

THE BRICK, THE RAFTER, AND THE SOUTHERN SUN

CLÉMENT TAULELLE

the narrative of a territory for an analysis of the typology of the mégisseries of Graulhet

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"THE BRICK,
THE RAFTER
AND THE SOUTHERN SUN"

The narrative of a territory for an analysis of the typology of tanneries in Graulhet

The title highlights the triad of fundamental elements that define the site: soil or clay, mainly used in the form of bricks, combined with structural timber, such as the rafters. The sun, omnipresent in southern France, is at the heart of local construction practices: the buildings adapt to its behaviour, sometimes very hot in summer.

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ABSTRACT [200 words]

This study examines the revitalisation of Graulhet's abandoned leather industry sites known as the *mégisseries*: an industrial typology now obsolete not through its materiality, but through the disappearance of the productive system that once made it operative, and which nonetheless faces demolition due to high renovation and decontamination costs. Rather than treating heritage conservation as a principle in itself, the study asks how such a typology can be read critically and reinvested with new architectural functions, retaining what remains operative within an evolving territory. The methodology includes literature review, site analysis, visits, and stakeholder interviews. Territorial commitment is at the heart of this research, highlighting the interactions between local resources, craft skills and public policies. A case study on local brick highlights the potential and challenges of redeveloping these areas. The results show that, despite their state of disrepair, these buildings offer a resource for urban renewal, provided the approach is one of controlled subtraction rather than blanket preservation or tabula rasa. The research addresses financial and technical challenges, and discusses rehabilitation possibilities through initiatives like the Petite Ville de Demain programme, advocating for an integrated approach that retains key façades and building footprints as material and territorial continuity rather than heritage for its own sake. It stresses the need for collaboration among local actors, public policies, and resources to achieve a sustainable urban project that accompanies, rather than freezes, existing heritage.

KEYWORDS FOR REFERENCING

[wastelands] ; [ressources] ; [climate] ; [territory] ; [arpentage] ; [typology] ; [heritage]

PREAMBLE

When I started at Delft, winning first place in the Eiffel Prize 2023 was a pivotal moment in my studies. The prize money of 10,000 euros allowed me to apply for the international selection of the Glenn Murcutt Master Class 2024 held in

Sydney, Australia, where I was selected as one of the youngest participants.

This adventure in Australia was a revelation for an architectural practice I deeply believe in. Surrounded by excellent international professional participants, I had the chance to experience a fourteen-day residency at Tocal in New South Wales with Glenn Murcutt, Richard Leplastrier, Brit Andresen, Peter Stutchbury, and Lindsay Johnston. The program involved understanding the project context, analyzing the landscape through multiple perspectives, and learning about its elements down to the finest invisible details. This approach leads to an architectural project that pays extreme attention to its placement and impact as an addition. In the construction of the project, no reference is made to terms such as ecology, sustainability or other similar nouns that fill the discussions, competition juries or criteria listed in calls for tender for projects. For these Australian architects, ecology is anchored from the very beginning of the project, as a matter of course, by a concern to understand the context.

This experience in Australia led me to embark on a two-month journey to India with my brother Jean, a student at ENSCi-Les Ateliers in Paris, where we met architects trained by Glenn Murcutt, including Bijoy Ramashadran (Bangalore) and Suneyana Golechna (Chennai).

My enthusiasm for Australia and the protagonists of the *Sydney School* of architecture fuels my passion for drawing and architecture. A recent phone conversation with Françoise Fromonot[1], author of most of Glenn Murcutt's monographs and an expert in Australian architecture, only strengthened my motivation to elevate these pioneering ideas as a doctrine associated with the degree I am preparing with great interest. I would also like to thank Job Schroën, who allowed me to combine this experience in Sydney with my studio project within the department he heads at Delft during the second semester of my first year of the Master's program.

[1] Fromonot F. (2003), *Glenn Murcutt, projects and realisations*, 1962-2002, Gallimard.
Fromonot F. (1995), *Glenn Murcutt, œuvres et projets*, Gallimard.

INTRODUCTION

"Beaucoup de praticiens qui cherchent à construire des démarches dites "locales" ne regardent pas seulement le territoire comme un ensemble de formes ou d'expériences phénoménologiques pouvant être réinvesties dans la construction. Ils le considèrent comme un milieu évolutif, dans lequel ils ont un rôle à jouer, au sein d'un tissu vivant constitué d'habitants et d'acteurs, de ressources matérielles et de filières de construction, au-delà de l'emprise des édifices eux-mêmes. C'est en cela que l'on peut parler d'engagement territorial au sujet de leur pratique."

"[Many practitioners who seek to build so-called "local" approaches look at the territory not just as a set of phenomenological forms or experiences that can be reinvested in construction. They see it as an evolving environment, in which they have a role to play, as part of a living fabric made up of inhabitants and players, material resources and construction industries, over and above the buildings themselves. It is in this way that we can speak of a territorial commitment to their practice.]" [2]

The town of Graulhet, in the Tarn department (Occitanie) was a leather capital in the 1950s. Mainly dedicated to the dyeing and preparation of sheepskin and lambskin for international export, the town was home to an important number of *mégisseries*, mainly located on the banks of the river (Dadou). This industry came to an end in the nineties with globalisation and the relocation of the sector, resulting in the creation of around a hundred wastelands in the city center. Most of these buildings are abandoned, in a fragile state and threatened with demolition, although the city council and local authorities have worked to rehabilitate three sites in recent years. The facades of these buildings are emblematic of the local landscape, with their large wooden shutters allowing natural ventilation and drying of the hides. Today, the town is experiencing an economic and social crisis, with precarious populations. Graulhet is nonetheless renowned for its cultural offering, with a cinema and a municipal library, and many intermittent performers occupy inexpensive spaces to set up their crews, sets and equipment.
This research is part of an analysis of an architectural typology

[2] Curien E., Quirot B., Boegly L. (2022), *Art de construire et engagement territorial* [The art of building and territorial commitment], Building Books, Avenir Radieux.

that is largely abandoned, neglected and threatened with demolition. The reactivation of wastelands by municipalities and local authorities with a view to new programmatic uses is very costly, and projects incorporating a *tabula-rasa* process are more often favoured by local players, since they incorporate recent safety and accessibility standards and regulations, and offer greater ease of design. However, the surface area of these wastelands represents a significant economic and land resource, due to their geographical position within the urban fabric and their size. Aware of the importance of this industrial heritage, the town council has already carried out three projects on the site of derelict tanneries, preserving the identity and typology of the buildings: the Maison des Métiers du Cuir (1993), the municipal library (2004), and support for the Atelier Fourès project, a private building for a leather-related activity (2024).

This municipal strategy is part of a concern to conserve and enhance heritage features, in line with the *HouseEurope!* [3] movement launched in 2024, which is campaigning for the drafting of a European law to reduce the demolition of buildings and cut costs when the project includes renovation. It is also part of a movement to reduce land use that is developing in France and Europe (B. Lanaspèze et al (2024), *Villes terrestres* [4] ; Bihouix P. et al. (2022), *La ville stationnaire* [5], and Grisot S. (2024), *Redirection urbaine* [6]).

The main idea of this research is to establish that these wastelands represent a recognisable architectural typology, specific to the area and firmly rooted in the landscape. But also to propose a programme in keeping with what already exists, knowing the value of these structures, the elements that make them up and the local players involved in their design, durability and future.

[3] *HouseEurope!* wants to create incentives that make renovation the new norm. This will boost the renovation market and give new value to what is already there. The goal is to preserve homes and communities, ensure a fairer and more local building industry, save energy and resources, and preserve our memories and stories (https://www.houseeurope.eu).

[4] Lanaspèze B. et al. (2024). *Villes terrestres, Petit manuel d'écologie*. Wild project.

[5] Bihouix P., Jeantet S., Selva C. (2022). *La ville stationnaire. Comment mettre fin à l'étalement urbain ?* Actes Sud.

[6] Grisot S. (2024). *Redirection urbaine, Enquête dans la fabrique des territoires résilients*, éditions Apogée.

[2] Curien E., Quirot B., Boegly L. (2022), *Art de construire et engagement territorial* [The art of building and territorial commitment], Building Books, Avenir Radieux.

MAIN QUESTION

How can an engaged practice at the territorial scale establish a precise analysis of a specific architectural typology, in this case, the "mégisserie" of Graulhet?

SUB-QUESTIONS

How can we consider a wasteland, which bears witness to a rich industrial past (the leather works), as a resource that can be mobilised for new architectural functions?

How can taking into account the elements of the territorial system provide a better understanding of the sources of materials and thus help to anchor projects in the urban environment?

In a first part, we present the context of our research. Firstly, in close collaboration with the local council, we analyse the archives relating to the history of the tannery in the commune and the diagnostics already carried out on certain buildings. We are looking at the establishment of the mills and the closure of the sites. We also gather the views of local players from the municipality who give their vision of the future of the sites.

The second part focuses on the territorial commitment approach, the territory as a living fabric, i.e. the resources available and mobilised in the construction of the mills. This is an analysis of the current situation. The players involved are mapped out, and a case study on fairground bricks—a highly characteristic feature of the region—illustrates the *in situ* investigations, including a photographic report and interviews. This approach makes it possible to establish the link between where the resource is extracted and how it is assembled on site.

Lastly, the roles of the elements that characterise the typology of the furriery are discussed in the third part, through a material and climatic analysis. We then understand that each element of the *mégisserie* responds to industrial needs, but also that the activity must adapt to the climate, which defines a regionalist and vernacular approach in line with the existing situation.

[8] "They [the students] can select a particular site within that area and they have to justify why. I ask them to research the social history, ancient history, modern history; they will look at the flora, fauna, geology, hydrology, geomorphology, water levels, nutrients, why certain trees grow in particular areas. Then they look at the climate throughout the year, sun position, humidity, rainfall, wind patterns... We stay on the site for four days just to collect all this data. That's why just like trees are different, depending on where they grow, the projects are also very different based on all these factors." (Glenn Murcutt, interview, September 2013).

[9] "You will make visible the processes which over time have fallen out of sight in drawings, photographs, text and films. You can collect artefacts or make an herbarium. You should know and test your rights. When does dérive become a trespass? Negotiating permission to work is a central process of design" (Tom Emerson, Atlas of Zürich, Fall/24).

METHODOLOGY

Through an engaging practice at the scale of the territory, as discussed, for example, during the seminars in Pesmes led by Bernard Quirot[7], the working method involves surveying, on-site study, and meetings with local stakeholders. This method is inspired by the *School of Sydney*, and I believe that this practice of research and analysis is essential for starting an architectural project, where the architect's ideas, programme and decisions stem from a process of understanding the landscape, enabling the building to be integrated in a logical and discrete way[8]. This model is also the one practised and developed by Tom Emerson at ETH Zürich in his teaching dedicated to the *Atlas* [9] within his studio: the gleaning and accumulation of information from everyday life, the players, governance, limits and even rights feed the understanding of a place.

The research method focuses on analysing the composition of the architectural typology of the *mégisseries*, built on the banks of the river Dadou. The aim is to study the area in which they are located, in particular the construction resources available, and to determine whether these industries are still active and present today. For this purpose, the *foraine* brick will be used as a case study. It makes up the bulk of the buildings in these projects and is also a resource that is highly characteristic of the area.

ON-SITE VISITS

My immersion in the field began with an eight-day walk around the site to get an initial idea of the town of Graulhet and the parcel of land under consideration for the project (10/04 to 18/04 2025). This investigation led to the production of a photographic study and surveys of the building's exterior façade. Interviews were also carried out, and the Graulhet town council's planning and urban development department was asked to provide a number of site surveys and diagnosis of former *mégisseries* produced between 2005 and 2011.

1. DIRTY OLD RIVER

a local and functional typology
a building that meets an industrial need

[10] Bouroullec I., Soulié A. (2011). *Inventaire Historique Urbain de la ville de Graulhet*. BRGM/RP-60052-FR.

[11] ibid.

[12] Referenced in the BASIAS database by NAF codes.

Leatherworking was originally carried out in Castres along the river Agout in the 18th century for the local trade. It was at the beginning of the 19th century that this industry was replaced in the town by the textile industry, with the relocation of the *mégisseries* to Graulhet, some thirty kilometres downstream from Castres. Leather production required three elements: an animal hide, tannin and water. The term *mégisseries* belongs to the tannery family and refers to the specific process of preparing small hides such as sheep, lamb and goat skins.

Globalisation and the offshoring of cheaper labour led to the decline of Graulhet's *mégisseries* in the early 1990s: more than seventy factories closed between 1990 and 2010 (see diagram in appendix).

In 2011, the *Inventaire Historique Urbain de la ville de Graulhet* [10] report listed 451 former industrial sites in Graulhet, of which 346 could be located[11]. Of these, 211 were leather-related.

To make the town and surrounding area more attractive again, Graulhet town council launched a *Programme de Redynamisation du Bassin Graulhétois* [Graulhet Basin Revitalization Program] (PRBG, 2012) in 2012, which will enable urban redevelopment to take place, highlighting the historical heritage of the area, particularly the former industrial wastelands within a priority area stretching from the Pont des Voûtes to the Pont Saint-Pierre. Within this perimeter, 100 sites have been inventoried, 86 of which are leather-related (see map in appendix). The other sectors of activity inventoried are mainly the storage of chemical products (20.00%), chemical industries (7.00%), as well as car and motorbike trade and repair (7.00%), water and waste collection and treatment (4.00%), and the manufacture of metal and mechanical products (3.00%)[12].

Following a number of discussions with the local council, Evelyne Verlaguet, head of the urban projects department at Graulhet town council, has agreed to share two technical surveys of the Sudre and Tignol wastelands, carried out in 2011 and 2012. ANTEA Group was commissioned by Graulhet town council to carry out additional technical surveys. The reports cover site safety and waste disposal, selective deconstruction and

[13] Commune de Graulhet (2011). *Étude de mise en sécurité et d'évacuation des déchet pour les friches de Sudre et du Tignol*. Realised by ANTEA Group. Courtesy of Evelyne Verlaguet, head of the urban projects department, Mairie de Graulhet, Tarn.

[14] Annexe II de l'article R. 541-8 du CE, INERIS.fr

[15] Commune de Graulhet (2012). *Étude de faisabilité architecturale, technique et économique, en vue de la reconversion de friches industrielles de Sudre et du Tignol*. Realised by Philippe Bergès Architect and Urbanist, Caradant Bureau d'Étude (CBE) and Amélie Vidal Engineer and Landscape designer. Courtesy of Evelyne Verlaguet, head of the urban projects department, Mairie de Graulhet, Tarn.

asbestos removal, as well as site decontamination[13]. An audit of construction materials was carried out, giving the volume of waste for the various buildings and their category. There is a high proportion of concrete, stone and bricks, reaching up to 2,590 t/m2, with 20% of this waste considered to be impacted by chemical products. This impacted masonry waste is located in the parts of the building closest to the river where the pits were located—mainly in contact with the chemicals used to dye the leather. The results obtained enable us to calculate indicators for hazardous waste[14] (HW) rates reaching 0.027 t/m2 for asbestos materials, or 27 kg/m2 (see table in appendix). Most of this is asbestos-covered fibre-cement sheeting, edges, fire doors and false ceilings.

The report calls for hazardous waste, particularly asbestos, to be treated locally, less than 40 kilometres from the site, since the Tarn prefecture has proposed two nearby centres: SEARMIP in Albi (27 kilometres away) and OCCITANIS in Graulhet (7 kilometres away).

In addition to this safety and waste disposal study, architectural, technical and economic feasibility studies for the conversion of brownfield sites have also been carried out for the same sites[15]. Established after the report published by ANTEA Group, the technical diagnoses of these two brownfield sites complement each other and cover most of the elements that make up the buildings, i.e. the floors, frameworks and foundations, as well as the overhangs and roofing. The conclusions of these two surveys also apply to the other megisserie sites, given their similar structural compositions and typologies: conservation of buildings of heritage quality and demolition of buildings falling into disrepair.

After further discussions with the municipality, in particular with Mathieu Bless, local councillor and budget rapporteur, it became clear that the renovation of derelict mill sites is often very costly. For the public sector, this is a major obstacle, as existing buildings are more expensive because of the clean-up, demolition and cleaning phases, which are added to the cost of new elements. In addition, as mentioned above, the transport and treatment of waste represent significant additional costs.

For example, the report on the estimated costs of the wasteland at 31 rue de la mégisserie[16] provides an example of the costing for the renovation of a wasteland carried out in 2009 at a cost of €90,000.00 excluding VAT. For a total surface area of the plot of 1,754.00 m2, this represents a cost of €50.00/m2. Other economic data is presented in the reports on the Tignol wasteland, where the costs (in €/m2) of the plots are shown for both existing and new buildings. It can be seen that the existing site is less expensive for structural work, framework and carpentry, but costs twice as much as the new site for partitioning and false ceilings. If you add up all the work packages, however, it's clear that renovating existing buildings costs more.

In this first phase of research, we studied the area's commitment to the rehabilitation of the megisseries, which provides many keys to understanding the challenges and difficulties associated with the future management of these brownfield sites. This subject was also raised recently by Rinaldesi C. (2025) in her thesis on the conditions of a collaborative urban project, using Graulhet as a case study[17]. There are a number of additional phases to a brownfield redevelopment project: diagnostics, cleaning, partial demolition18, sorting and transporting waste to treatment sites. The constructions are not isolated, but form part of a wider territorial ecosystem, including material resources, local know-how and a variety of players, as we will see in the second part.

[16] SEM81 (Maitrise d'ouvrage, suivi par Antoine Chorro en 2009). Réhabilitation d'une ancienne mégisserie pour usage de bureaux et d'entrepot. Courtesy of Evelyne Verlaguet, responsable du pôle des projets urbains, Mairie de Graulhet, Tarn.

[17] Rinaldesi C. (2024). *La reconversion des friches polluées dans les villes petites et moyennes: les conditions d'un projet urbain collaboratif*. Architecture, aménagement de l'espace. Université Michel de Montaigne - Bordeaux III.

2. "L’ENGAGEMENT DU TERRITOIRE"

a living fabric: an approach to a territory from materiality to local stakeholders

In Alberti's triptych, architecture is about solidity, beauty and location[18]. In this way, the *mégisseries* along the Dadou river are fully integrated into a landscape and an economic system established over a vast area. Located in the department of Tarn, the fallow land of the *mégisseries* is essentially made up of bricks. To better understand the typology of the megisseries, it is essential to study the materials of which they are composed, in particular *foraine* brick and its manufacturing process, characteristics and history. Brick is the most widely used building material in the south of France. Known as *foraine* brick or *latin* brick, its traditional format is 42 centimetres long, 28 centimetres deep and 5 centimetres high, and it is an emblematic and historic material used in many famous buildings, such as Saint Cécile's Cathedral in Albi, which has been a UNESCO World Heritage Site since 2010. Today, there are many different types and sizes of brick.

This section looks at the history of this very characteristic industry in the region, and whether it is still present and active in the region as a mobilisable resource. This investigation may also reveal opportunities to revitalise local know-how and support the circular economy, by reusing existing materials or relaunching local brick production.

The brick industry involves a variety of players, from craftsmen to manufacturers, quarrymen and hauliers. Studying this sector today makes it possible to map these players and understand their role in the construction and maintenance of buildings.

A four-day field trip was organised in April 2025 to visit a number of brickworks and meet the people involved (see table in appendix). Originally family-run, the brickworks have gradually come together through successive takeovers in order to compete with large groups such as Terreal, which was recently bought by the European giant Wienerberger. The remaining families work on a local rather than regional scale, and are losing ground. Some of them have closed down because they did not take the right approach to modernising the industrial production chain, particularly when the switch from coal to electricity was made, like the Barthes brickworks at Gratens in the Haute Garonne. The mechanisation and modernisation of production lines

[18] The terroir approach (lat. pop. terratorium from class. territorium, territory, from terra, land) is inclusive (assimilated to a return to the land) and supportive of social resources. The terroir is defined in the agricultural lexicon of the Commission de Géographie Rurale as "an area with certain characteristics that distinguish it from its neighbours from an agronomic point of view" (1968). Géoconfluence.

is essential if the company is to survive over time. The Gélis brickworks, founded in 1924, was a pioneer in the mechanisation of its production chain: "The technical innovations developed by manufacturers set the pace for purchases (use of steam, vacuum processing of clay, temperature control) and led to changes in clay products. The bricks are diversifying and improving in quality. Human intervention diminished and eventually disappeared" [19]. The Terre Cuites du Savès brickworks is the former Gélis brickworks. Renamed in 1993, it is run by Mr Bazin and incorporates traditional techniques with an automated production line. The director made a choice: to keep the original wooden moulds to obtain sandblasted bricks with random roughness. These bricks were used by Pritzker Prize winners Yvonne Farrell and Shelley McNamara (Grafton Architects) for the construction of the Toulouse School of Economics in 2019. The other brickworks we visited, such as Capelle and Barthes, use vacuum extrusion techniques and dies to produce a variety of shapes with greater density. The scale of these two factories is family-run and the clientele local.

After the Second World War, major groups such as Terreal (1956) emerged. At that time, production was on a large scale, and the products were extruded and perforated construction solutions to improve the physical performance of the products. The Colomiers site near Toulouse, for example, is where Terreal manufactures Porotherm, a brick 50 centimeters long, 20 centimeters wide and 30 cntimeters high, and Monomur, which is also very large. The brand also offers prefabricated load-bearing solutions combining insulation and extruded bricks for enhanced thermal performance (see appendix). Faced with a clay brick industry that is refining its markets for ecological and sustainable reasons, the issue of raw clay construction is increasingly emerging in architectural debate and education in France[20]. Brique Technic Concept in Graulhet, run by Etienne Gay, uses local earth to make compressed mud bricks for filling. This traditional technique has been transformed into a semi-automated production line. This is another market that fits in with the study as a traditional construction solution (bricks) using a local material (earth) and sustainable solutions. Clay bricks need to be fired at over 1100 degrees Celsius for between 18 and 36 hours. The kilns are often lit continuously and only

[19] Domede N. (2019). *The mechanization of the Toulouse brickworks Gélis (1924-1990) based on the description and drawings of its machines*. Raw earth, fired earth. Collection of writings on construction, 9782910728441

[20] Regular training sessions organized at the public platform Les Grands Ateliers under the supervision of the Ministry of Culture, integrated into the core curriculum of the ENSA schools in Grenoble, Lyon, and Saint-Étienne

switched off two or three times a year for curing, checking and cleaning.

Bricks are therefore an industrial activity rooted in the landscape, combining a technical system, a resource and local know-how inherited from a long tradition. However, this industry is under threat, with traditional family-run brickworks producing mainly filler or bricks for landscaping, and the majority of orders being monopolised by industrial giants with new, combined solutions offering drastically reduced construction costs.

The industrial landscape is evolving and adapting to today's demands, such as the construction of houses, where the lifespan of projects is much shorter. Although traditional craftsmen are still present, the trade is struggling to survive. As in the case of the weaving mills, the relocation, modernisation and industrialisation of production chains have led to the decline of local industries, which were often the source of jobs and local dynamism.

3. DEEP AND WIDE

the transformation of existing wastelands requires a thorough understanding of how the mégisserie operates in order to assign each element of the construction its precise function

It is important to note that *mégisseries* typically consist of two main parts: the river level, designated for dyeing processes, and the attics, used for drying. Subsequent additions to these structures, such as upper floors, are constructed from varied materials including extruded bricks, concrete flooring, metal profiles, and fibro-cement components. The following discussion presents these elements, which interact with one another (refer to the appendices for further details), and are arranged in the chronological order of their implementation[21].

(1) the limestone and its mortar composed of lime and soil.

Until the early 20th century, buildings very often used materials found close to the site. The mortar used for the river levels was made from riverbed soil containing silts and clays, to which lime was added to increase the stability of the mixture. This mortar is durable as long as it is sufficiently protected from the elements. However, over time, the mortar becomes brittle and loses its adhesion. It is easily scratched and the joints that hold the bricks or stones together disintegrate.

(2) the latin brick on the framework and corners of the first floors.

Made up of masonry elements, some of which were built between 1830 and 1850, traditional brick is used as a structural element for corner reinforcements and window frames. Less expensive limestone backfill was used for filling.

(3) the 300x100x150 extruded brick located on the upper floors.

Extruded bricks are an essential part of the construction. They can be assembled quickly and are not produced by hand. They are industrial elements like those produced today by the Terreal group's Colomiers factory in Toulouse created in 1970[22]. The upper storeys thus represent a layer added to the construction after the fact. Unlike moulded bricks, extruded bricks are larger in size and have different thermal qualities, since air voids are added during manufacture. However, the upper floors of the tanneries were completely open to dry the hides and did not require any specific heat treatment. The choice of this material was undoubtedly due to the price per m2 and the size of the

[21] Olgyay V. (1963). *Design with Climate: Bioclimatic Approach to Architectural Regionalism*. Princeton Press.

[22] Factory visited on May 5, 2025; main contact: Richard Dujols, technical and commercial representative at Wienerberger/Terreal for sectors 31, 81, and 82.

elements, which allowed the galetas to rise high enough to reach a maximum of three storeys.

(4) the concrete floors and slabs located on the river floors.

Prefabricated concrete slabs are used to retain the extruded brick overmantels on the upper floors (galetas). These slabs rest on IPE 240 to 280 metal sections positioned transversely.

(5) the rafters of the trusses.

The timber is local. It is chestnut or oak from the Montagne Noire, not far from Graulhet. These timbers were used to make the crossbeams, long elements with a relatively large cross-section. We can assume that they are sometimes moulded to save material. Also, the inclination of these elements, determined by the punch, is around 25 degrees, allowing water to drain off properly when canals tiles are laid on the roof.

(6) the sunshade blades made of timber (length of 150 mm).

The purpose of clerestory windows is not to reduce the range of summer rays or to let in the winter sun. The main aim is to allow the upper floors to breathe by creating a current of air that accelerates the wind through a venturi effect created by the thinness of these successive gaps. The leather must be kept in the dark without the sun interfering with the fixing of the dyes. The width of these elements is determined by the distance between the masonry overhangs. Often reaching 2.2 metres, clerestory windows are held together by central mullions. The frame is therefore divided in two.

(7) asbestos-coated fibre cement tiles

After the 1950s (?), many of the tanneries expanded and upper floors were added for drying leather. The materials used were different, and it was also at this time that fibre cement materials began to appear. Often less expensive and presented as more resistant than a traditional canal tile, fibro-cement was used as a roofing element, for example in the form of verge tiles. Now banned from sale, asbestos is dangerous, and when these

elements are broken or damaged, asbestos hairs escape and are carcinogenic. When renovating wastelands or buildings containing asbestos, a phase of asbestos removal is necessary. The waste must be stored in sealed areas[23].

All these observations point to the building's adaptation to the constraints of the landscape. In *Studies in Tectonic Cultures*, Kenneth Frampton states that the building is the result of three converging factors: topos, typos and tectonics. Type is linked to form and thus includes place; tectonics represents form and thus, as Antonio Monestiroli has written, "the building implements a concept outside itself, it reveals a meaning that belongs to the type and becomes evident through it" [24].

[23] Mairie de Graulhet, under the direction of Evelyne Verlaguet, head of the urban projects department (August 2011), Study on securing and waste removal from the Sudre and Tignol industrial wastelands in Graulhet.

[24] A. Monestiroli, "Il tetto e il recinto", in Id., *La metopa e il triglifo*, Laterza, Bari, 2002.

CONCLUSION

The territory is not a collection of objects to be preserved, but an evolving system of resources, supply chains, actors and transitory buildings, within which architecture operates not as an end but as a moment in a longer chain of transformation. Questioning Graulhet's local players, public policies, craftsmen and the history of its wastelands confirms this: the *mégisserie* was a spatial machine, tightly coupled to a territorial productive system built around the leather industry, and its siting, depth, spans and relationship to the river answered a precise technical need that no longer exists. The typology has become obsolete not through its materiality but through the disappearance of the economic context that once made it operative — a mismatch between a persisting form and a transformed territory, borne out on site by the poor state of the buildings' interiors, where only the façades, frameworks and floor slabs retain the capacity to be preserved and upgraded.

Faced with this obsolescence, the project adopts neither preservation as a matter of principle nor tabula rasa as a method. It proceeds instead through a critical survey of structures, materials and their capacity for transformation, sorting what can be transmitted from what must be subtracted. In Graulhet, this sorting is not abstract: the façades warrant retention specifically, as they belong to the emblematic landscape of the town. What remains is then treated as a resource — materials, know-how, constructive logic, and the building's relationship to climate and site — so that continuity is material and systemic rather than volumetric or nostalgic.

This position defends neither demolition nor conservation as dogma. Architectural responsibility here is measured not by the quantity of fabric retained, but by the project's capacity to accompany the territory's evolution. Read in this light, and bearing in mind Article 1 of the 1964 Venice Charter[25], the conservation of the Graulhet mégisseries is not a rule applied uniformly, but one reasoned component of a wider renovation of the plot.

[25] The Venice Charter (1964), Article 1. The concept of a historic monument embraces not only the single architectural work but also the urban or rural setting in which is found the evidence of a particular civilization, a significant development or a historic event. This applies not only to great works of art but also to more modest works of the past which have acquired cultural significance with the passing of time.

DISCUSSION

Graulhet's *mégisseries* constitute a heritage legacy disproportionately large for so modest an urban fabric, setting the scale of the town centre and constraining any renewal project. The *Petite-Ville de Demain* programme, selected to revitalise small French towns through targeted investment, has directed several such measures towards Graulhet's brownfield sites, raising an unavoidable question: what, within this now-derelict typology, should be safeguarded? Mathieu Bless, deputy mayor, acknowledges the town's need for social housing while stressing that restoring these buildings is prohibitively costly — hence the council's recourse to private players such as Atelier Fourès, a leather goods company redeveloping the rue de Peseignes site. This re-occupation, though welcome, does not restore the site's original industrial function.

The wasteland examined here, at 5 rue du Moulin near the Pont Neuf, lies within the PRBG perimeter established in 2012; the nearby closure of Les Crins primary school offers a further opening for new use. Retaining the mégisserie's wet and dry logic, with river-level basins and upper-storey galetas, allows wastewater to be treated by plant-based purification serving residential studios below, and a naturally ventilated gallery above[26], producing an almost self-sufficient building. Comparable to Pesmes, Le Rouget, Urbino, Venice and Monte Carasso, Graulhet is a laboratory for rural urban renewal, where redevelopment must build on existing fabric and resources rather than destabilise a fragile ecosystem.[27]

The project proposes a Cultural Centre for Industries, treating the preserved structure not as a vestige but as an active support for a new cycle of use. Its wet and dry logic is repurposed programmatically: the river-level studios, served by the purification basins, house craftsmen, designers and artists in residence, while the ventilated upper gallery accommodates fabrication and experimentation spaces open to the public. Between these two registers, a room for presentation, debate and teaching hosts research and knowledge transmission, alongside archival spaces that document local industrial practice as a working tool rather than a fixed display. Embedded within a

network of craftsmen, schools and producers, the site functions as a territorial platform, extending the *mégisserie*'s productive memory into a new register of use.

[26] Broekhuizen, D. (2005). *Openluchtscholen in Nederland: architectuur, onderwijs en gezondheidszorg*, 1905-2005. Netherlands: Uitgeverij 010.

[27] Burckhardt, L. (2022). Design Is Invisible. In M. Ritter & M. Schmitz (Ed.), *The Minimal Intervention* (pp. 87-97). Berlin, Boston: Birkhäuser.

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ENSCi-Les Ateliers, Paris,
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THE BRICK, THE RAFTER, AND THE SOUTHERN SUN

CLÉMENT TAULELLE

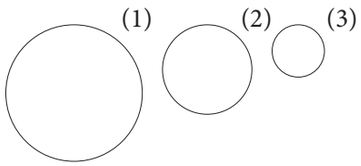
the narrative of a territory for an analysis of the typology of the mégisseries of Graulhet

PRINTED AND PUBLISHED IN DEN HAAG, JUNE 12, 2025,

FACULTEIT BOUWKUNDE, TECHNISCHE UNIVERSITEIT DELFT, THE NL

location of sites whose sector of activity is related to leather working
north oriented, scale 1/40 000





(1) more than 75 sites
(2) 40 sites
(3) 20 sites

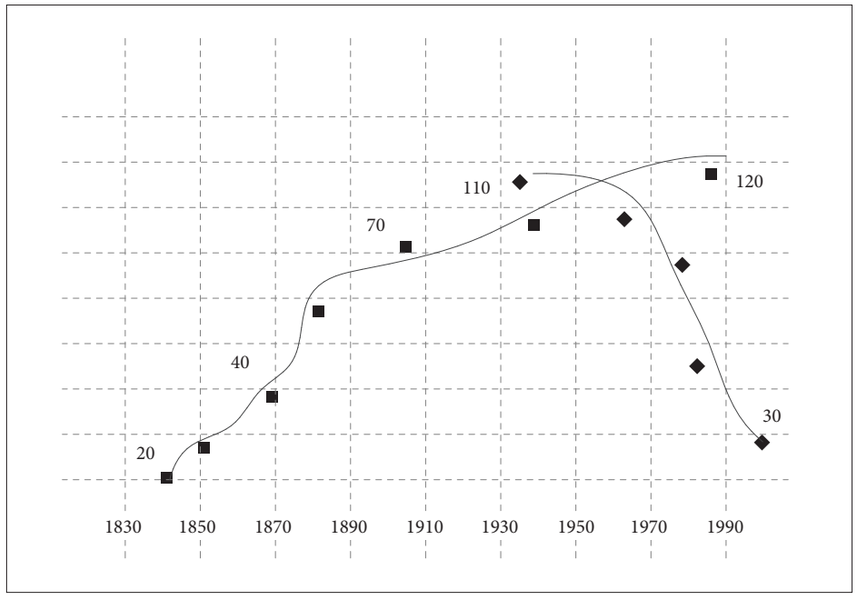
In total, there are 346 industrial sites within the city, 211 of which have leatherwork as their main activity.

IGN map of the municipality of Graulhet
north oriented, scale 1/40 000



Base map created on the left using QGIS (data.gouv) showing the built-up areas and parcels of the municipality of Graulhet. On the right, IGN map (geoportail.fr).

graphs of the cumulative number of site creations and closures by year
tables of the different sectors of activity in the town of Graulhet (1950)



leather-related industries — *in pourcentage*

leather finishing and tanning	33.00
textile finishing (dyeing, printing, etc.)	13.00
manufacture of travel goods, leather goods and seals	3.00
leather and footwear industry	1.00

other sectors of activity — *in pourcentage*

storage of chemicals and/or flammable liquids	20.00
sale and repair of motor vehicles and motorbikes	7.00
chemical industry	7.00
water collection and treatment	4.00
electricity generation and distribution	3.00
manufacture of metal and mechanical products	3.00
fuel and paint sales	2.00

priority area of the graulhet basin revitalisation program
parcellaire plan extracted from the cadastre



in 1963 at Princeton. It is a tool that combines various climatic information to achieve the comfort zone.

approche du contexte ; découpage des régions naturelles
north oriented, scale 1/1 750 000





(1) Pays de Cocagne
(2) Gaillacois with ; (a) plateau Cordais
(b) rive Gauche
(c) rive Droite

Base map created on the left using QGIS (data.gouv).

graulhet's city center
north oriented, scale 1/10 000



(UC ; UB ; UD) individual housing
(UX) commercial zones

Composition of the outskirts of the town and its centre. Highlighting the priority area of the graulhet basin revitalisation programme. QGIS map (geoportail.fr and data.gouv).

amount of waste (see categories) from a former diagnosis realised
sudre sector, current wasteland

	sqm	*inert materials*	*inert chemical materials **	*timber waste*	*hazardous asbestos waste*	*hazardous plastic and metal waste*
B-01	90	250	50	25	2	0.5
B-01-bis	80	80	N/A.	2	3	0.2
B-02	300	1000	100	90	1	2
B-02-bis	60	500	N/A.	15	0.1	N/A.
B-03	350	1200	500	60	15	2
B-04	700	2100	500	3	20	2
B-05	450	450	200	30	20	1
B-06	250	320	N/A.	20	0.5	N/A.
total	2280.00	5900.00	1350.00	245.00	61.60	7.70
average	285.00	737.50	169.00	30.62	7.70	0.96
			0.590 t/sqm		0.027 t/sqm	
		2.590 t/sqm		0.107 t/sqm		0.003 t/sqm

* chemically impregnated inert materials

Commune de Graulhet (2011). *Étude de mise en sécurité et d'évacuation des déchet pour les friches de Sudre et du Tignol*. Realised by ANTEA Group. Courtesy of Evelyne Verlaguet, head of the urban projects department, Mairie de Graulhet, Tarn.

non-exhaustive list of waste nomenclature (france)
(annexe II de l'article R. 541-8 du CE)

inert waste

17 01 01	concrete and similar materials
17 01 02	brick
17 01 07	concrete, brick, tile and ceramic mixes
17 02 02	glass
17 03 02	bituminous mix (tar-free)
17 05 04	earth and stone (with rubble)

non-hazardous waste

17 02 01	wood and timber
20 01 01	papers and cardboards
17 02 03	plastics
17 04 07	mixed metals
17 04 11	cables
17 06 04	insulation materials (glass wool, rock wool, etc.)
17 09 04	mixed demolition and construction waste

hazardous waste

17 01 06	mixtures of concrete, bricks, tiles and ceramics containing dangerous substances
17 02 04	wood, glass and plastics containing dangerous or contaminated substances
17 03 01	bituminous mixtures containing tar
17 03 03	tars and tar products
17 04 09	metal waste contaminated by hazardous substances
17 04 10	cables containing hydrocarbons, tar or other dangerous substances
17 05 03	soil and stones containing dangerous substances
17 06 01	insulation materials containing asbestos
17 06 05	building materials containing asbestos
17 06 03	other insulation materials based on or containing dangerous substances
17 09 02	construction and demolition waste containing PCBs (e.g. sealants, resin-based floors, double glazing, PCB-containing capacitors)
20 01 21	fluorescent tubes
20 01 33	batteries and accumulators

annual flow of hazardous waste from public works activities by cantonal area
north oriented, scale 1/1 900 000



(1) volume over 1000 tons
(2) volume between 500 and 1000 tons
(3) volume under 300 tons

In total, there are 346 industrial sites within the city, 211 of which have leatherwork as their main activity (INSEE.fr).

lots (preview), renovation of a wasteland, 31 rue de la mégisserie
office and warehouse use

lot 01	site installation demolition, asbestos removal, lead removal structural work and facades carpentry and roofing

demolition of buildings adjoining the mégisserie;
removal of rubble to a public dump;
management of pollutant waste;
site installations;
demolition of partitions and wooden floors;
earthworks;
creation of floors;
renovation and adaptation of openings;
creation of staircases, etc.

lot 02	exterior joinery, locksmithing, cladding

entrance door, safety glazing;
RT2005-compliant joinery;
sliding gates for basement access;
metal emergency exit doors, etc.

lot 03	plastering, false ceilings and interior joinery floor coverings painting

plumbing, sanitaryware, heating plasterboard partitions joint treatment;
false ceilings that can be dismantled on a metal framework;
insulation on the underside of floors, etc.

lot 04	plumbing, sanitaryware and heating electricity data center technical networks

hot/cold water networks with electric hot water tank;
sinks and taps;
lighting network, sockets, main distribution;
raised access floors, etc.

lot 05	roadways and landscape architecture

surfaces, renovation of a wasteland, 31 rue de la mégisserie
office and warehouse use

	total (building)	total (roadways)
	1 754.00 sqm	1 700.00 sqm
basement	640.00 sqm	
ground floor	636.72 sqm	
reception	57.75	
buffer area	63.04	
washrooms	7.22	
data center	247.80	
office space	260.40	
first floor	477.34 sqm	
office space	328.27	
open space	102.00	
buffer area	36.91	
washrooms	10.16	

	total (partial building)
	1 581.80 sqm
first floor	300.38
second floor	640.72
third floor	640.72

coast estimation, renovation of a wasteland, 31 rue de la mégisserie
office and warehouse use

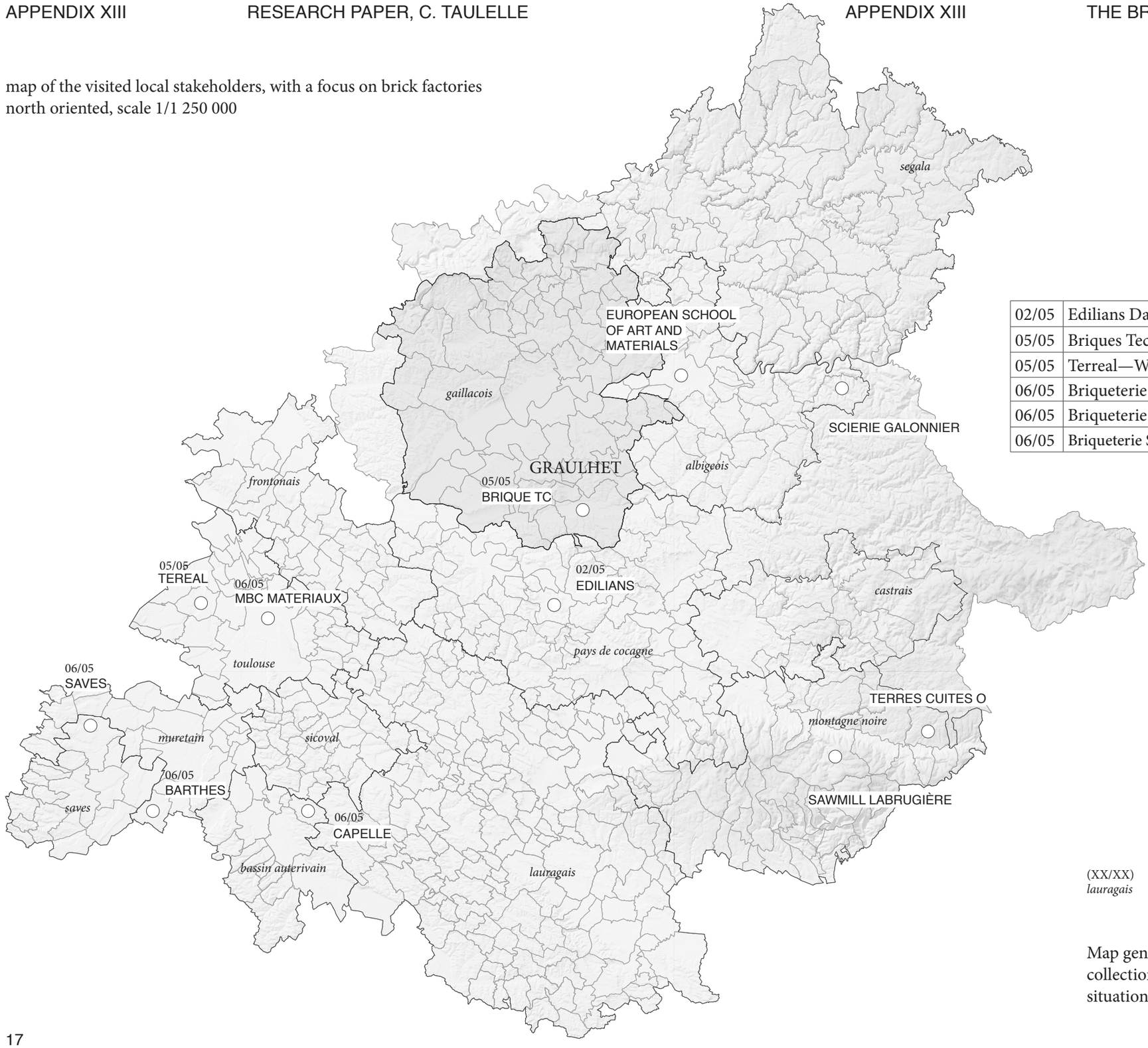
	total (building)	total (roadways)
	1 642 000.00 € ht	105 000.00 € ht
basement	320 000.00 € ht	
ground floor	867 000.00 € ht	
reception	N/A.	
buffer area	N/A.	
washrooms	122 000.00	
data center	495 000.00	
office space	250 000.00	
first floor	455 000.00 € ht	
office space	N/A.	
open space	410 000.00	
buffer area	N/A.	
washrooms	45 000.00	

	total (partial building)	total (demolition)
	403 000.00 € ht	90 000.00 € ht
first floor	75 000.00 € ht	
second floor	164 000.00 € ht	
third floor	164 000.00 € ht	

estimate of work for all trades ; 2 240 000.00 € ht

GENERAL TOTAL EXCLUDING TAXES	2 240 000.00 € ht
TAX 19.60 %	421 400.00 € ht
GENERAL TOTAL WITH TAX	2 661 400.00 € ht

map of the visited local stakeholders, with a focus on brick factories
north oriented, scale 1/1 250 000



02/05	Edilians Damiatte	Damiatte	Mr Coutouly
05/05	Briques Technic Concept	Graulhet	Mr Gay
05/05	Terreal—Wienerberger Colomiers	Colomiers	Mr Dujols
06/05	Briqueterie Capelle	Grépiac	Mr Capelle
06/05	Briqueterie Barthes	Gratens	Mr Barthes
06/05	Briqueterie Savès	Empeaux	Mr Gauzin

(XX/XX) date of visit
lauragais name of the natural region

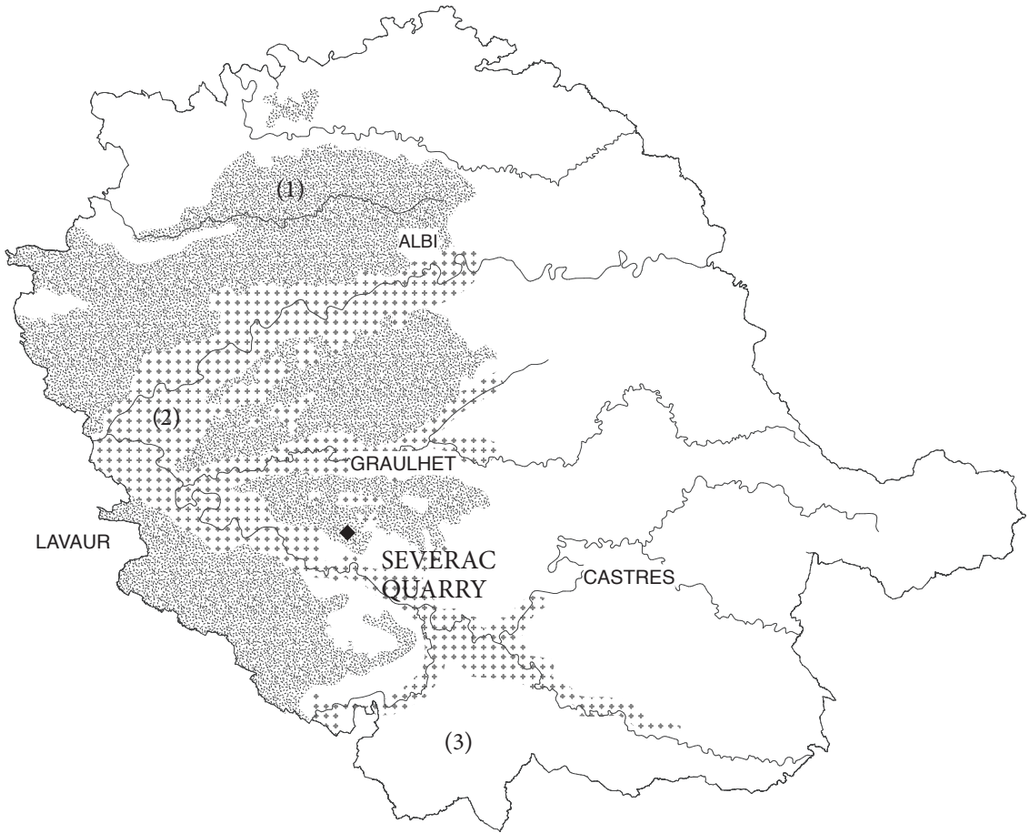
Map generated via QGIS with a hillshade (SRTM NASA). Sample collection and site visits at various scales to understand the situation of brickworks at the regional level (geoportail.fr).



région occitanie
préfecture départementale du tarn
communauté d'agglomération gaillac/graulhet
municipalité de graulhet

ated via QGIS with a hillshade (SRTM NASA).
ng the Tarn department and its relief (geoportail.fr).

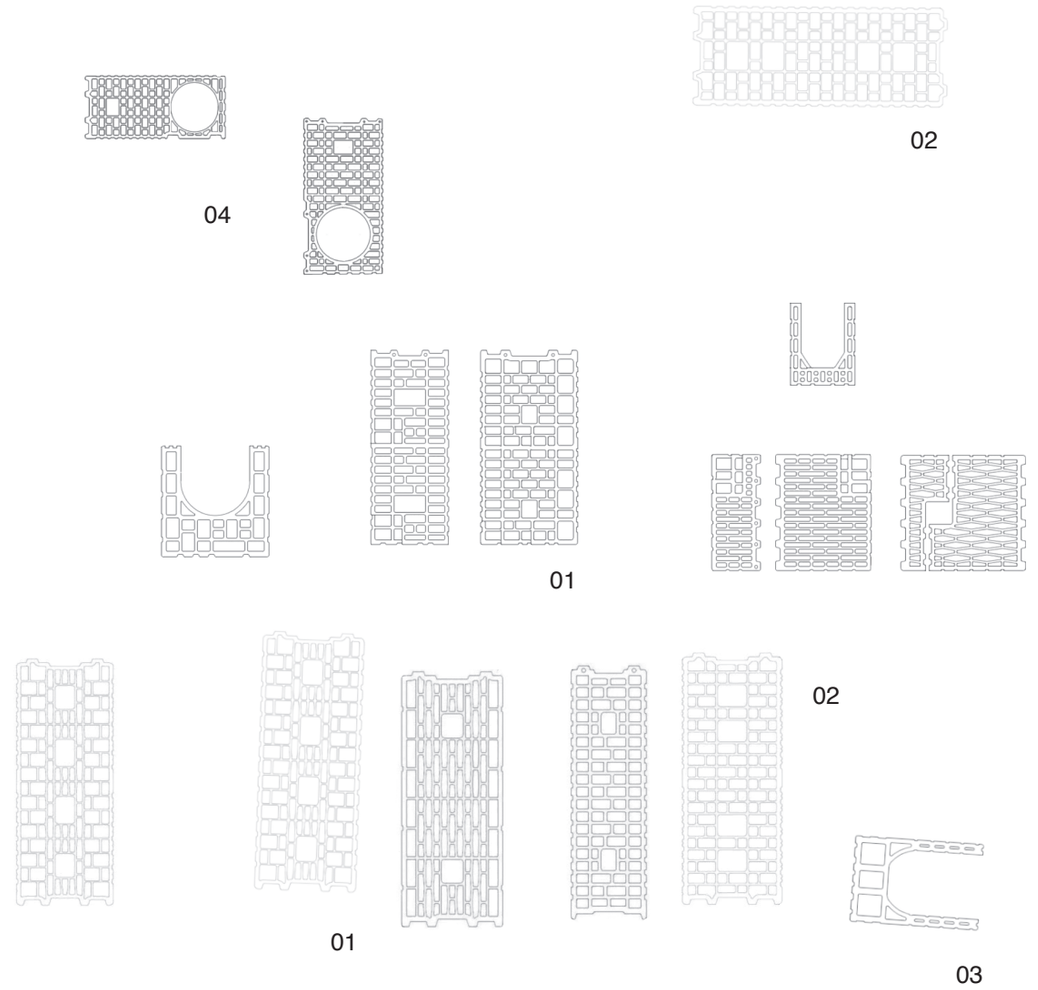
map of the department's soil composition and its river basins
north oriented, scale 1/1 900 000



(1) oligocene, containing silts and argiles (clay)
(2) quaternary, river basin
(3) N/A.

The clay quarry we visited is located a 20-minute drive from Graulhet. It is operated by Edilians (INSEE.fr).

brick production, terreal factory near toulouse
plans, not scaled



01 brique extrudée type porotherm
02 brique extrudée type isobric
03 linteau
04 brique d'angle

Compilation of plans of various bricks produced by Wienerberger, Colomiers near Toulouse. (wienerberger.fr).

photographs of mégisseries extracted from reports
20/07/2010



01



02



03



04



05



06



07



08



09

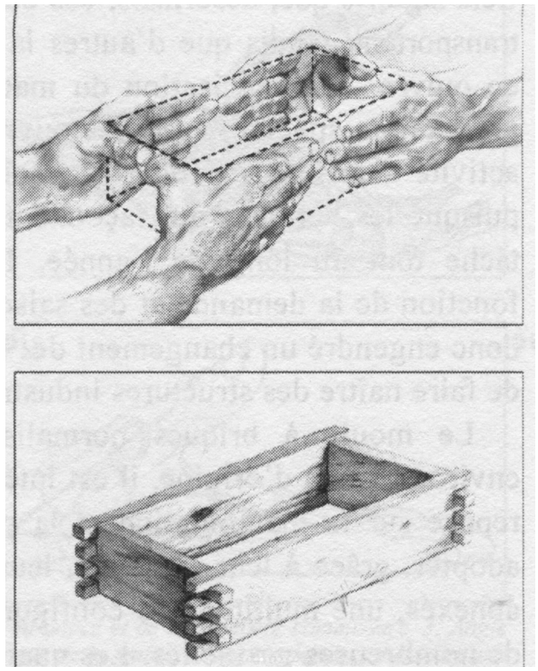


10

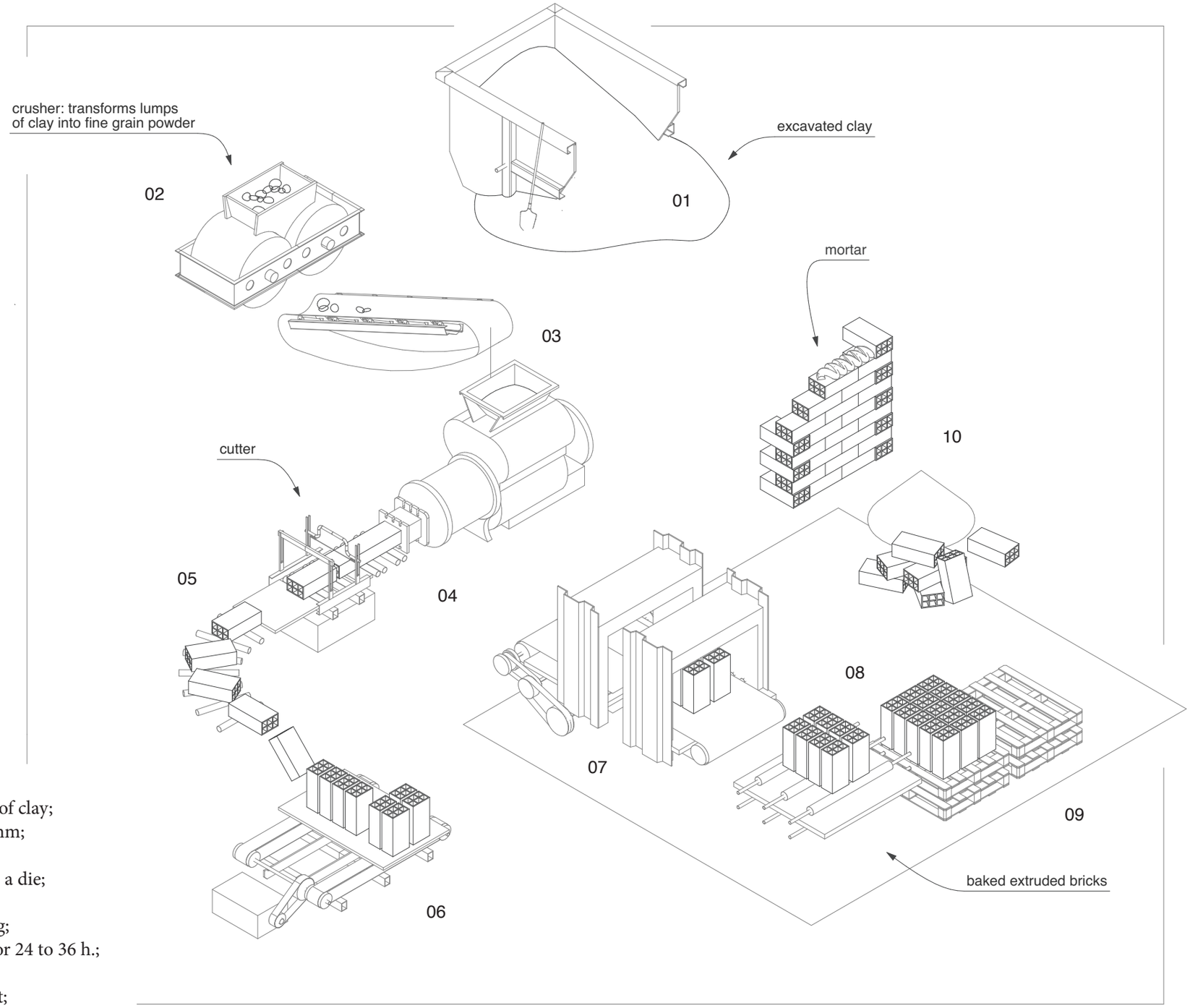
01 river level, dyeing basins;
02 garden level, between the river and the attics;
03 ground floor;
04 drying area (attics);
05 same as above;
06 bourdariès mégisserie;
07 sudre mégisserie;
08 annex constructions;
09 river level, lainière mégisserie;
10 asbestos waste gathered in bags.

Commune of Graulhet (2011). Study on the securing and evacuation of waste for the Sudre and Tignol mégisseries. Conducted by ANTEA Group. Courtesy of Evelyne Verlaguet, Head of Urban Projects, Graulhet Town Hall, Tarn.

production of bricks:
various steps observed during site visits



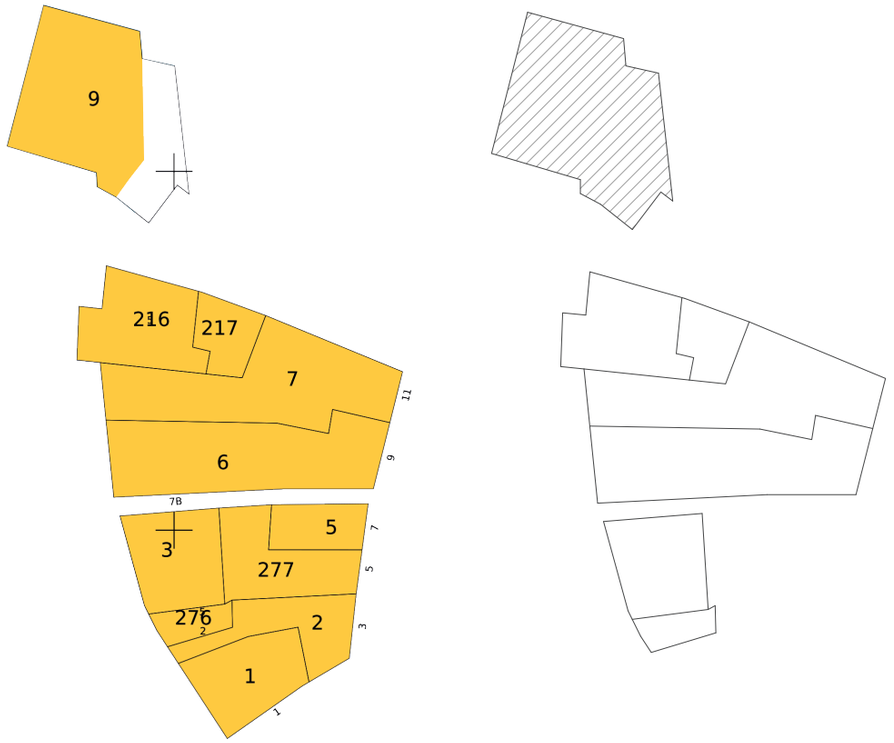
01 excavation and storage of clay;
02 crusher where e = 1.3 mm;
03 sieve for clods;
04 pressure extrusion with a die;
05 wire cutting;
06 kiln drying before firing;
07 firing at 1100 degrees for 24 to 36 h.;
08 classification of stocks;
09 palletizing for transport;
10 use on construction site.



drone photograph
DJI mavic mini, credits: Mathieu Robin



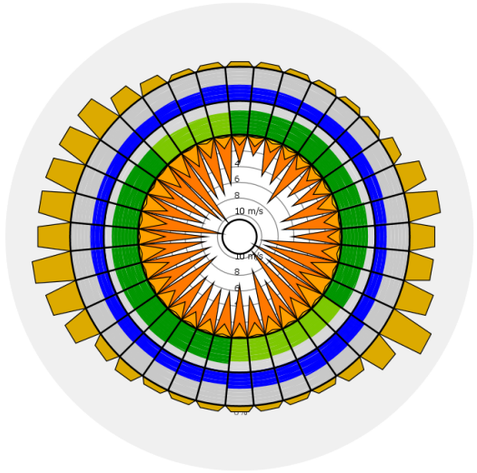
landlord cadaster composition
north oriented, not scaled



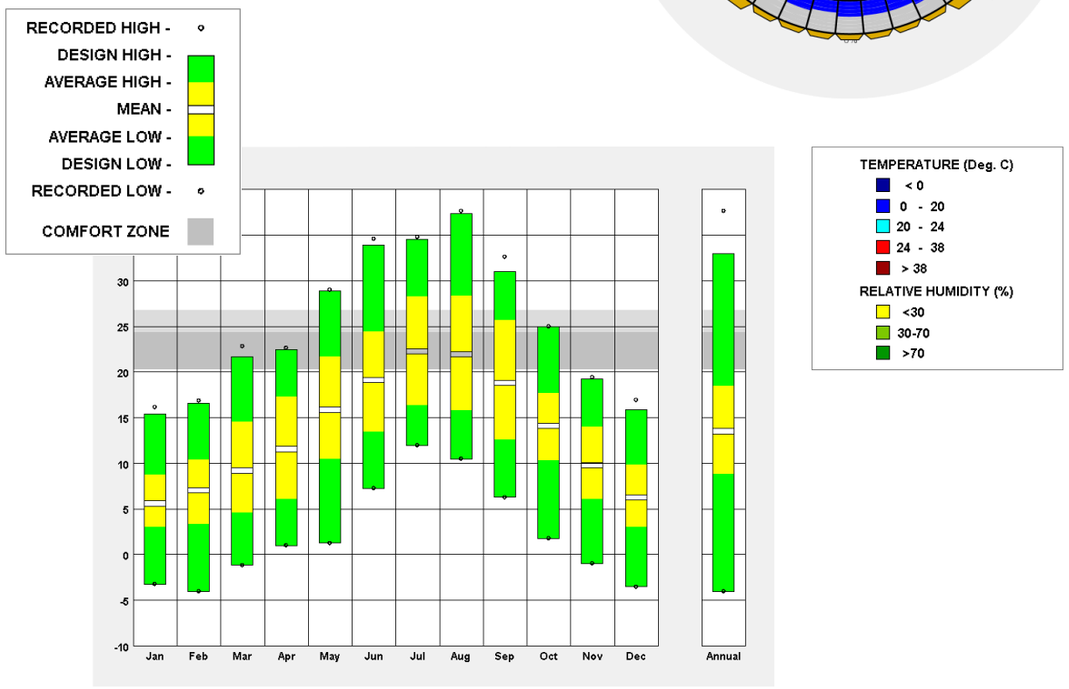
number	*address*		*sqm*	*landlords*
AD 003	7	rue saint-jean	174.00 sqm	Mrs Zagaoui
AD 006	9	rue saint-jean	362.00 sqm	Mr El Ghazy
AD 007	11	rue saint-jean	380.00 sqm	Mr Boe
AD 216	5	côte du moulin	201.00 sqm	Mr Boe
AD 217	3	côte du moulin	77.00 sqm	Mr Boe
AD 276	5	rue saint-jean	49.00 sqm	Mr Gautronneau

Investigation to determine the areas and owners of the various plots located in the intervention zone. Most of the plots are former mégisseries (Cadastres.gouv).

data of the context
screenshots from climate consultant



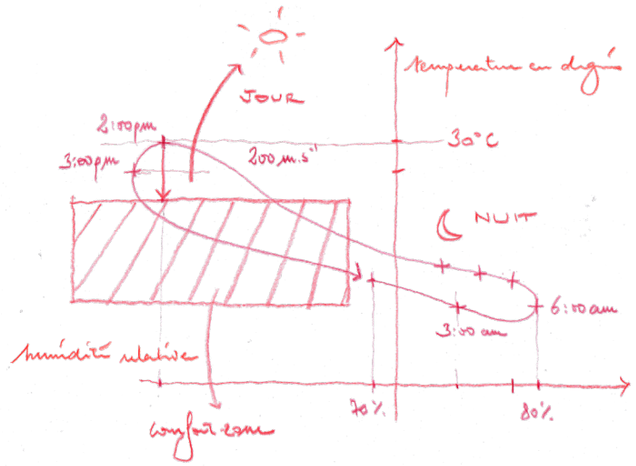
LOCATION: Albi-Le.Sequestre.AP, LP, FRA
Latitude/Longitude: 43.9147° North, 2.1164° East, **Time Zone from Greenwich** 1
Data Source: SRC-TMYx 076320 WMO Station Number, **Elevation** 171 m

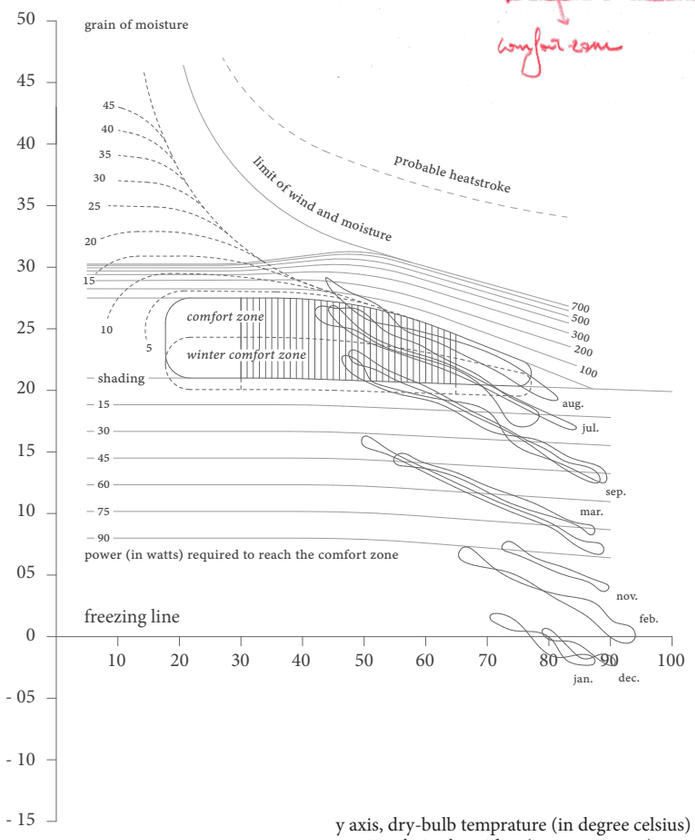


31	Organize floorplan so winter sun penetrates into daytime use spaces with specific functions that coincide with solar orientation
18	Keep the building small (right-sized) because excessive floor area wastes heating, cooling, and lighting energy
8	Sunny wind-protected outdoor spaces can extend occupied areas in cool weather (enclosed patios, courtyards or verandas)
1	Tiles or slate (even on wood floors) provide enough surface mass to store winter daytime solar gain and summer nighttime 'coolth'
62	Climate responsive buildings in temperate climates used light weight construction with slab on grade and operable walls and shaded outdoor spaces

Data extraction from an EPW file located near Graulhet (ladybug.com).

bioclimatic chart
how to reach the climate comfort?

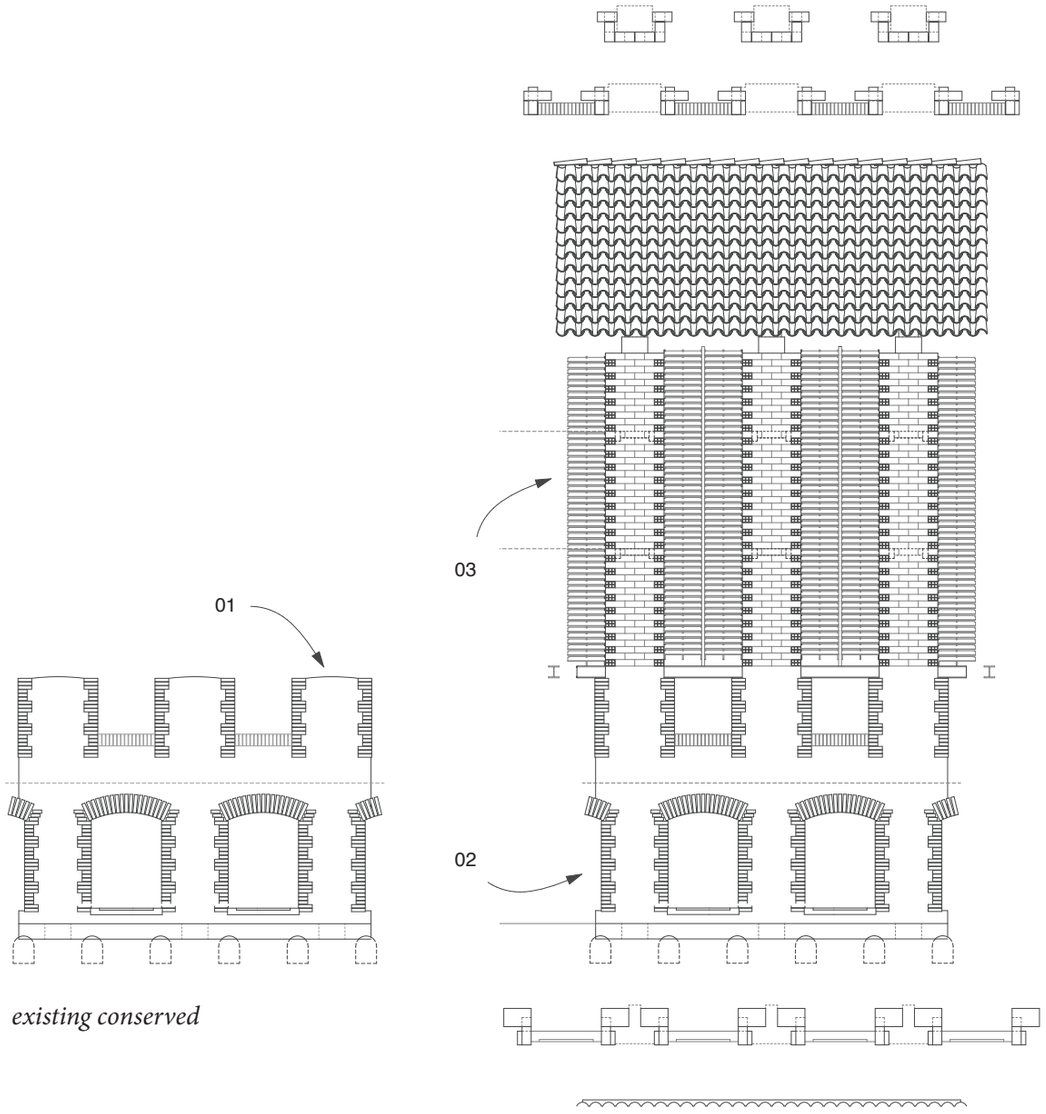




y axis, dry-bulb temprature (in degree celsius)
x axis, relative humidity (in pourcentage)

The bioclimatic diagram was introduced by the Olgyay brothers in 1963 at Princeton. It is a tool that combines various climatic information to achieve the comfort zone.

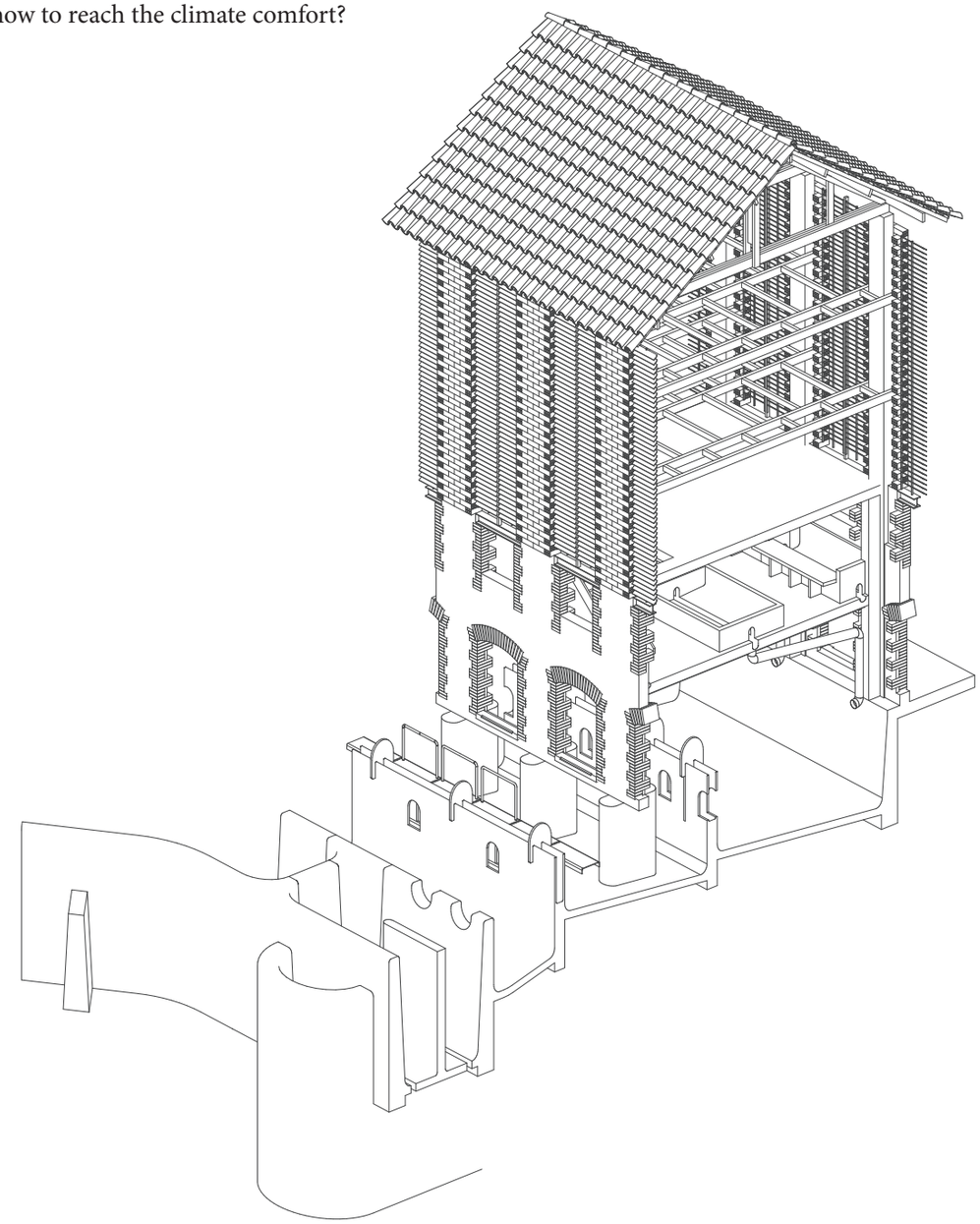
elevation of a mégisserie typology:
identification of the main materials



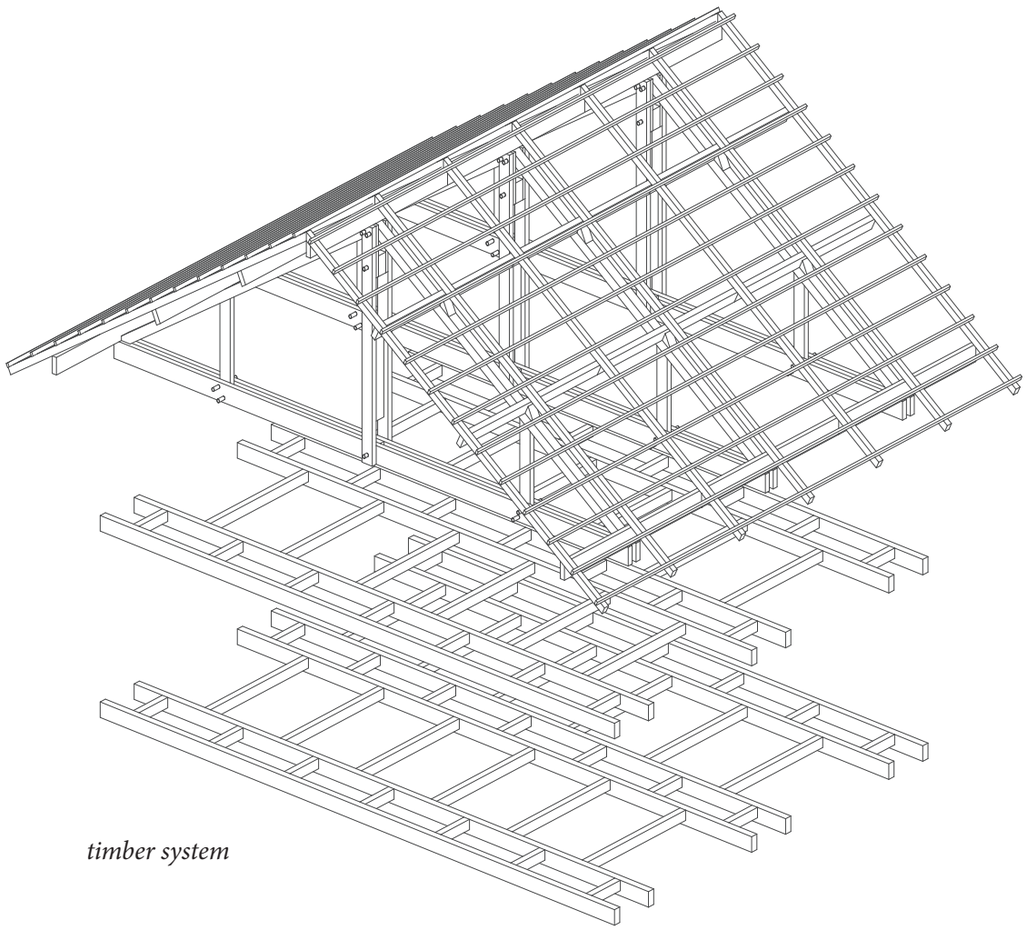
existing conserved

01 masonry;
02 bricks;
03 timber.

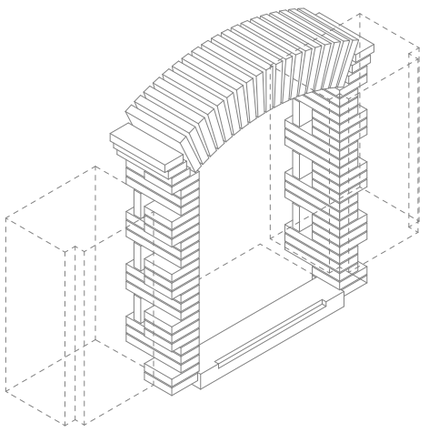
bioclimatic chart
how to reach the climate comfort?



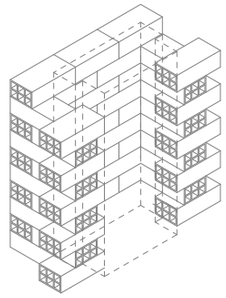
In some archives provided by Marion Pelegry, wastewater treatment basins can be found.



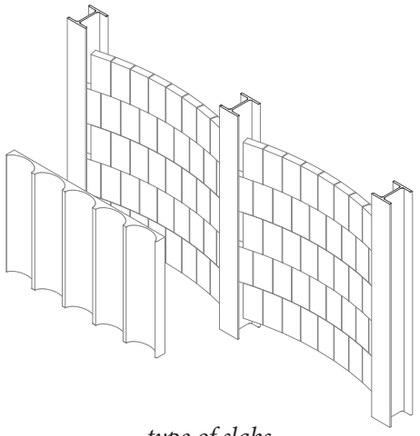
timber system



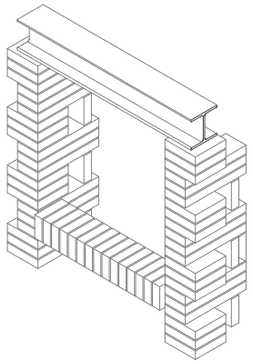
the details that compose the tannery typology
axonometry and elevation, not scaled.



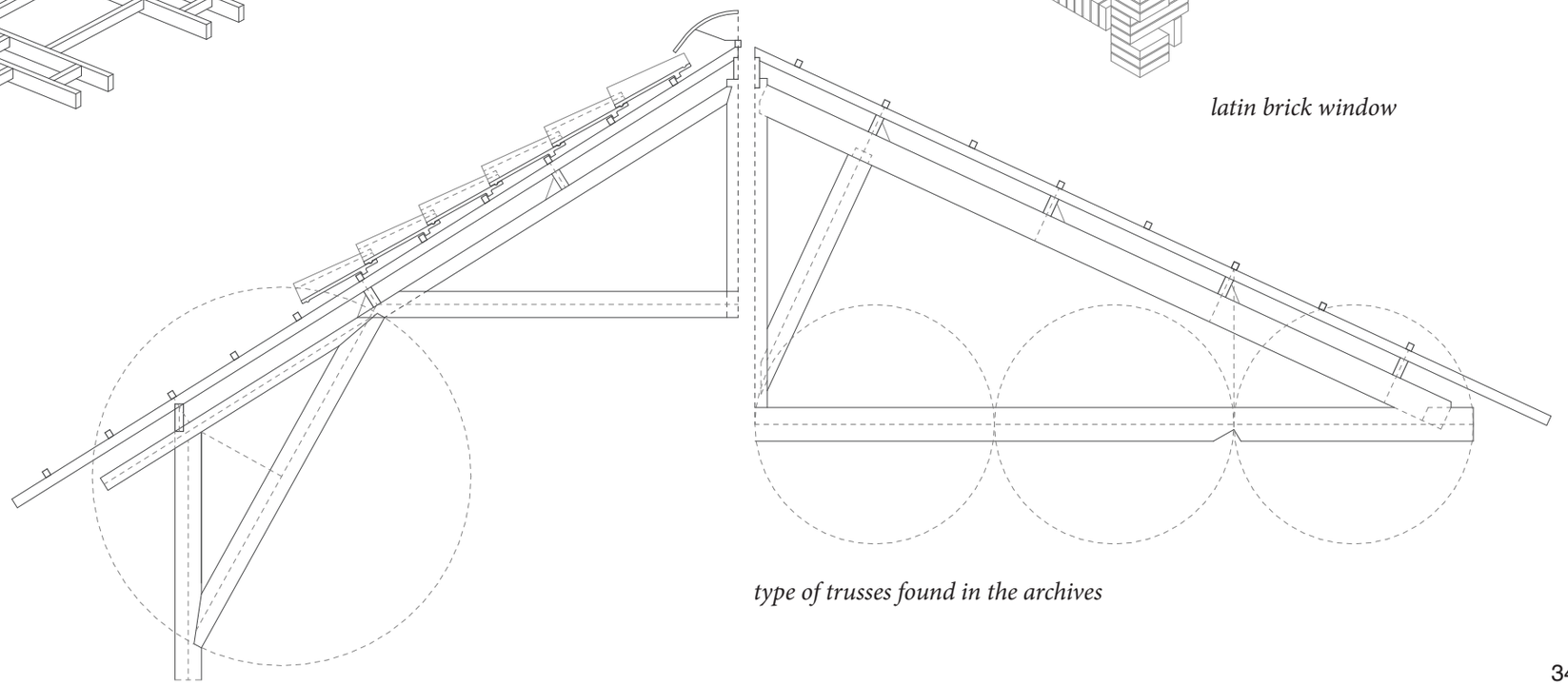
extruded brick columns



type of slabs



latin brick window



type of trusses found in the archives