A morphological approach to residential enclosure in Île-de-France

The effect of severance from the neighbouring environment

Céline Loudier-Malgouyres

There is only a small step from an enclosed urban form to a residential closure. This is why, at a time when the construction of closed, secure estates in France is worringly on the increase, it is interesting to look at the situation of the peri-urban fabric, which is widely permeated with one-family housing estates with enclosed morphology.

It is assumed that residents of residential modes like American gated communities are choosing, by means of fencing and private management, to live among their own kind and are thereby sending a message of refusal to participate in society (although other kinds of motives appear, for example guaranteeing property value, Le Goix, 2002). In France, cul-de-sac or turnaround estates (whatever their size) mark de facto a certain break with their environment. But does that mean then that their residents are individualistically-minded, calling into question the idea of “togetherness”? A study in progress by the Institute for Urban Planning and Development of the Paris Île-de-France Region (IAURIF) is providing some insight by analysing what these enclosed individual estates are spatially and physically. The aim is to identify in detail their characteristics and morphologies and thereby the relationship they have with the urban or peri-urban space surrounding them¹. By showing that they are forms which turn their back on the town and therefore produce a severance effect, a certain fragmentation in the structure of the town and also a functioning as a “defensible space”, the foundations are laid for a study to be done on their modes of production and ways of being experienced, and then on the apparent opposition between town (urban centralities) and chosen, controlled local environment.

Identifying, listing and characterising what enclosed means

We presume to know what an enclosed estate is. All the photos we have seen of one-family housing estates formed around a looped road spring to mind. But faced with the task of quantitatively listing these estates in a given sector, i.e. encircling each complex and recording it in a database, one realises the difficulty in identifying them precisely. Where do you draw the line, where do you enter the boundary of the estate? With a simple turnaround, which starts at the high street of the township, the decision is quite simple: you encircle the estate comprising the road and houses joined to it. For an area where a series of cul-de-sacs is joined to turnarounds that are themselves attached to a main loop, the task is more complicated. Where does the enclosed estate that you want to record begin? And what about a turnaround integrated in a road grid, where the houses in the turnaround back onto houses that look onto streets in the grid? Should everything be encircled?

Lastly, we have chosen a hierarchical (and biological) reasoning and are using a “root and tree” analogy. It seemed that, like a tree, the residential enclosure should be seized at the root, i.e. at the point(s) of contact between the thoroughfares and the residential feeder road.

This technical work to determine what was and what was not enclosed led us to adopt a definition focused on the public road network. This is how we defined as enclosed any (one-family) housing property development operation, or part thereof, forming a break with the public road network, limiting the internal road network to a residential function. Residential enclosure entails therefore a break with the public road network. In other words, any non-networked road system is considered enclosed. Other criteria, like the internal layout of the estate, isolation or geographical location seemed to be components of enclosure but not decisive ones.

1. This phase enabled us to present the elements given here. It was produced partly by the work of the geographer Antonin Gosset. The diagrams presented are his work. Les Annales de la recherche urbaine n°102, 0180-930-X, 2007, English version october 2008, pp.69-77 © MEEDDAT, PUCA
Then, in order to list these estates and set up a geographical database, preparatory visual detection work, from aerial photos, helped identify the main areas of the region where residential enclosure is significant. Also identified were dynamic enclosed areas corresponding unsurprisingly to the most recent waves of one-family constructions since the 1960s-1970s, on the edges of the Paris conurbation and the major towns and cities of the Île-de-France Region. New towns also seemed to feature highly. However, an exhaustive inventory for the whole region appeared difficult for several, mainly technical, reasons, and a study by sector was decided upon. In order to represent the many different situations as best as possible, we decided that the sectors should be divided concentrically and regularly around Paris, since the development of this type of housing seems predominant in the peri-urban fabric of the urban fringes.

The sectors form therefore a ring around Paris. The study does not claim to take account of the whole geographical diversity of residential enclosure.

In the end, seventeen sectors were studied, i.e. seventy-seven communes (municipalities), representative of all the morphological profiles of the grande couronne, or ‘large ring’ (the three départements of Yvelines, Essonne, and Val-d’Oise, plus the Seine-et-Marne département), namely outer suburbs, urban fringes, new towns, rural areas, etc. They were chosen mainly for: their high composition of one-family housing (13% of their territory compared with a regional average of 6%), a high proportion of enclosed estates (located by the preliminary detection work), and discontinuity in the road network (high proportion of cul-de-sacs, loops, etc.).

So, 2100 enclosures were recorded, including 900 of more than one hectare, and representing around 40% of the one-family housing in the sectors studied.

Lastly, in order to characterise residential enclosure, a number of criteria were selected to detail the morphologies of the estates identified, in particular: the geographical character of their territory, their size, the configuration of the road network (number of entrances, density of cul-de-sacs, length of internal road network), their contact frontage (land occupancy method for contiguous spaces), construction date. More difficult to determine, in technical terms, were population (density per hectare) and distance, as the crow flies, to the nearest amenity.

**Elementary configurations of enclosure**

The work identifying enclosed estates helps demonstrate that a residential enclave is a more or less complex combination of three elementary configurations of the public road network: cul-de-sac, loop and turnaround. These three forms at the basis of estates are the first constituent element of enclosure, each corresponding to a break with the road grid, offering only a residential service function that prevents any thoroughfare function. [Doc. 1]

The cul-de-sac is the simplest and most widespread configuration. It represents 55% of the 2100 enclosures recorded but 17% of estates of more than one hectare. Complex enclosed estates, resulting from an agglomeration of several elementary configurations, often comprise a series of cul-de-sacs. It is the most economic form in terms of construction, helping to maximise the number of houses on one building plot.

Houses are generally arranged at an angle along the road network, radiating around the turning area. “Outside” vehicles or passers-by are unusual or accidental, which gives it the atmosphere of a private road, even though it is not one.

The loop, like the cul-de-sac, is a simple, widespread configuration, used either on its own or as a basic element of numerous complex estates. It forms a recess from the public road network. With two points of access, it is less enclosing than the cul-de-sac. But, a one-way system or access by crossing a pavement can reinforce its degree of enclosure.

Lastly, the turnaround is a special form of loop, with only one access, or in other words, a closed loop linked to the thoroughfare by a road. It can also be part of complex enclosed estates. This configuration has a degree of enclosure that can take into account the physical and visual...
disconnection of houses from the thoroughfare and the rest of the town (or township).

With these three configurations, the shared space that is the public road network is therefore shared physically and visually by the residents alone. It is therefore a residential collective space, even though it has public status in most cases. Finally, these forms represent what Oscar Newman (1972) calls the defensible space. The American architect and theoretician Oscar Newman developed this concept as a method of planning and managing mainly residential spaces to strengthen their security against acts of delinquency (vandalism, burglaries, etc.). The cul-de-sac, the turnaround and the loop are all three defensible spaces, allowing natural surveillance (mutual co-veillance between neighbours), natural control of access (the cul-de-sac or turnaround system reduces access to the residential road network at a single point, a symbolically strong threshold), territoriality (this space “belongs” to the residents), and appropriation (the residents and appropriate their shared space, letting children play there, etc.). [Doc. 2]

Typo-morphologies of enclosed estates

Once the constituent elements of enclosure were identified, we tried to construct a typology of residential enclosures. Statistical processing of the database enabled us to make classifications of estates according to some of their characteristics and to identify profiles of enclaves. The aim is to take into account that which exists in the peri-urban fabric; small or large estates, simple or complex, with very enclosing morphologies or with a low level of enclosure, isolated or integrated in the town, etc. This knowledge should enable us to analyse the phenomenon more closely in order to identify its impact on the functioning of the territory, better understand how the practices of residents are part of and correspond to these morphologies, to detail more closely also the method of construction of these developments, and from the point of view of the town planner and those responsible for urban development, to know how to deal with it.

The first typology that we can propose is naturally dependent on the road system of the estate, as this is the central element of the enclosure. Four types of enclosure according to their road morphology are identified from the database.

Simple cul-de-sacs and simple loops are the first. These are small estates by virtue of their configuration, but there are many of them - 55% of cul-de-sacs in the total number of enclosures recorded. Also, out of the 900 estates of more than one hectare recorded, they represent no more than 17% and 7%.

Tree morphologies are the third type and are estates in the form of a tree or a hierarchical river network. The access road serves all the other roads, which converge hierarchically towards this access. There is no, or rarely any, communication between two roads at the same level. All roads end in a cul-de-sac. Consequently, to leave the estate, wherever you are, there is only one road to take. The internal road network, apart from the point(s) of access, is not therefore gridded. It is therefore also enclosed from the inside. We could call this endogenous enclosure.

This morphology represents a large proportion of the number of residential enclosures, 37% of the 900 enclosures of more than one hectare recorded. It is characterised by a high proportion of cul-de-sacs, six roads out of ten are in reality dead-end roads, whereas the average of all estates is 4.5 roads out of ten. This generates high density in the public road network in relation to the surface area of the estate. On the other hand, this tree morphology pertains to estates with a surface area below the average, with 3 hectares
as opposed to 4. Lastly, enclosure is even higher, with only 2 entries for 10 segments \( ^2 \) (the average being 5.4).

The last type, loop estates, are distinct from tree structures by the proportion of roads that are not cul-de-sacs. This class includes the largest residential estates (300 hectares) and also the smallest (simple turnarounds). Two cases are apparent: estates without road hierarchy with loops that form a gridded but undifferentiated internal network; hierarchical estates, where you can identify different levels of service. For example, some estates are organised around a main loop which serves portions of estates, which themselves serve lower level loops or cul-de-sac terminations. We could call this fractal dimension, in so far as there is repetition of identical motifs at different hierarchical levels.

In contrast to tree structures, in a loop estate there are several routes to join the network outside the estate. The scope of possibilities depends on the level of hierarchy of the development. The more hierarchical an estate, the less choice there is for leaving the estate. At the same time, this type of estate has few entrances in relation to the size of segments (an average of three entrances for 10 segments). Thus, in the case of large estates, the ratio between the small number of entrances and the number of internal road segments makes this class of enclosure sensitive to traffic problems and congestion at peak hours. This is what happens at Parc de Lésigny, a huge enclosure on the urban fringes (Seine-et-Marne), which has several hundred houses but only two accesses leading to a route nationale (A road), itself bottlenecked by car drivers looking to bypass the Francilienne (partial ring road around Île-de-France), itself also...

A second typology allows us to take into account the isolation of developments using a classification of their contact frontage (type of contiguous space). This isolation by the immediate environment adds to the power of endogenous enclosure of the internal (road) morphology and we could call this exogenous enclosure. Without going into technical detail once again, we may recall that these frontages mainly concern one-family housing (and their gardens), woods, forests and leisure areas (including golf clubs), and farming and rural areas. Woods, forests and leisure areas represent the immediate environment with the highest isolating power, by virtue of their distance from the rest of the town, their nature and their low potential for change. We note that estates can be situated on the very inside of a wood or golf club, reinforcing the feeling of enclosure. By choosing the proximity of woods or a golf club, these developments have been built on the margins of the commune on vast lands, and often pertain therefore to large estates. Woods, forests and golf clubs are also a sort of perennial land guarantee, given their value-enhancing character and low potential for change. One can also make the assumption that these enclosures are inhabited by a socially privileged population. On the other hand, farming and rural areas represent a contact frontage that is less isolating and more mutable, heralding the future arrival of new developments. The estates concerned are mostly recent and are a departure from the urban sprawl in progress. One-family housing constitutes the immediate environment of estates of quite limited size, as their surface area is limited by the surrounding road network.

To complete our understanding and presentation of the different morphologies of residential enclosure, we can differentiate estates by their size, which gives information about their construction context.

Thus, it appears that a number of enclosures are small isolated estates, which correspond to an urban growth phase

---

\( ^2 \) A segment is a portion of road between two crossroads.
of a township in a rural context. Here, enclosure appears at the start of an urban sprawl (peri-urbanisation) which, although uncontrolled, occurred when land was available, for example.

But most enclosures are either medium-sized estates or very large estates. The first, in a planned context, are developments limited in size by the road system of the town where they are placed. The most characteristic cases are situated in new towns. Enclaves are adjacent to one another, with square or rectangular coverage to match the road grid, and form autonomous cells, without any real link with one another (or hypothetical pedestrian walkways). We see in this case that a road grid does not prevent the enclosure of estates, but nevertheless limits them in size. On the other hand, the grid does not restrict the overall coverage of enclosures in the commune, because although they are smaller, there are more of them.

The road grid simply partitions the residential enclosures. In parallel with their enclosing road morphology can be added the layout in relation to the street of houses: introverted or extraverted. It is clear that an introverted development has a higher degree of enclosure. [Doc. 5 and 6] Generally speaking, in an unplanned context the road system is created at the same time as the developments, imposing no real constraint. Part of peri-urbanisation occurs therefore without a structuring grid. The resulting road network is not necessarily enclosed, but serves residential enclaves. There is fragmentation of the commune structure with a spaghetti-like road system, which can have an enclosing effect because it is sometimes difficult to drive there (enter, leave, cross).

Lastly, very large estates are the most enclosed and most isolated developments. Whereas the majority of medium-sized estates are situated near the urban core (“growing” chronologically in clusters from the town centre), the very large estates are situated on old farming areas or near forests far from the urban centre, or even in opposition to it. In contrast to the other types of enclosure, these are independent from the public road system surrounding them and from the structure of the commune to which they belong. They constitute large, single-function estates, with very often a minimum number of entrances for a very large surface area.

However, there are not very many of these estates in Île-de-France. Examples of these are Parc de Lésigny, with 500 houses organised in a system of hierarchical loops, Chevy Golf Club in Gif-sur-Yvette, situated on the farmland plateau overlooking the town in the south, with the old town situated in the Yvette Valley, Cesson-la-Forêt in Cesson.
facing the commune in an opening in the forest. It should be noted that these enclosures represent a heavy burden on local governments. The public authorities have to develop a large length of road and networks to link them to the urban area. For example, Hauts-de-Chevreuse in Chevreuse is situated on a hundred-metre-high plateau overlooking the town. The estate is linked to the town by an 800-m road, winding towards the forest. [Doc. 4]

Separation from the neighbouring environment

The analysis of the morphologies of enclosed estates takes into account the physical and spatial way in which they are enclosed. It shows that these morphologies end up being disconnected, separated, from the immediate, neighbouring environment.

Let us summarise these elements of disconnection, or how enclosure produces separation.

– The elementary configurations of the road systems that make up the enclosed estate —cul-de-sac, loop and turnaround (and the more or less complex combination of these elements) —by being solely devoted to residential service mark a withdrawal from other urban activities.

– Limitation of the number of accesses to the estate, whatever the surface area, means that the estate is separated and apart from the thoroughfare.

– Limitation of the number of accesses creates symbolic access control. The entrance and exit of the estate are subject to local traffic, loaded symbolically with the idea of threshold (fences and gates can easily be installed).

– The layout and introverted orientation of houses on the estate (even where the estate is integrated in a thoroughfare road grid) have a separation effect. This causes a lack of visual communication between the enclosure and the rest, on both sides, one side not knowing what is happening on the other side.

– The “fractal” dimension of some estates, reproduction of the same form (turnaround, loop, cul-de-sac) with
different hierarchical levels, is all the more enclosing as it produces enclosed micro-estates within an enclosed estate.

- Use of the estate reserved de facto for residents creates territoriality in the place of residence, territorialisation of space by the residents leading potentially to the idea of exclusion of the “outsider” and “self-exclusion” from the outside community.

- The kind of contiguous spaces, therefore the choice of location of the estate, can add an isolation effect (this is exogenous enclosure). Some, like woods, forests and leisure areas are in addition, by virtue of their value enhancing character and low potential for change, a guarantee of remaining isolated over time. But even in the case of an urban neighbourhood, for example one-family housing, the introverted orientation of houses encourages isolation and disconnection (at least in the visual sense).

- An unstructured system of service for estates, in the case of developments on a piecemeal basis, without control of urban sprawl, creates enclosure of the entire residential sector, even if the latter’s road system does not have an enclosed morphology.

- The size of estates, when large, is also a factor in enclosure. It creates a vast chunk of specialised territory, functioning as a separate autonomous site, which also leads to difficulties in bypassing it.

Severance effect and defensible space: enclosure as a form of rejection of the town?

It is by observing that residential enclosure is equivalent to disconnection and separation from the surrounding envi-

ronment, that we can speak of a genuine severance effect and assume a departure with the idea of urban continuity.

Thus, enclosed residential estates have an impact on the town (or the more or less urban space in which they are situated), in that they turn their back on it. By disconnecting and separating themselves from it, they breach urban continuity and help in part to fragment the “town.” Of course, this is a question of scale. It is clear that a single cul-de-sac or a single loop does not have the same severance effect as a 100-hectares estate. And we saw previously that there are more small estates than large ones. However, we also noticed that these small estates, even though integrated in a municipal road network, are nonetheless enclosed by being turned in on themselves. This number of small estates integrated in the urban fabric (in new towns in particular), just like those planned on a piecemeal basis in a yet indistinct urban structure, constitutes therefore a whole section of territory that is somewhat enclosed. Also, whether we are dealing with the juxtaposition of small estates or of one very large estate, it is surely firstly a question of scale, the proportion of this enclosure on the territory, which must cause concern for its severance and fragmentation effect.

But this spatial separation and fragmentation also lead to social separation of their residents from the rest of the town’s residents and users. The form and functioning of the enclave create a territoriality effect, which is matched by socialisation focused on the close vicinity. Territoriality, exclusive appropriation, symbolic control of access, co-visibility – proximity or adequacy with the idea of the defensible space is indeed apparent. All enclosures function and are inhabited as defensible spaces. In the case of complex estates, we can undoubtedly observe a hierarchy of sociabilities, micro-sociabilities of limited range for “micro-districts” created by the hierarchy of the road network (sub-loops, secondary turnarounds, cul-de-sacs attached to a main loop, etc.). In short, defensible micro-spaces within a much larger defensible space.

Mode of production of the residential space and ways of life

Enclosed estates challenge de facto the idea of urban space as shared space, as support space for “togetherness”.

The results of the study in progress at IAURIF end here for the moment and the elements presented must be supplemented so that we can see to what extent these forms of enclosure and the severance and fragmentation effect they produce are intentional. Do they represent an individuation of urban or peri-urban spaces, introducing an individualism signifying rejection of urban society? Does residential enclosure represent an additional level of the rationale of withdrawal, in a peri-urban context already suspected of helping to undo the values of “togetherness”?
Two main analyses of the enclosed estates identified should guide this inquiry (and provide a framework for future work).

Firstly, we need to consider the modes of production and construction of these estates. Most, if not all, are built in accordance with standard estate procedure. On the one hand, the estate product intrinsically generates enclosure, because it enables a plot of land served by public highway to be divided up (Mangin, 2004), i.e. it permits each plot, each house, not to be attached to the town’s road network. On the other hand, the work of Delphine Callen and Renaud Le Goix has shown that recent enclosed estates, open or even closed (from Parc de Lésigny to the closed and enclosed Golf Club Estate at Saint-Germain-les-Corbeil), are simply the logical and natural result of a traditional mode of production of urban space which began with the Parisian private villas at the turn-of-the-century.

The phenomenon and importance of residential enclosure in the peri-urban fabric is therefore a majority, or even traditional, mode of production of residential space. It is therefore a question of supply. This observation relativises therefore the idea of intentionality of the severance effect, but at the same time we see that supply is finding a demand. We should also add that this production is economical, not only for the promoter/builder, but also by extension for the purchaser.

This raises the issue of the role of stakeholders in this production. Between the private sector in charge of construction of developments (planner/developer, promoter/builder), regional or local authority (granting planning permission and supervising urban development) and the future buyer/resident, where does the balance of influence lie? Also, the disengagement, deliberate or not, and the difficulties of the local authorities in creating, imposing and defending an urban project which encompasses residential development is also behind the determining role played by the private sector in this residential supply. The problem of residential enclosure lies not so much in the fact that it corresponds to a supply from the private sector, or to demand from residents (which we shall consider later on), but in the difficulties that local authorities have in controlling these developments, in influencing them in order to ensure compliance with what they are normally responsible for, urban continuity and its structuring role for the region (from an urban and social point of view). And for example, as David Mangin reminds us, the authorities no longer intervene in controlling the course of tertiary and sometimes secondary roads left to the promoter within the framework of its development. One can see however with new towns in Île-de-France, notably Marne-la-Vallée, which chose in its last phases a tight road network, that enclosure exists even in the case of a planned secondary network, through the introverted arrangement of houses towards the plot’s interior.

Lastly, the question is: how can the authority responsible for executing the urban project in the commune or region by means of planning tools (PLU – Land Development Plan, SCOT – Territorial Coherence Scheme, SDRIF, etc.) control and manage residential enclosure and mitigate its severance effect. It is all the more important as current territorial assessments report an ever-rising increase in spatial and social segregation. Faced with this challenge, and also with urban sprawl and the imperatives of sustainable development, planning guidance refers to a dense, compact and also mixed town with an organised network where public space predominates. Urban quality and high-quality urban supply are mentioned. But how is this imposed? An analysis of the morphologies of enclosed estates is being carried out with this aim: to identify the spatial components of enclosure in order to know what to regulate, suggest and verify.

Another category of inquiry concerns residents’ choice of enclosed estates. Apart from fair considerations that they do not necessarily have a choice (for economic reasons, because it is the only supply of housing, etc.), one might raise two questions: does the way of life in a residential enclave necessarily mean withdrawal from or rejection of society? Is participation in society, community life, only possible in the dense, open and mixed inner city? In other words, does residential enclosure actually mean rejection of “togetherness” and the town/city (symbolically associated)?

If one considers that the resident has deliberately chosen the enclave as a place of residence, he is choosing socialisation centred on his neighbours and functioning in a defensible space. But, in addition to assumed security concerns, it is the idea of tranquillity that is most sought after, a refuge

---

3. We must however mention the development of trades and areas of expertise of the latter leading it to greater involvement in the urban project.

4. Master Plan of the Île-de-France Region, currently under review.
from vehicle traffic, disturbance by young people, vandalism, etc., as shown by Éric Charmes in his study of three estates in the north-east of the Parisian conurbation (Charmes, 2005). The resident assumes then that this tranquillity is made possible by the form of the estate and by a known social environment, by “being amongst one’s own”. Enclosed estates are then defensible spaces corresponding to this desire to control one’s living space, here the place of residence, and also one’s neighbourhood, in relation to the idea of the “outsider” who has no business there (unless invited or lost). Also, although a collective dynamic of residential enclosures exists (and can be assessed, whilst varying according to size or other factors), the social interactions of residents are reduced on an everyday level to known relations.

But does this mean that these residents do not maintain other relationships? That this “being amongst one’s own” at residential level deprives them of participating in society? We are now entering a sociological debate about individualism. Do current modes of social relations (diversified by deterritorialisation through mobility) temper the risk of individualism, of withdrawal (that might mark life in a residential enclave)?

Two studies should offer some clarification. Firstly, a study of the ways of life and travel patterns of residents of enclosed estates would show that they necessarily frequent other places for other activities (work, shops, services, leisure). On the other hand, what kind of places are these? Do they go to the town centre, where you can meet anyone (the Other with the aim of exchange and social intermingling)? Or do they converge on out-of-town shopping centres, amongst other suburbanites venturing out of their respective enclaves? On this subject, the work on the emerging town started at the end of the 1990s by Geneviève Dubois-Taine (1997) demonstrated the feeling amongst users of shopping centres of belonging to and connecting with the world. This raises the question: is it a town planner’s view to think that only urban centres can fulfil the objective of “togetherness”, the idea of an exchange society guaranteeing civic and republican values? The peri-urban way of life maintains a complex relationship with space and territory, between a strong attachment to a controlled local environment – at estate level (which strengthens enclosed morphologies) or municipal level – and high mobility within the metropolis or neighbouring regions in order to access other activities. More concretely, the resident of the residential enclave has chosen to be “amongst his own”, which is beneficial for his ambitions of tranquillity. The town centre, or even a traditional post-war residential area, filled with houses looking onto the street, offers less possibility of letting children play outside alone or with friends, or letting them go cycling without fear of accident. But this is only one of their activities. “Being amongst one’s own” is chosen therefore at housing level. Also, work, services and other activities come into play at other levels, in other places. Can belonging to society and participating in “togetherness” play a part? Asked another way, is enclosure of residential life insurmountable?

References


Charmes E., (2005), La vie périurbaine face à la menace des gated communities, L’Harmattan, collection Villes et Entreprises.


About the author

CÉLINE LOUDIER-MALGOUYRES est urbaniste, is a town planner, and research officer at the Institute for Urban Planning and Development of the Paris Île-de-France Region. Her work focuses on the public space, residential development and urban security. She recently published “L’enclavement résidentiel en Île-de-France [Residential enclosure in Île-de-France]”, in Gosset A. (dir.), IAURIF, February 2007; and in 2004 with Renaud Le Goix “L’espace défendable aux États-Unis et en France [The defensible space in the United States and France]”, Urbanisme, no. 337.

celine.loudier-malgouyres@iaurif.org