siècle: Raser ou garder?” (“20th century patrimony: Demolish it or save it?”), *Le Figaro*, cahier n.3, February 10, 2001.

All images courtesy of the author except where noted.

Above top left: A typical area in the general urban zone of Bologna.

Right: A typical neighborhood-center in Bologna.

Bottom left: A mapping of Bologna’s neighborhoods.