

HOW OLD IS NOW ?

by

Adriana Giorgis

B.S. Architecture and Distinguished Majors Program
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Requirements for the Degrees of Master of Architecture at the Massachusetts
Institute of Technology.

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Authored by:

Adriana Giorgis
Department of Architecture
January 5, 2024

Certified by:

Ana Miljački
Thesis Supervisor
Professor of Architecture

Accepted by:

Leslie K. Norford
Chair, Department Committee on Graduate Students
Professor of Building Technology

Ana Miljački, PhD
Professor of Architecture
Thesis Supervisor

Carrie Norman, M.Arch
Assistant Professor of Architecture
Reader

Emily Wissemann, M.Arch
MIT Teaching Fellow
Reader

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L'Aquila is a city without new buildings. Founded in the early 13th century on a fault line, the city has been destroyed by earthquakes every three hundred years. Its buildings are repaired on the same cycle. In l'Aquila, acts of construction and maintenance are one and the same. Through centuries, buildings in l'Aquila have been reinforced with punctual, visible, acts of support. Tension ties, corner stones, and thickened walls are the language of architecture, producing both aesthetic and spatial implications. In this city, to maintain is to remake, to build is to preserve, to care is to create. When life and life-expectancy of structures is literally infinite, there can be no differentiation between repair and construction.

This project dwells on l'Aquila's architectural value systems. The absence of 'new' buildings in the city is made possible by a culture of collective acts of repair. In the long-now, kindnesses reinforce, prop-up, and adjust materials that have bore witness to historical events and familial genealogies. What might it mean for the discipline to center maintenance the way it has been centered in l'Aquila? What are the ways that the architect-maintainer conceives of originality? Of design? How, too, might they care for the ongoing present and future of l'Aquila?

Thesis Supervisor: Ana Miljački
Professor of Architecture

Support Structures: Thank You

Ana, your support this semester, in equal parts demanding and deeply caring was fundamental to keeping me afloat and on course, thank you!

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And Pearl for sharing the cnc anxiety

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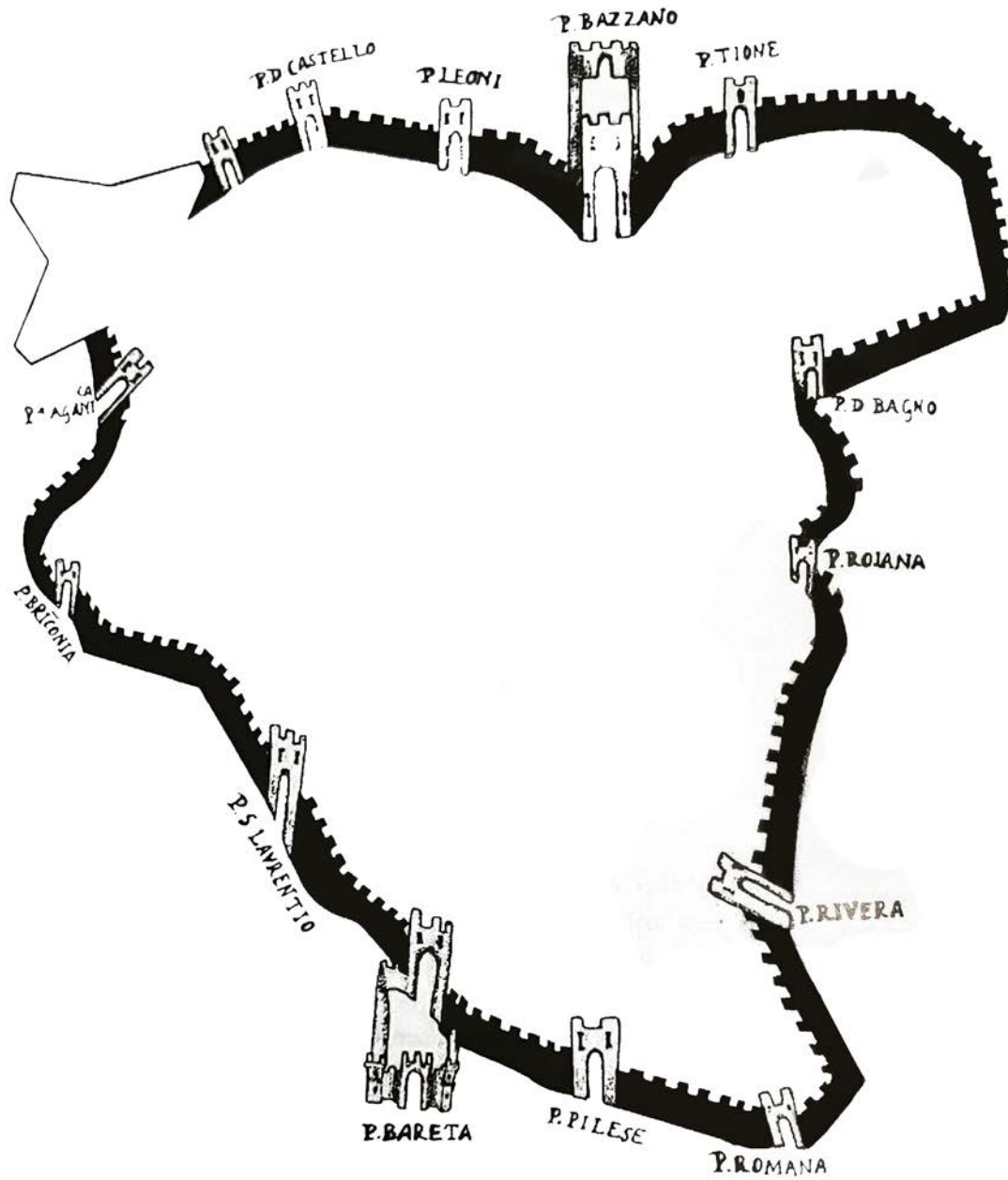


Fig. 03: Drawing of L'Aquila's walls in 1575, By Pico Fonticulano

L'Aquila is a city that has been a construction site since it was struck by a magnitude 5.9 earthquake in 2009. In its 14-year reconstruction, L'Aquila allows us to imagine what architectural practice would look like if we shifted the center of the discipline towards maintenance.

*A list of all figures is provided at the end of this document.
All figures by author unless otherwise specified.*

PART 1



An Object, A Building, A City Block

There's a city in central Italy called L'Aquila. 'L'Aquila' not like the eagle, but la - qui -la there is water here, there is life.

There is a tower in L'Aquila. It existed as a military watchtower before the founding of the city in 1254. As the settlement of L'Aquila grew, it did so around the tower.

In 1310, the tower's height was raised to 70m, and next to it, the seat of power was constructed.

In 1374 a public clock was built into the tower. At the top, bells marked city life and warned of the closing of the city gates.

In 1439 a strong earthquake crumbled the tower. The public clock was removed, and the tower reconstruction began: lower than before about 52m. It was still capable of controlling the surrounding area for a radius of 18 miles.

300 years later, in 1703 the tower was again destroyed by another earthquake and was further lowered in its reconstruction.

135 years later, In 1838 the tower suffered another round of damages, bringing it to its current height of 27 meters.

In 2009 the tower suffered its last -but probably not final- round of damages through a 6.7 earthquake that crumbled L'aquila.

Today the tower hosts a variety of plaques, masonry variations and ornamentations of different eras, reading as a scattered timeline of the history of the city. It stands wrapped in netting, tension ties, wires, and ratchet straps to prevent it from crumbling. It is considered '*inagibile*' or unusable.

As a public artifact, it falls into the category of lower priority, and the efforts to strengthen and restore it will begin after the completion of L'Aquila's housing repairs.

The tower, along with the military, civic and now sentimental value systems that have sustained and rebuilt it over time, underscores an architecture fundamentally valued as 'vessel', selectively carrying the stories of the city and it's people from the past 700 years into the future.



There is a Palazzo in l'Aquila. It was built in the 1300s as a country residence, in an area of urban gardens. Initially, the structure was only a small building on the corner of two roads.

During the Renaissance in the 16th and 17th centuries, the building was expanded to cater to the three growing families.

In 1703, the palazzo was destroyed by a major earthquake. The owners decided to rebuild the most representative portion of the building in a late Baroque style.

However, it wasn't until 1732, roughly 30 years later, that reconstruction efforts finally commenced. Unforeseen delays and the premature death of the sole heir led to the suspension of the original project, limiting the new Baroque building and preserving half of the Renaissance-style residence.

In the late 1700s, the two parts were divided, the older or 'original' side was purchased by the family of the Cappa barons.

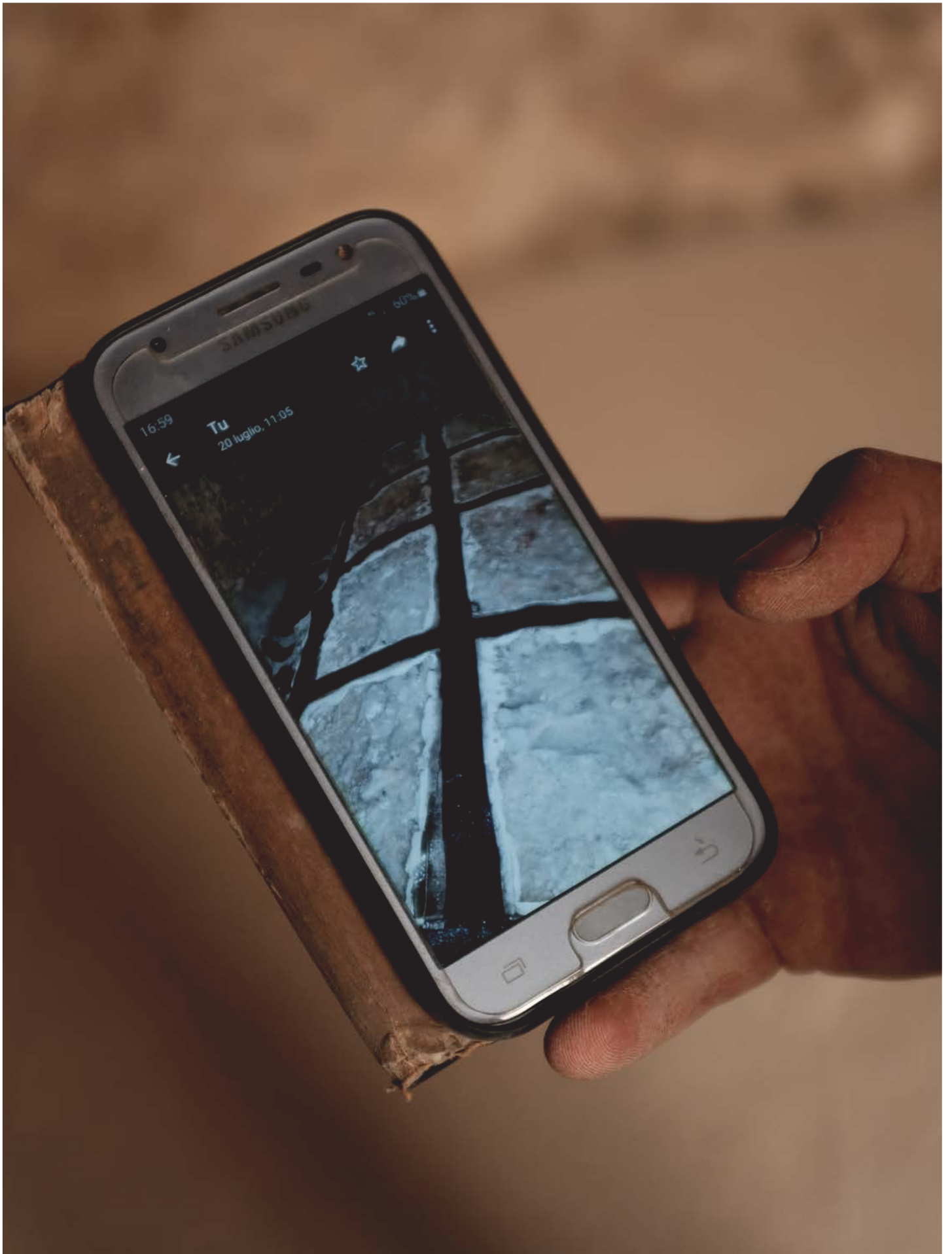
The Cappa family has lived in the palazzo without interruptions since: for over 300 years. The current owner, Marcantonio, was born there, he grew up in the building with his parents and grandparents, raised his son there, and is now the Stewart of the building.

He believes in "*il richiamo delle radici*" or the weight or the call of the roots': the Italian cultural notion that we have a duty to history and to the future, fulfilled through daily acts, be that cooking local foods, maintaining the built environment, and passing down the stories entrusted to us, in an effort to preserve community history.

In the 2009 earthquake the palazzo suffered mild damages, saved by centuries of careful maintenance and reinforcements

Despite the limited damages, the palazzo underwent a significant reinforcement campaign, to ensure its survival into the next earthquake and solidify the structure with modern anti-seismic technologies.

The palazzo exemplifies a comprehensive array of civic and public values related to private property. Architecturally, the building contributes to the rich tapestry of building styles that chronicle the city's history. Structurally, the careful and regular maintenance serves to protect the lives of residents by minimizing the risk of seismic damage today. In a broader sense, these reinforcement endeavors reflect an attitude, or perhaps an expectation, that this building will remain in use and resilient during the next earthquake, which is anticipated within the next 300 years.



There is a building block in l'Aquila. The buildings within it aren't explicitly dated. It is clear that there is a first medieval construction period on the southern part and a 1700 rebuilding period in the northern part.

Programmatically, in 2008 the block housed 2 small student apartments for the nearby university, a single-story house for a family, a double-story house for another family, and a brothel.

Of these buildings, the brothel suffered the most damage and despite efforts to preserve as much as possible of the city fabric, it is one of the few cases in which complete demolition of a structure has been allowed.

A peculiar aspect of the site is that all besides one structure are largely below the current living standards. The living space is really limited, thermal insulation is achieved exclusively through stone mass, making any aperture a precise negotiation between thermal comfort and daylighting.

Despite all this, the importance of community memory paired with historic preservation laws and the national rebuilding funding pot, overrides potential changes and the residents that have been awaiting for over 14 years are eager to rebuild it "as it was and where it was".

In 2021 the rebuilding efforts were initiated on the block. The hired construction team with now over ten years of rebuilding l'Aquila are experts in the solidification and reuse of the building stock.

Together with the owners, the engineers, and the historic preservation commission, they devised an extremely pervasive reinforcement system through nets, mortar injections, deconstructing and reconstructing, tension ties, and carbon fiber bands. The listed tactics are of interest because they foreground the reuse, or rather extreme preciousness regarding the existing building stock.

The block hosting a spectrum of building sizes, limited daylighting, complicated thermal insulation and the diversity of users underscores a radical attitude to the value of buildings. What do they perform beyond their capacity to shelter when considered on the centuries timescale?

PART 2



On Maintenance

In the past century, Architecture has prioritized experimentation over longevity. Each successive generation of architects has been taught to push the discipline forward through emphasis on the “new”. New materials, new structural systems, new assemblies, and overall, new styles. This mentality looks forward but not ahead. Architecture that values “new” has come at the cost of slowly quashing the temporal concerns of buildings. The agency of the architect begins at design conception and ends at building delivery, leaving little accountability for the longevity of a built project. Architecture has thus become a practice of experimentation, not endurance.

However, within the discipline, there's a notable shift happening. A new wave of values is emerging, driven by the urgent need to reduce the carbon footprint of architecture. Our decisions are now being questioned and quantified, the environmental impact of our decisions, measured¹. The carbon footprint of buildings is being scrutinized, architects are opting for sustainable materials like CLT, advocating for low-carbon concrete, and exploring ways to reuse building elements across different projects. Despite this new wave of innovation, a fundamental component is still missing when we consider the longevity of buildings: maintenance². Still perceived as separate from the profession, the act of maintaining is often kept hidden or additional to the discipline, not within it.

The city of L'Aquila demonstrates otherwise. In a city where buildings have no expiration dates, there is a complete overturning of the agency of the architect³. To operate on these terms requires a new temporal perception, a 'long-now', where buildings are built, unbuilt, maintained, downsized, or restructured without discrimination. Architects become custodians, or maintainers, operating on the built environment with recognition of the essential value of maintenance within the design process. Fostering structures that are not only aesthetically considered but also resilient and sustainable in the long term.

This project dwells on l'Aquila's architectural value systems. What might it mean for the discipline to center maintenance the way it has been centered in l'Aquila? Its version of the “no new construction” dictum⁴ is uniquely tied to collective acts of repair, to material that has witnessed historical events and supported daily life for generations, while being constantly reinforced, propped, and adjusted⁵. In this context, what are the ways that the architect-maintainer conceives of originality? Of design? How too might she design care for the long-now of the current and future l'Alquilas?

For now, alongside my essays for the city, I ask you to imagine the architect-maintainers of the future who measure the value, beauty, and strength in terms of care for the long now of cities everywhere.

1. Kate Simonen, “The Edward and Mary Allen Lecture in Structural Design” (lecture, MIT Huntington Hall, Room 10-250, November 2, 2023, 6:00 pm), <https://architecture.mit.edu/events/kate-simonen>.

2. Florian Hertweck, Christian Hiller, Markus Krieger, Alex Nehmer, Anh-Linh Ngo, Milica Topalović, “Politics for the Repair Society,” Editorial, in *The Great Repair – Politics for the Repair Society* (Berlin, 2022), 2–7, hier S. 2

3. Luca Carosi, interview by Adriana Giorgis, August 2, 2023, in-person interview.

4. Charlotte Malterre-Barthes, “A Global Moratorium on New Construction,” Charlotte Malterre-Barthes, accessed November 4, 2023, <https://charlottemalterrebarthes.com/practice/research-practice/a-global-moratorium-on-new-construction/>.

5. Luca Carosi, interview by Asriana Giorgis, August 2, 2023, in-person interview.



I
MASKING



Fig. 08 a. + b. : Palazzo in Via Roma, 174 by Moretti & Dander

DATE

day
or
appointment





Fig. 09: Palazzo in Piazza Chiarino



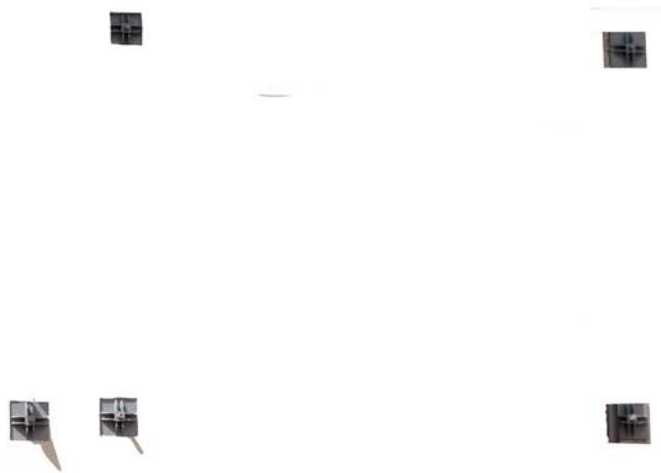


Fig. 10: Masque of Palazzo in Piazza Chiarino

ALIEN

external
or
naturalised

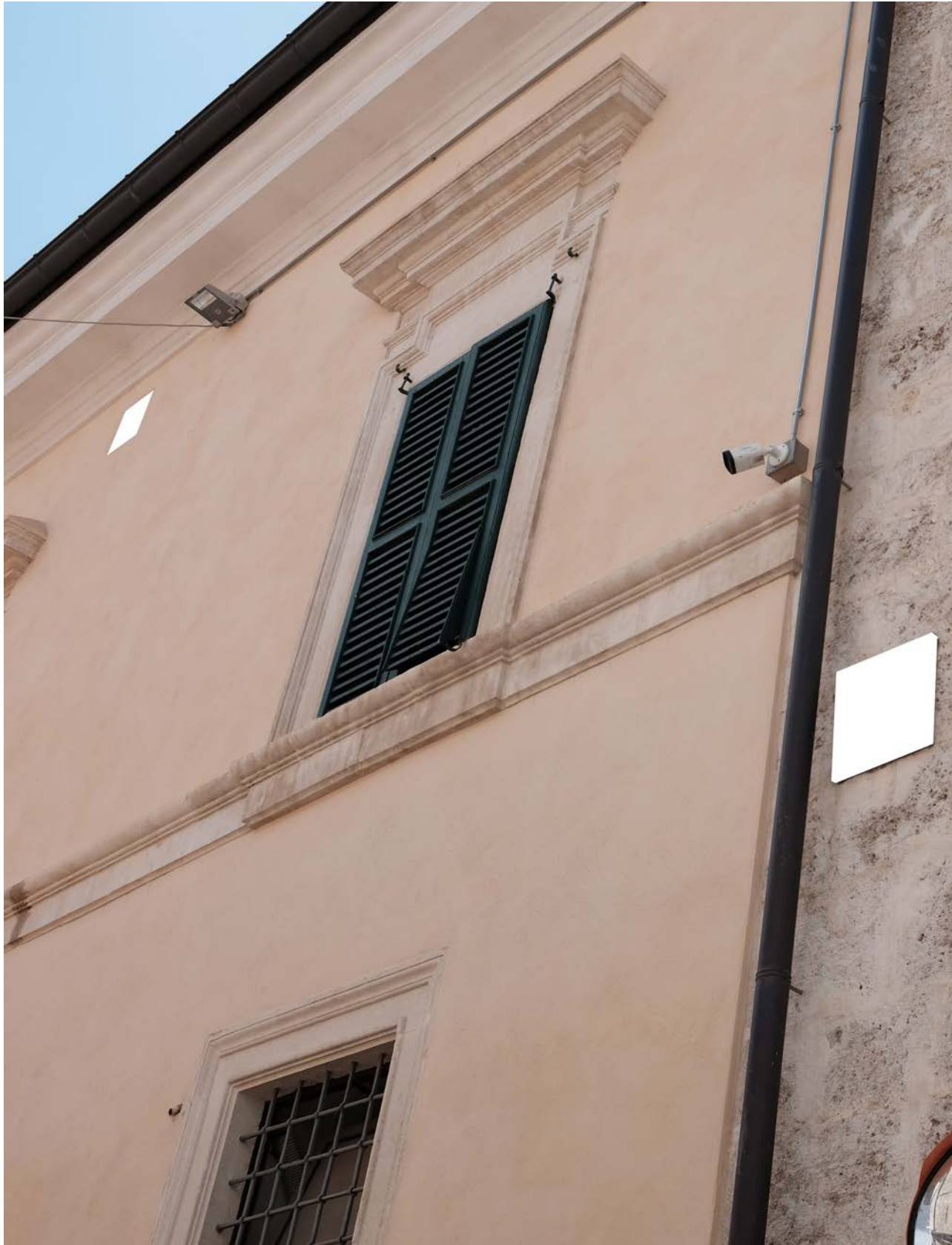




Fig. 11: Palazzo Corner





Fig. 12: Masque of Palazzo Corner

CHANGE

modify, replace
or
currency





Fig. 13: Palazzo in Via Ardinghelli



BOND

bind, strenghten
or
an obligation





Fig. 15: Palazzo in Corso Vittorio Emanuele

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L

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L

|

|

X/



Fig. 16: Masque of Palazzo in Corso Vittorio Emanuele



II
BUILDING

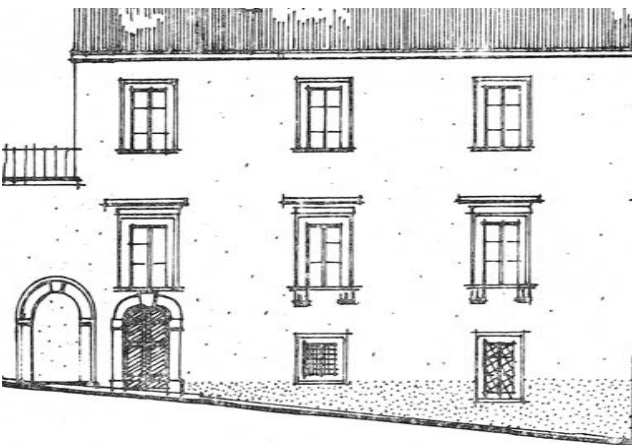
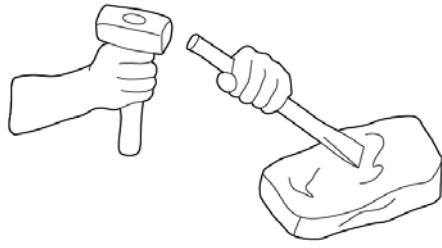


Fig. 17 a. + b.: Palazzo in Via Garibaldi 8, by Moretti & Dander





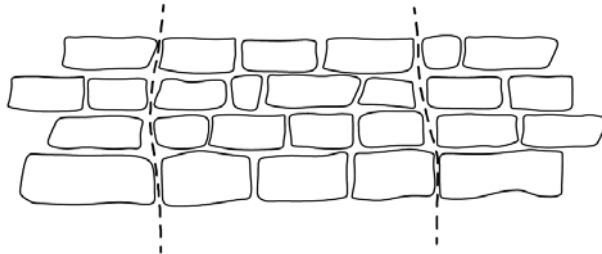
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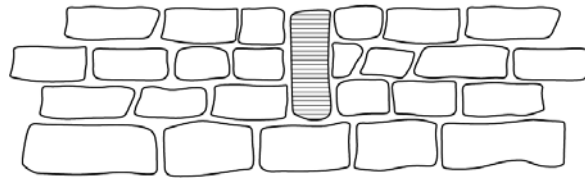
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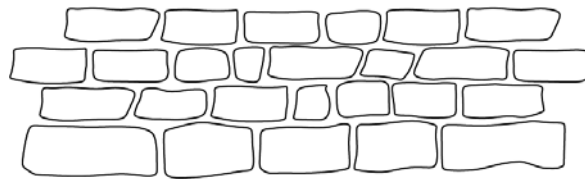
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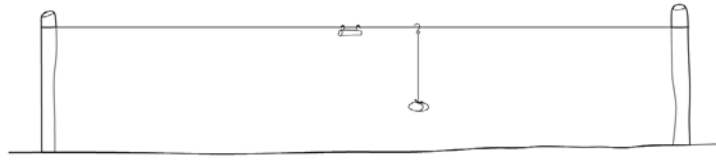
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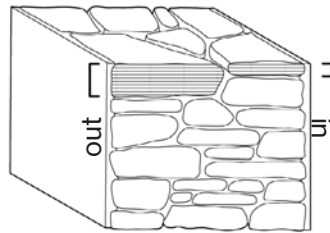
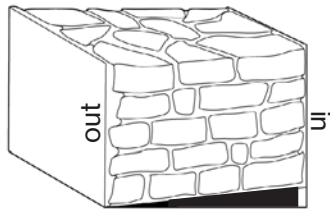
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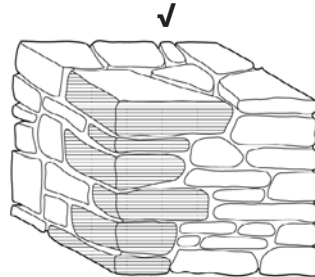
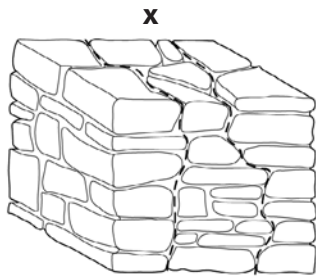


leveling

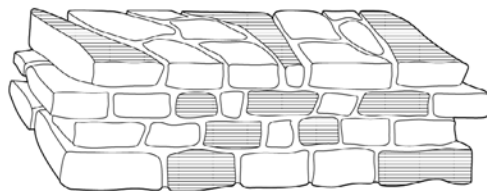


or

waterproofing

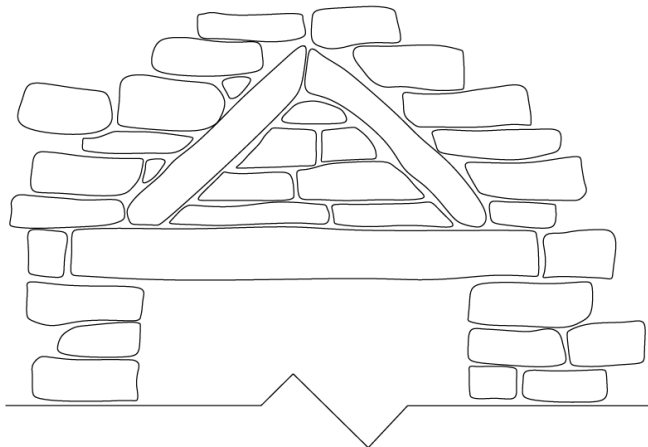
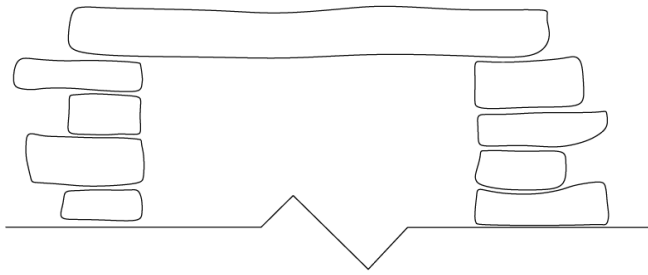
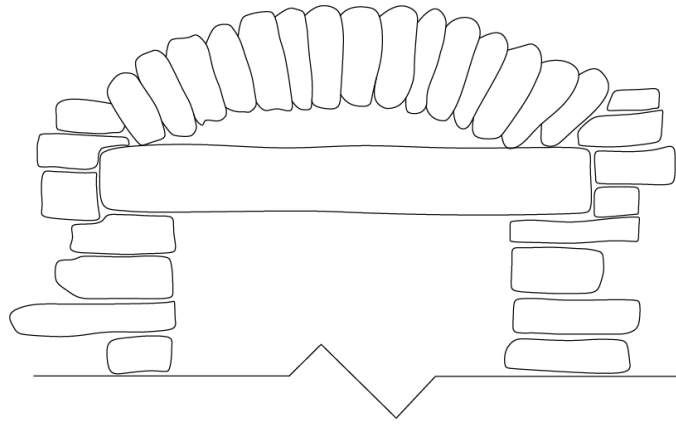


corners



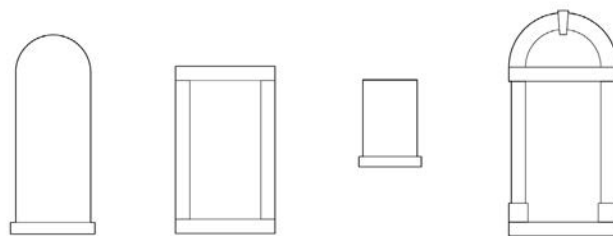
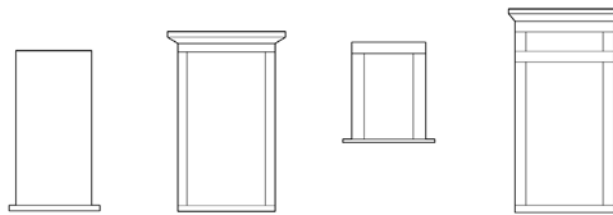
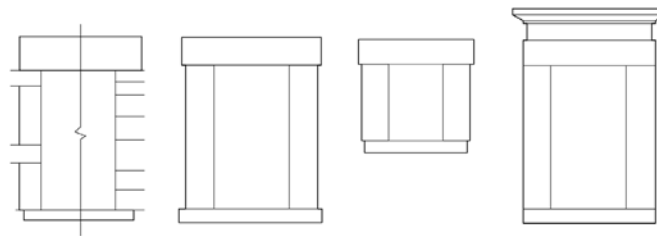
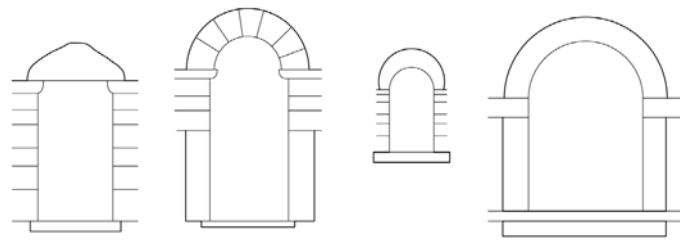
tie stones





window lintel construction





stone window details



III
DATING

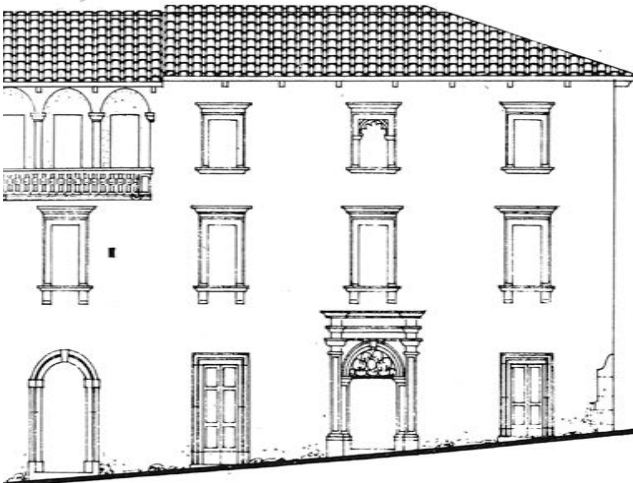
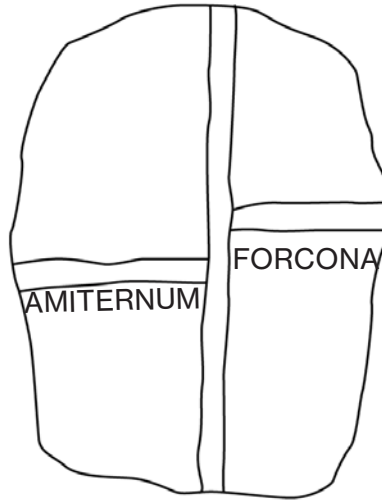
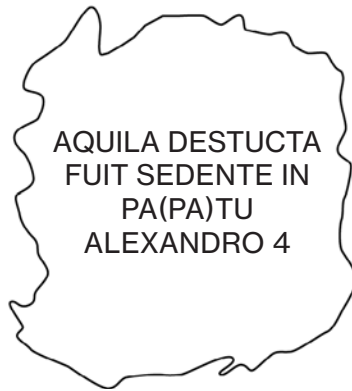


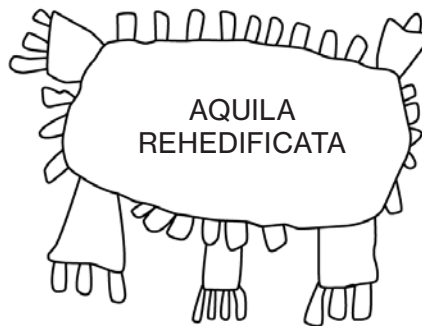
Fig. 26 a. + b.: Casa in Via Dragonetti, by Moretti & Dander



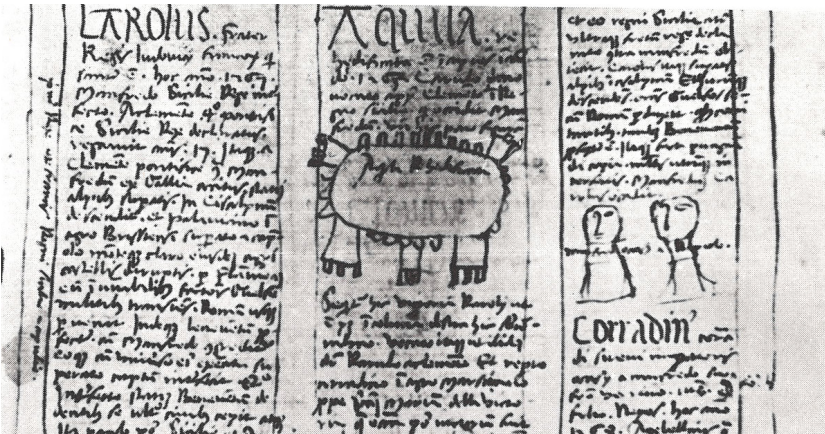
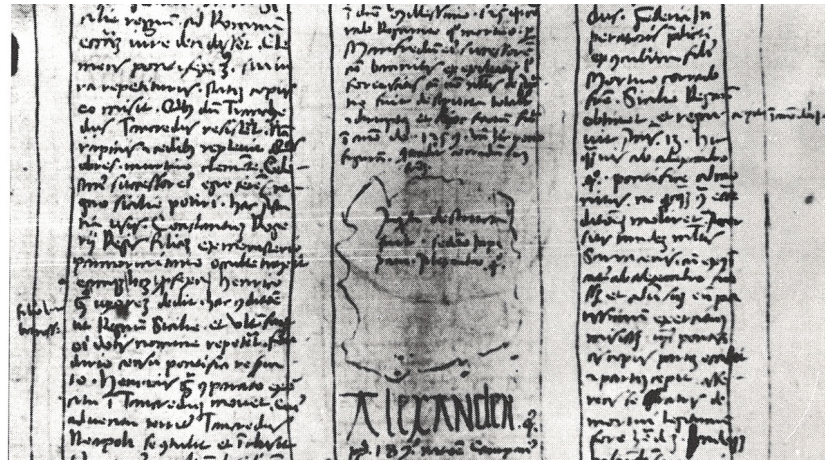
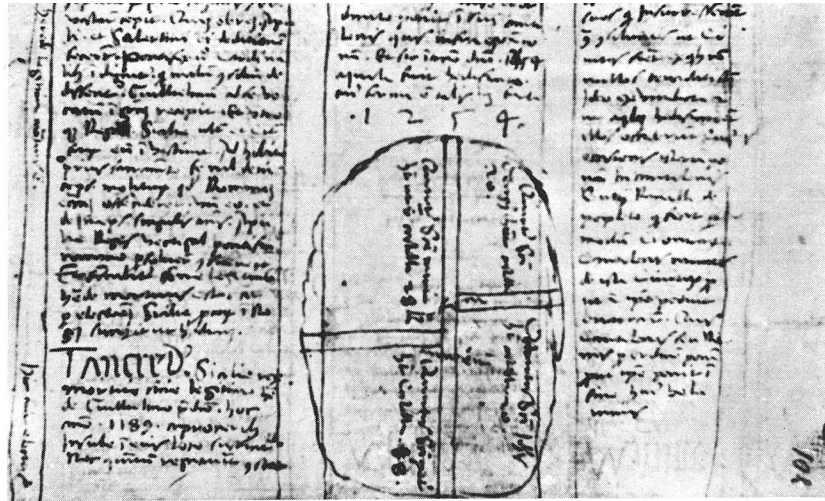
L'Aquila's main roads
+ boundary wall



L'Aquila destroyed

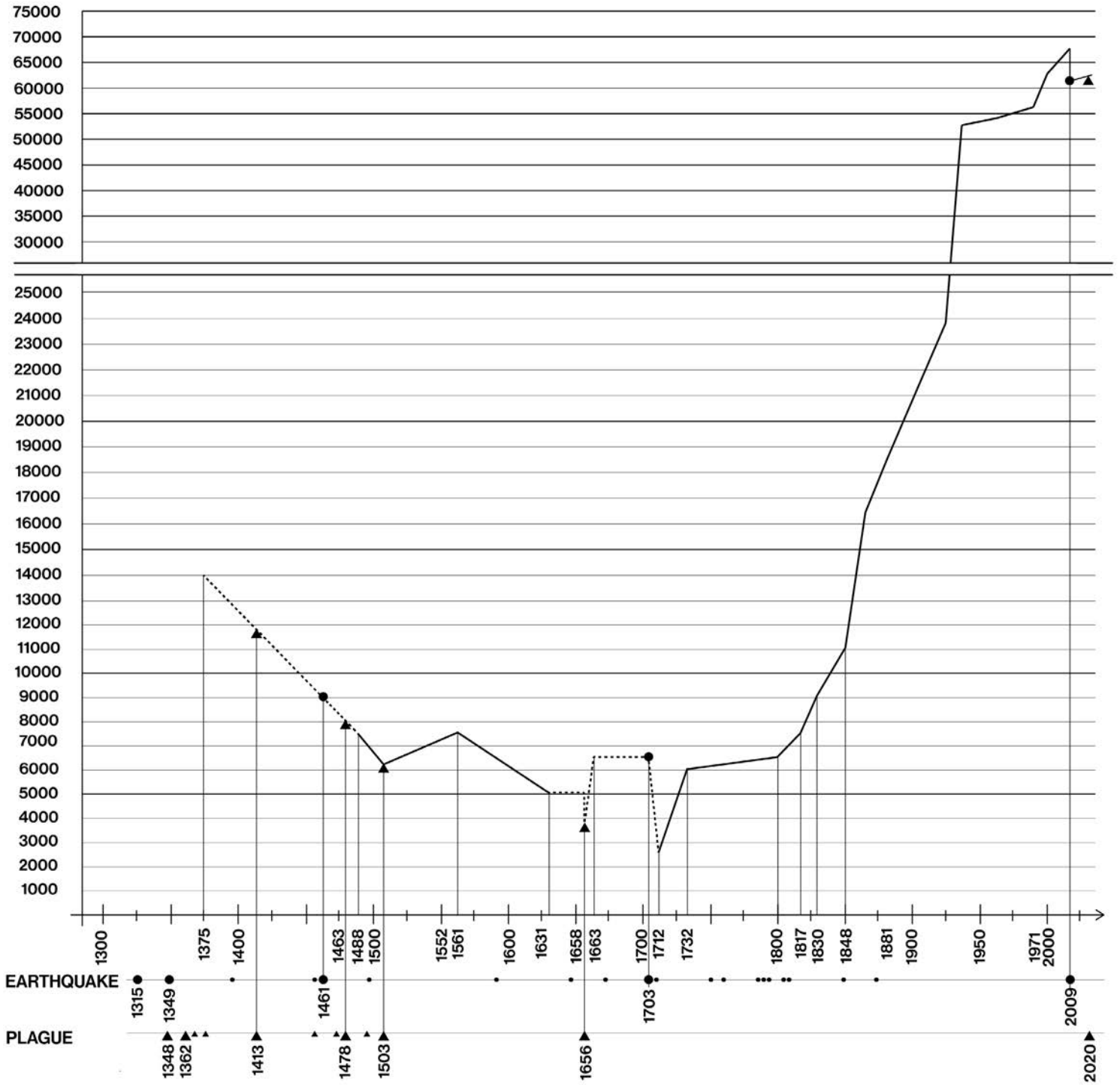


L'Aquila rebuilt



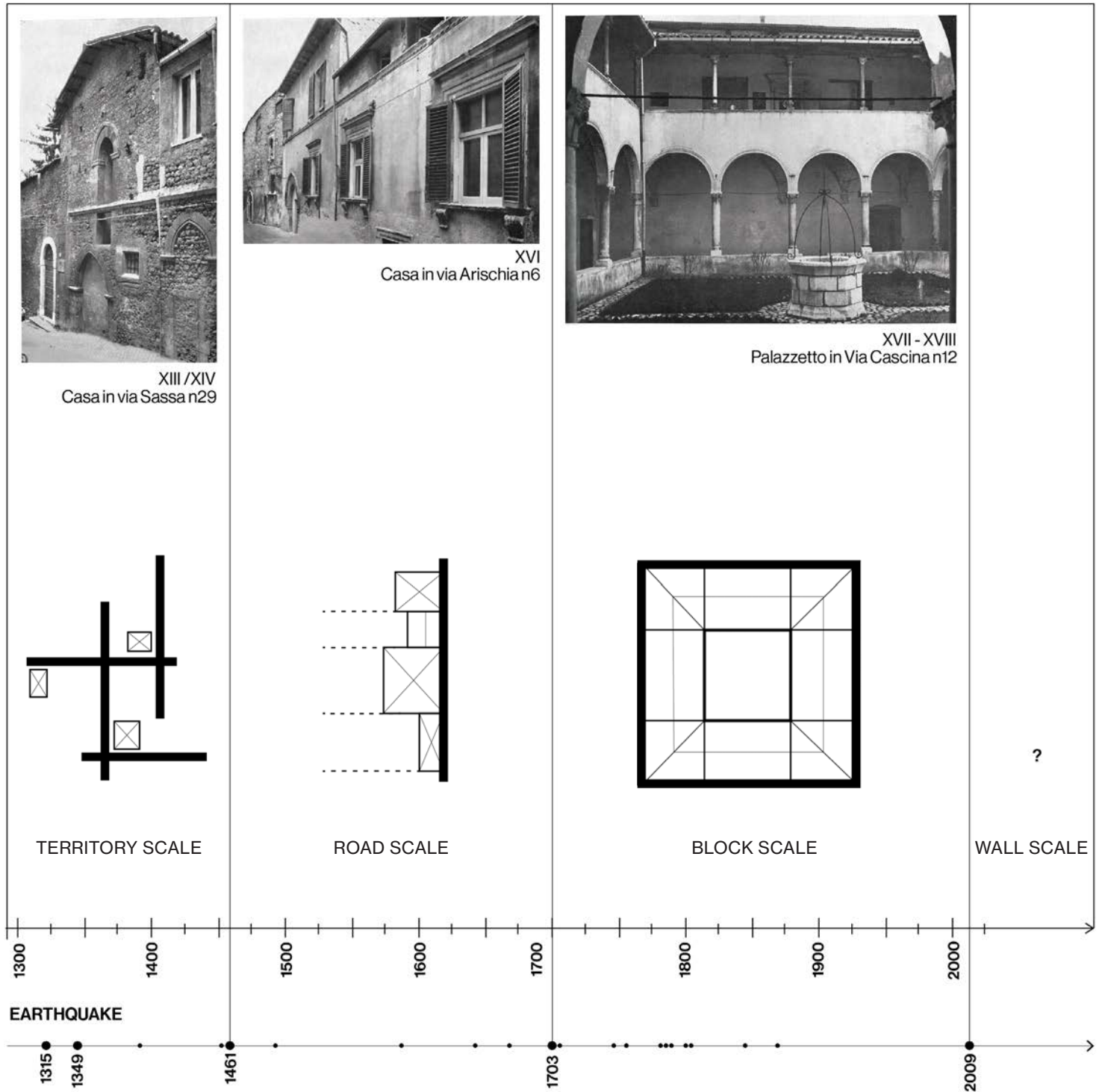
Ideograms of the city in De Ritiis manuscript 1450 illustrating the regular patterns of destruction and reconstruction in l'Aquila since the founding of the city.

POPULATION



Timeline of the population in L'Aquila in relationship to earthquakes and plagues over 705 years.

ARCHITECTURE



Timeline of the architecture and building technologies in L'Aquila in relationship to earthquakes over 705 years.



[A] 1400s



[E] 1450/1500



[D] 1500 + 1700



[G] early 1400s



[J] 1250s



[K] late 1800



[B] 1550S

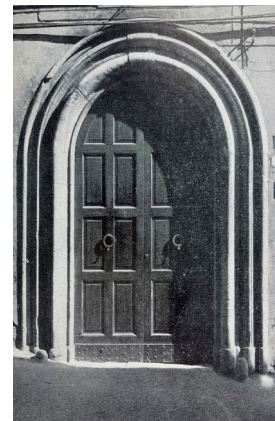
[C] 1500s



[F] 1847



[H] late 1700



[I] late 1500

Temporal Signifiers in the City

- | | |
|------------------------|--------------------------|
| [A] Via Sassa 40 | [G] Piazza Grande |
| [B] Via Accursio 6-12 | [H] Via Alemanni 13 |
| [C] Via d. Amiternini | [I] Via S.B. in Perillis |
| [D] Via Accursio 6 | [J] Via dei Ghibellini |
| [E] Vico S. Basilio | [K] Via S. Marciano |
| [F] Via Persichetti 10 | |



IV
FREEZING

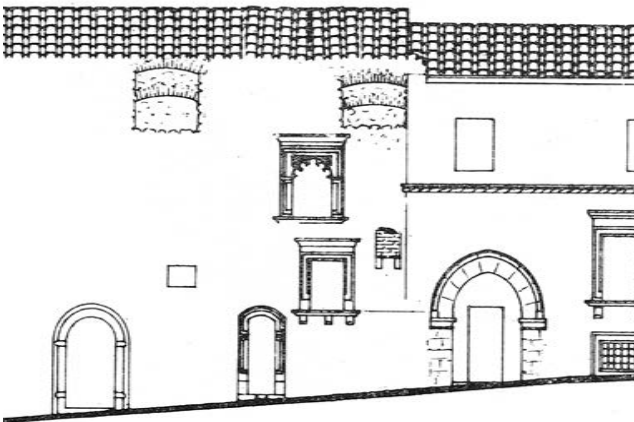
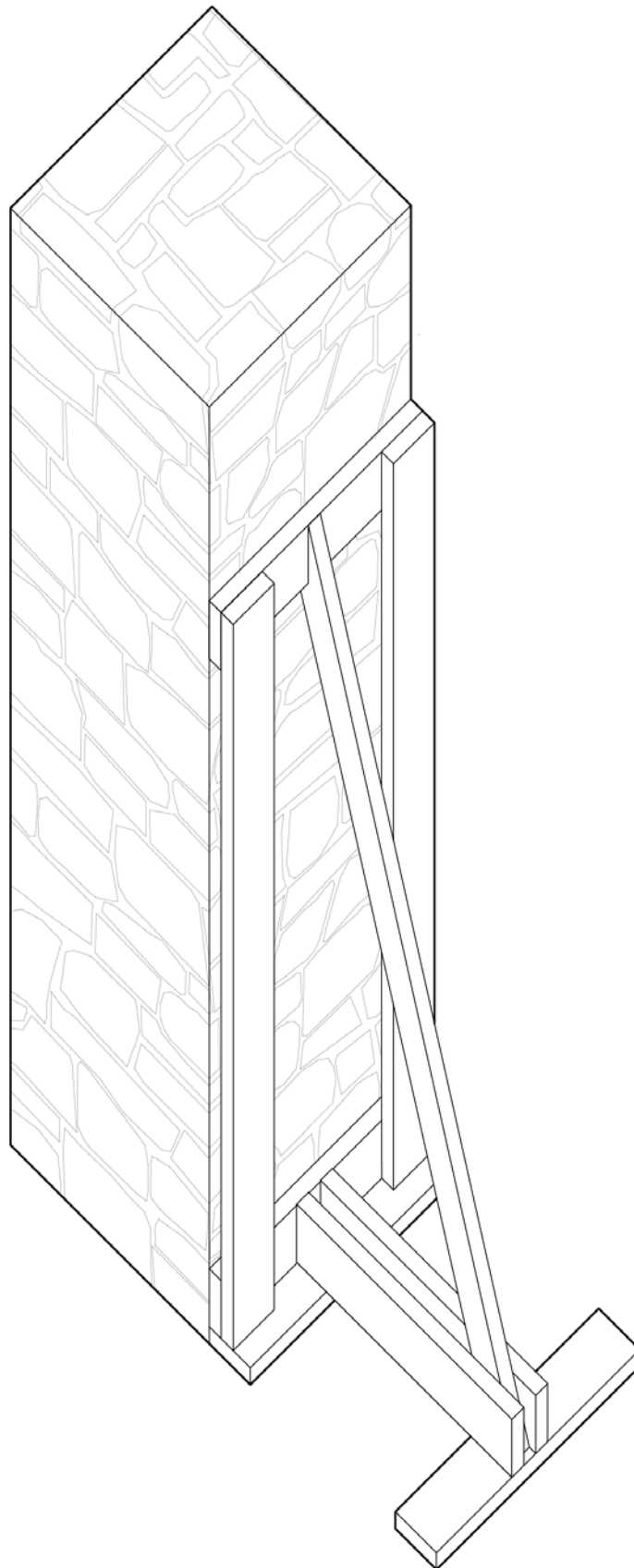


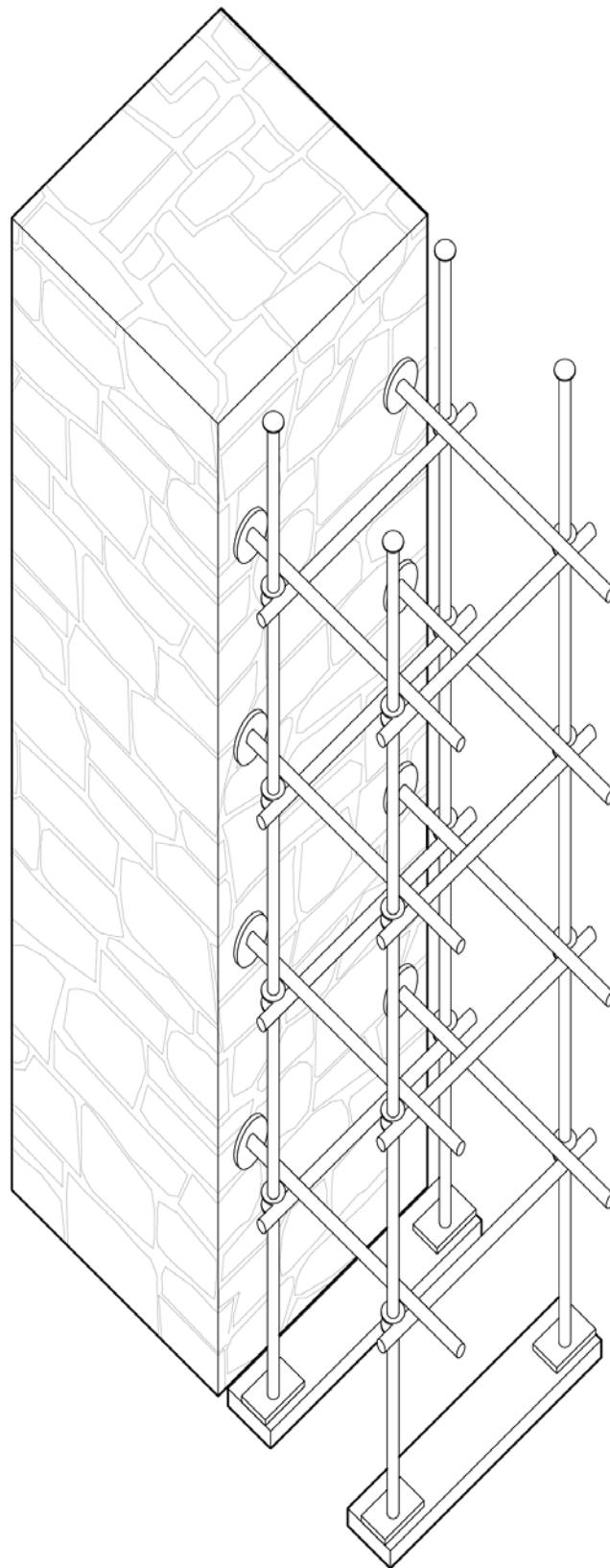
Fig. 32 a. + b.: Casa in Via Arischia, by Moretti & Dander





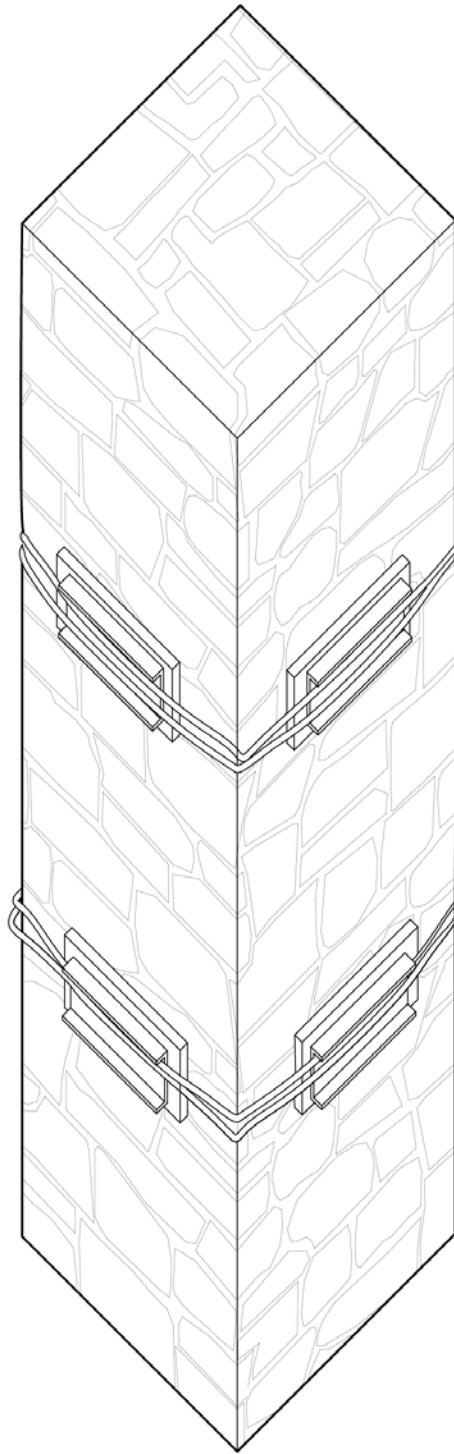
supporto in legno
lumber supports



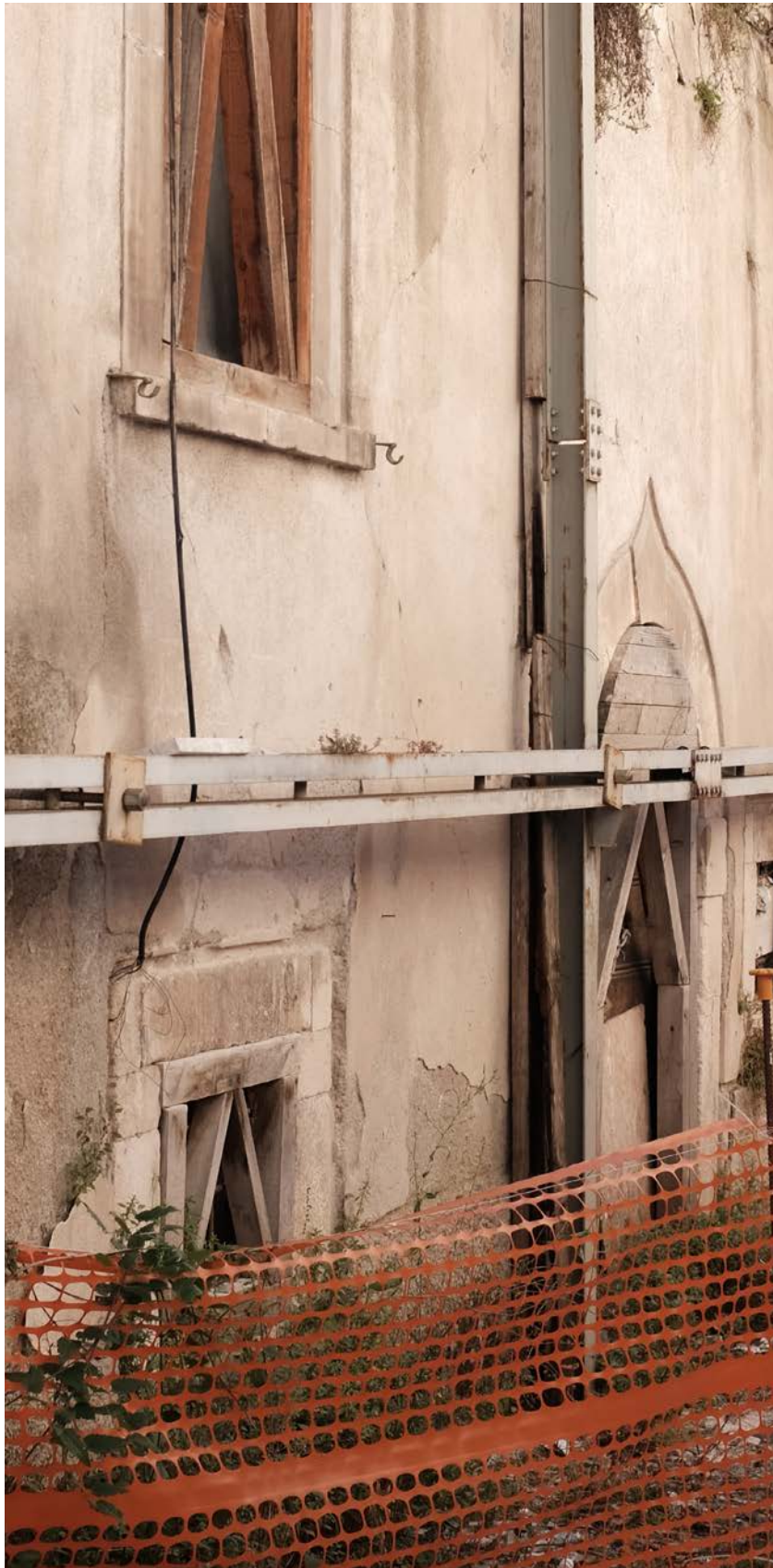


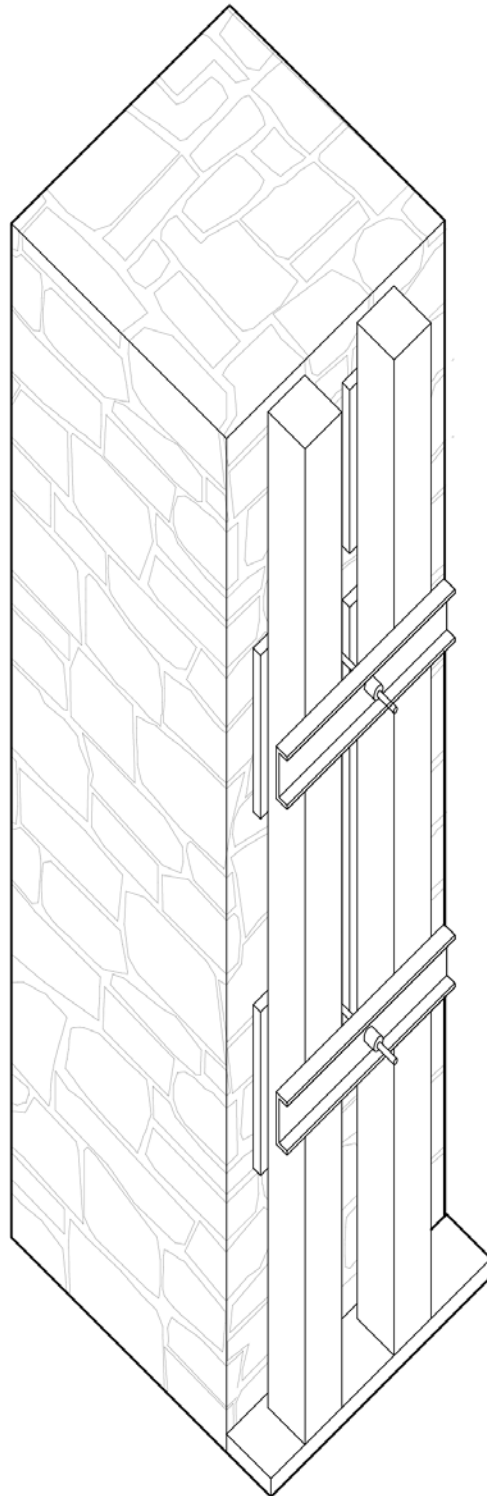
impalcatura
scaffolding





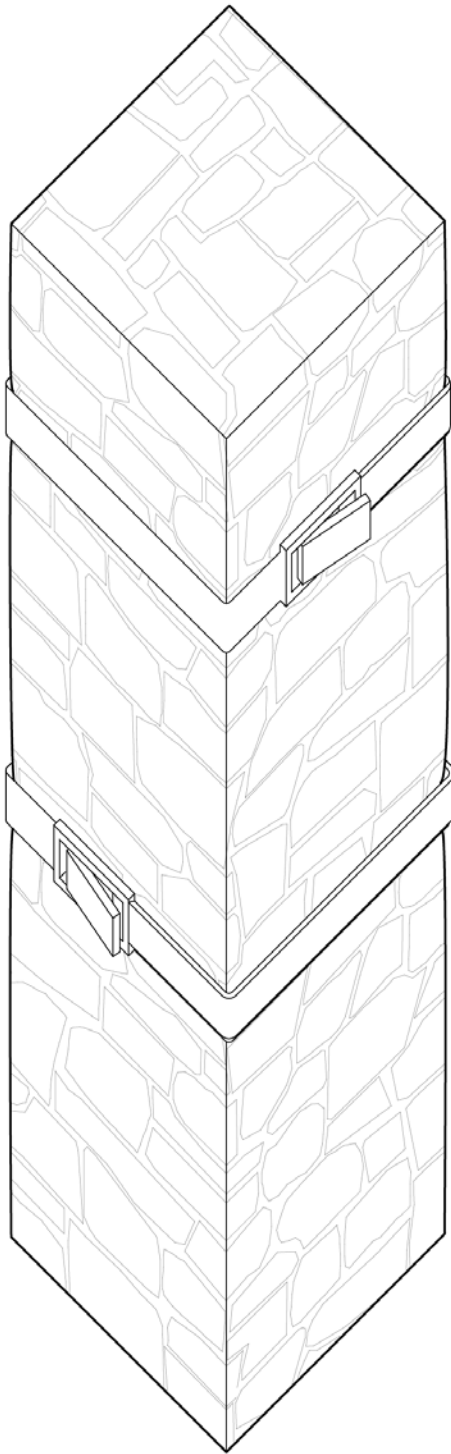
cavi
steel wires





catene provvisorie
temporary tension ties





cinghia a cricchetto
ratchet straps



V
REMAKING

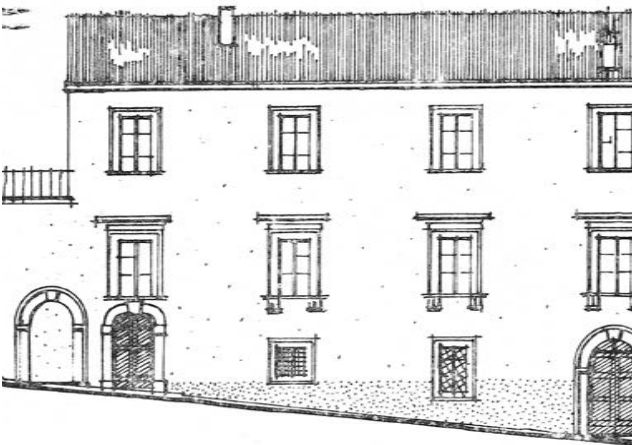
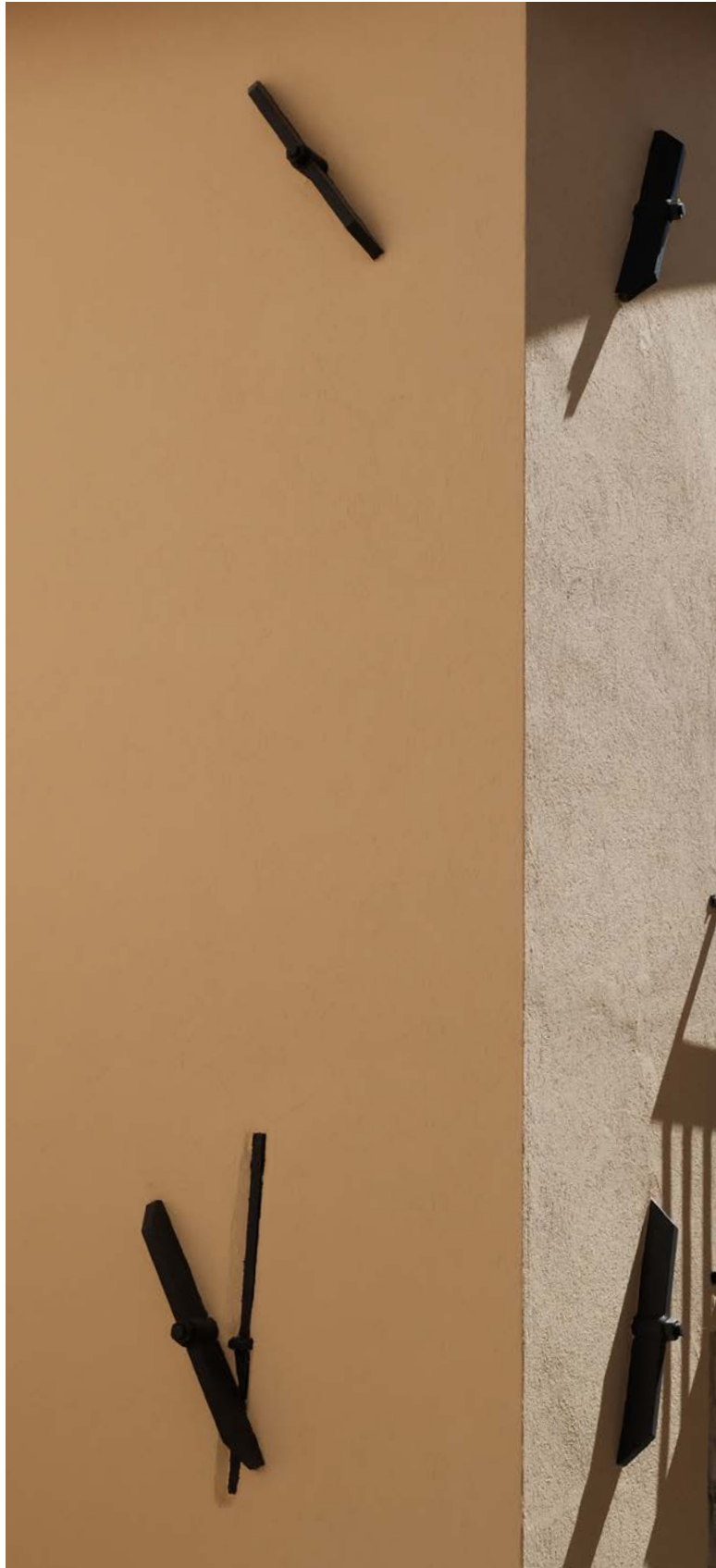
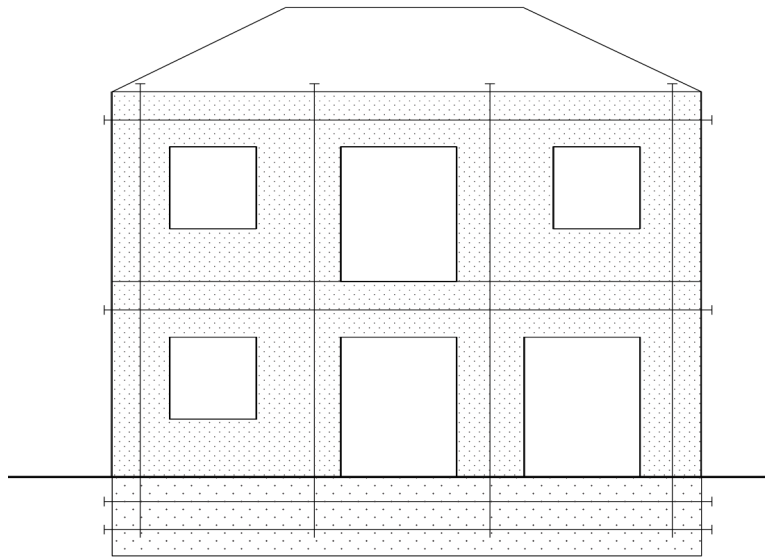
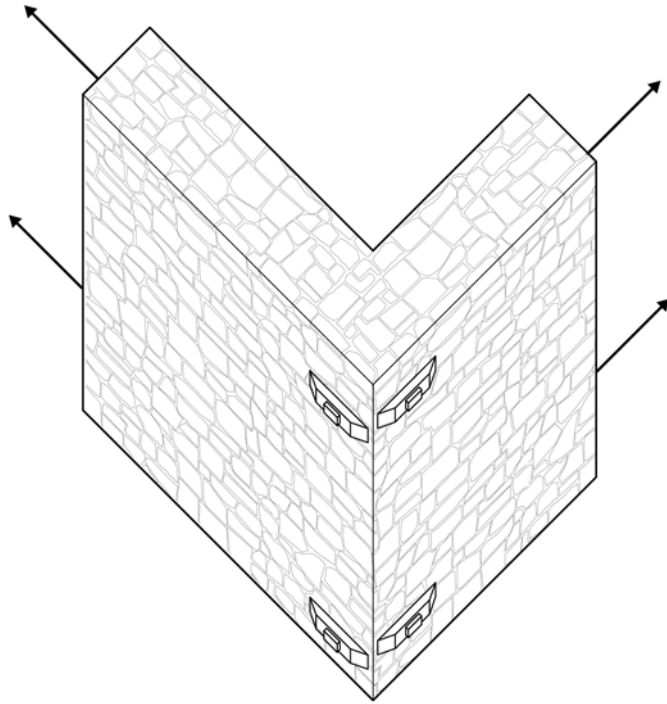
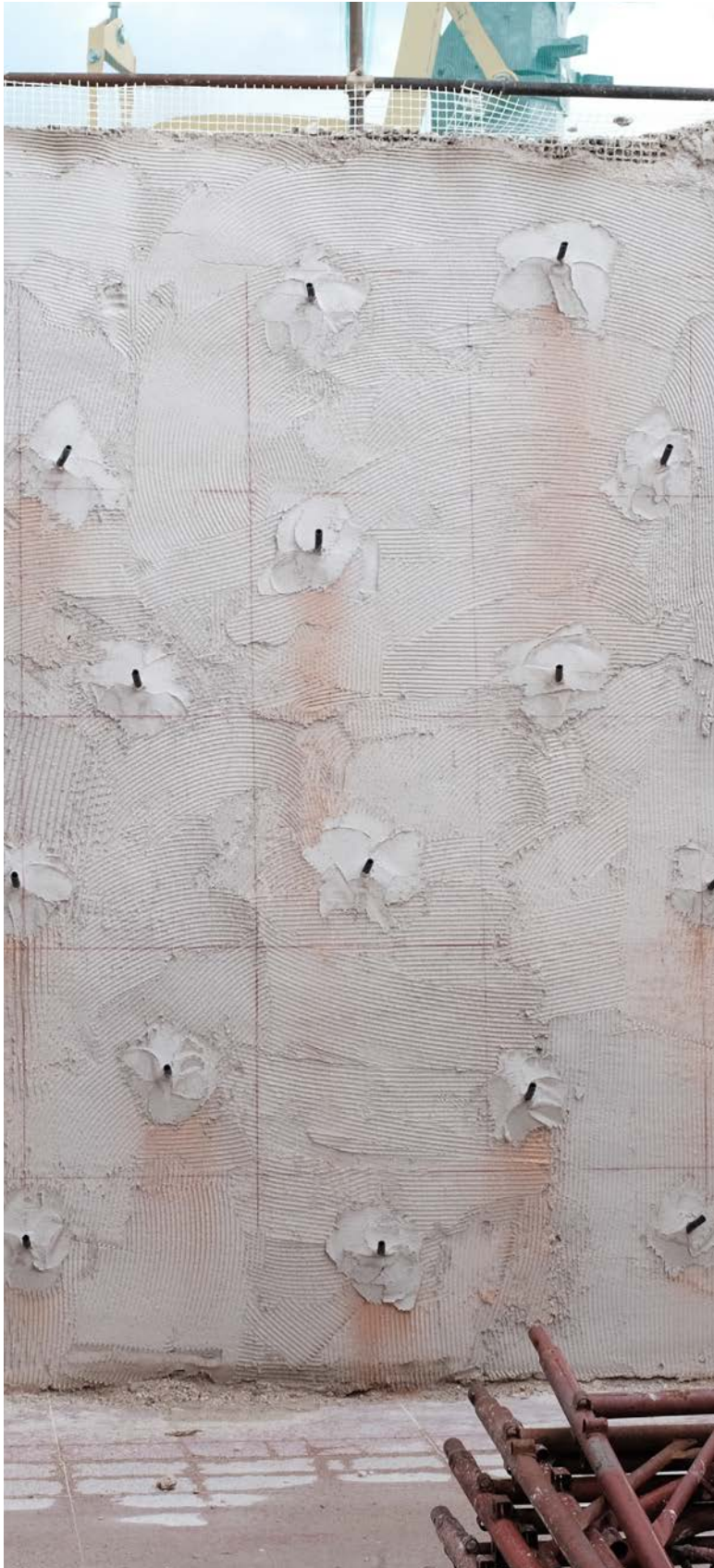


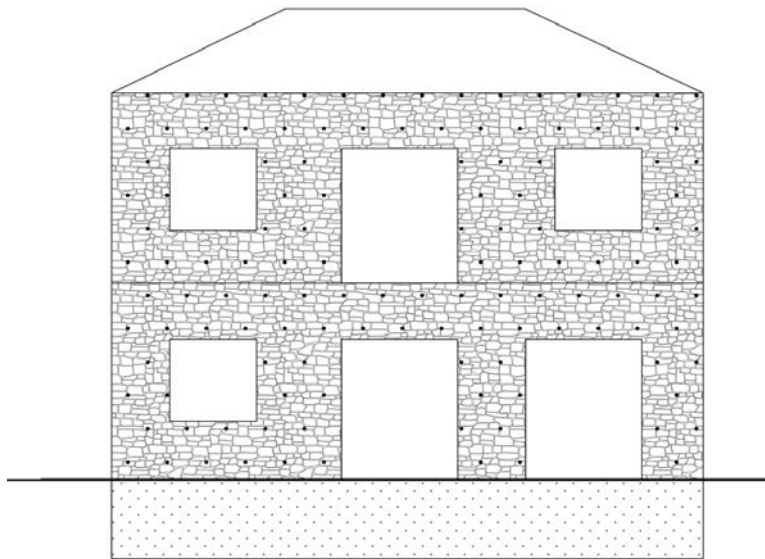
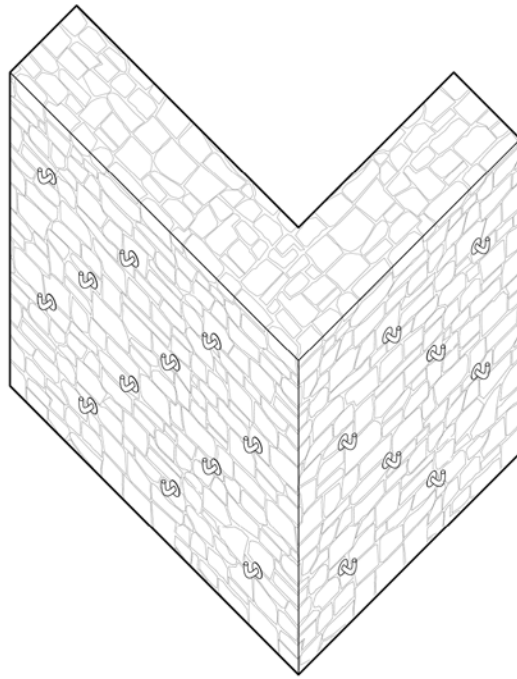
Fig. 43 a. + b.: Palazzo in Via Garibaldi 8, by Moretti & Dander





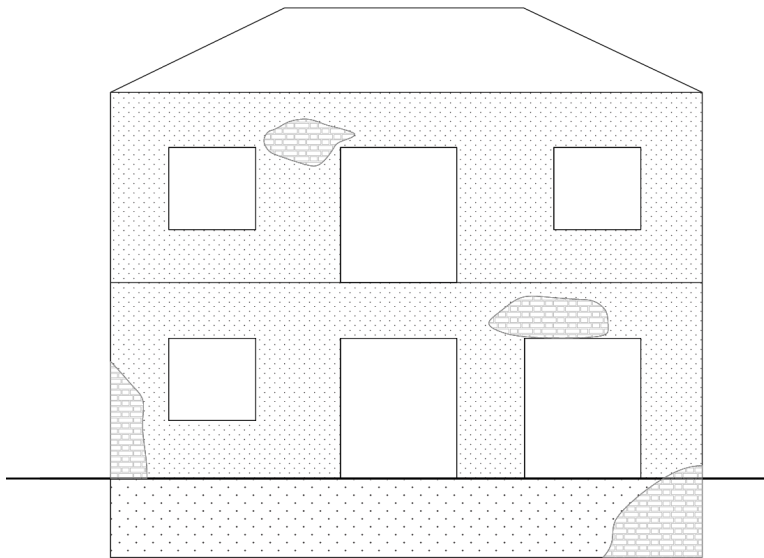
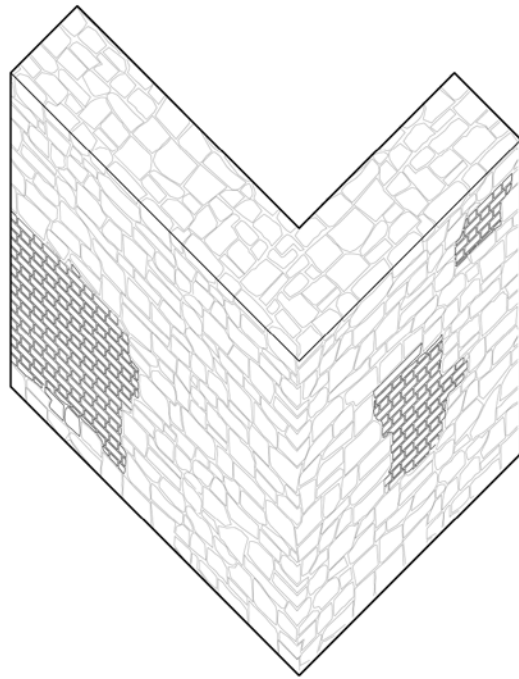
catene
tension ties





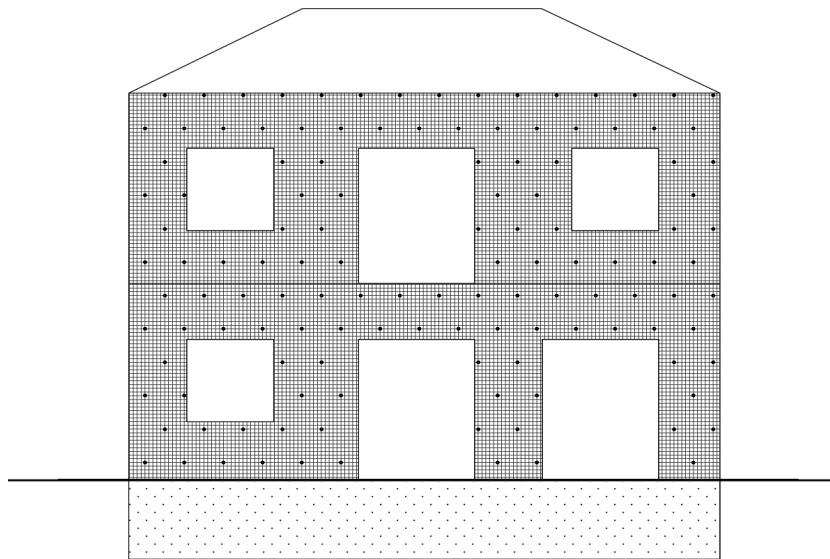
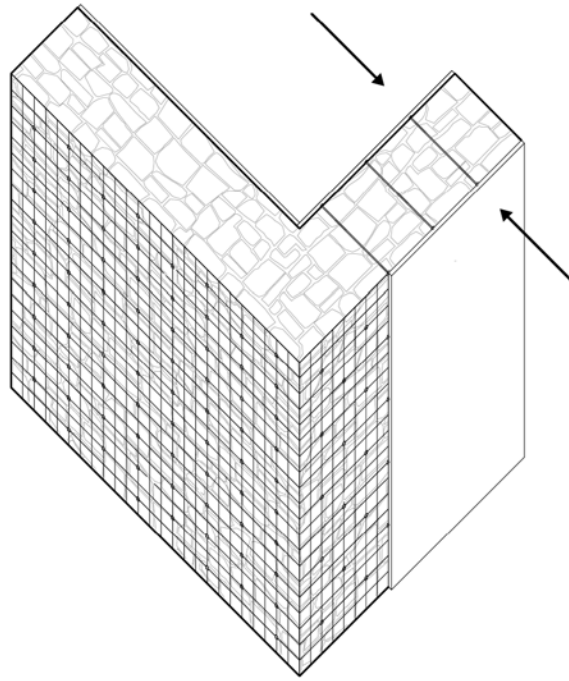
iniezioni
mortar injections





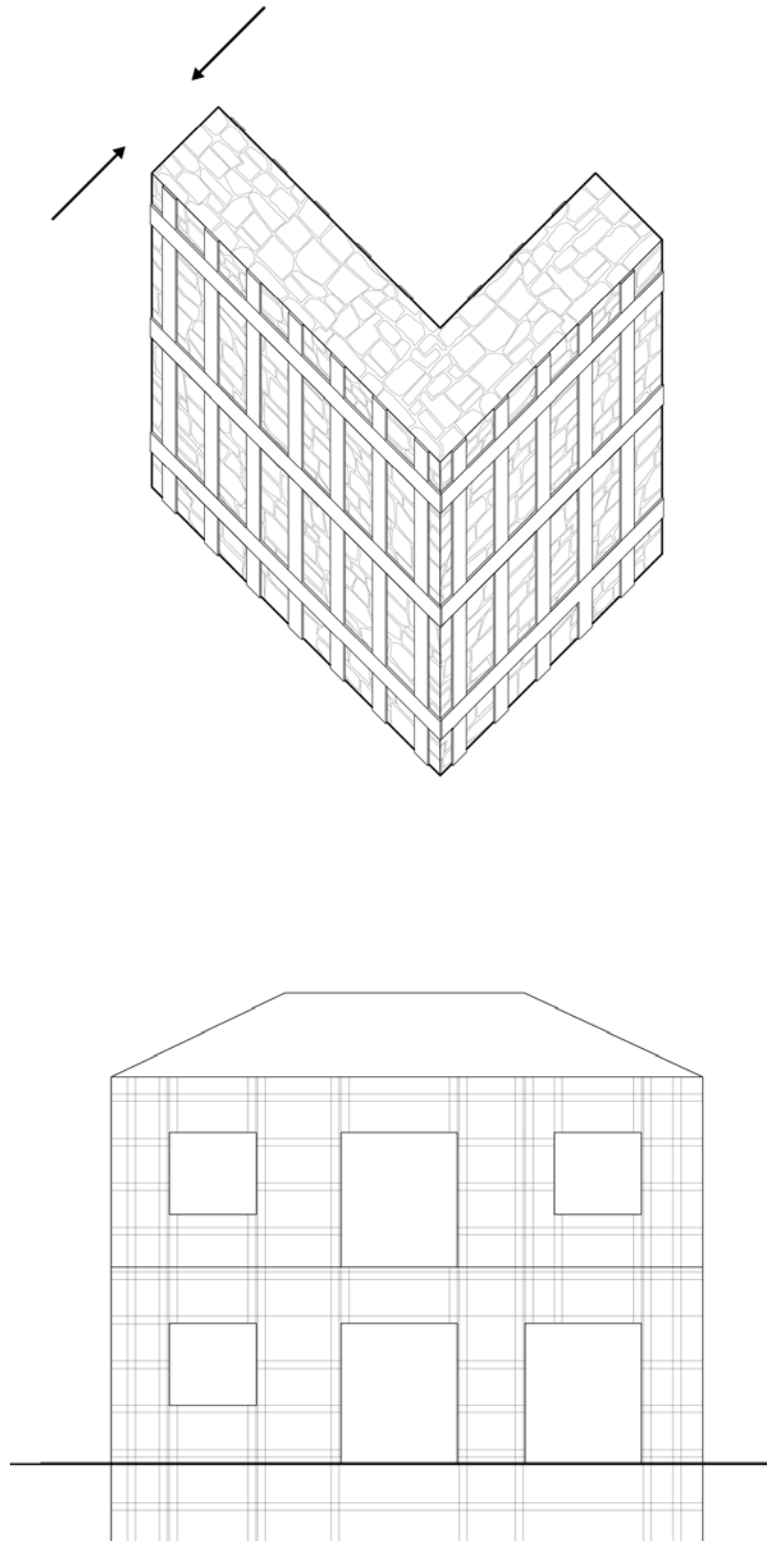
cuci - scuci
brick infill





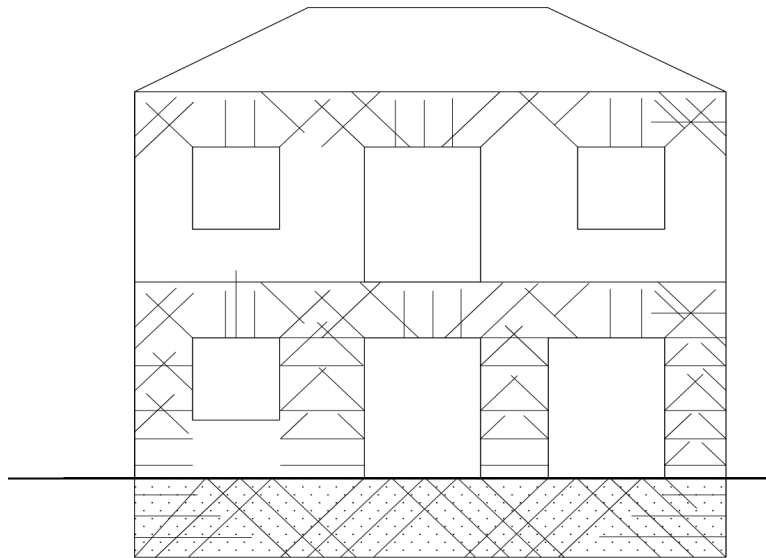
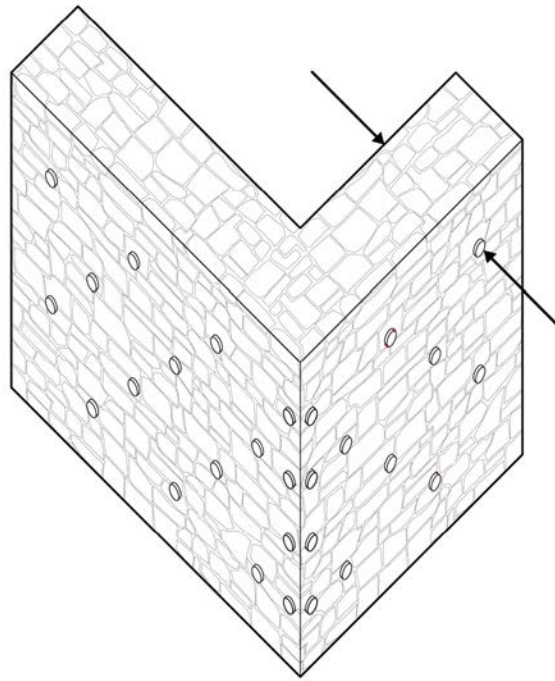
reti
fiberglass nets





fasce FRP
FRP bands





perforazioni armate
reinforced perforations



VI
MASKING

Fig.56: Image by Moretti & Dander

MATURE

grown, ripe
or
careful, thorough





Fig. 57: Support system masqued





Fig. 58: Support system

MEMORY

rememberance
or
tribute
or
bank, disk





Fig. 59: Support system masqued





Fig. 60: Support system

EDIT

polish, prepare
or
change, delete





Fig. 61: Support system masqued





Fig. 62: Support system

REPLACE

take the place of
or
return to place





Fig. 63: Support system masqued

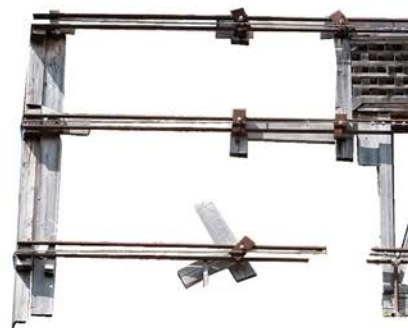
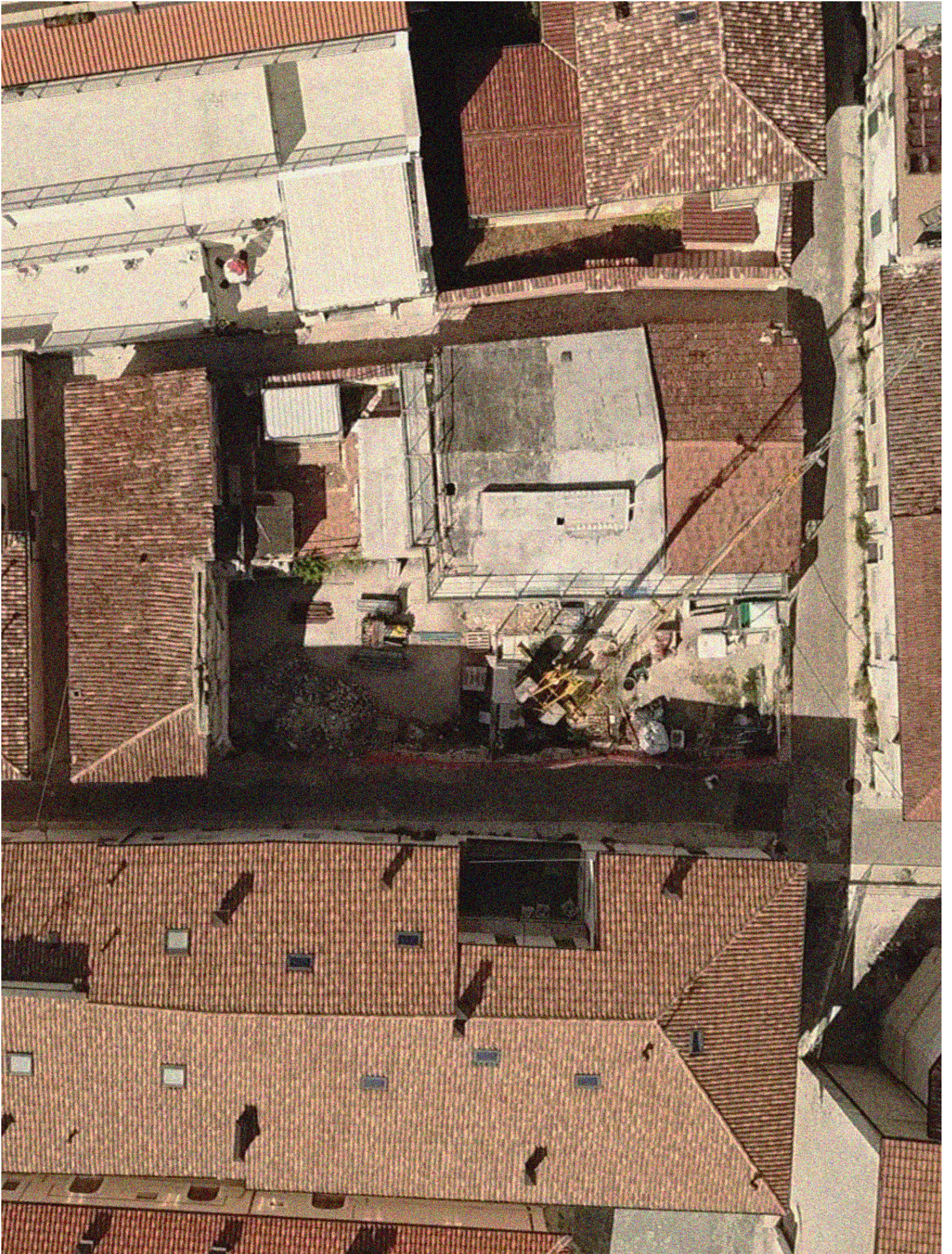




Fig. 64: Support system

PART 3



On-site:

IMMOTA MANET
remains unchanged
or
immobile

L'Aquila has been *immota manet* since the XVII century. In a modern context to be remain unchanged or immobile can be interpreted as a conservative or closed approach, but this is contrary to what I discovered when speaking with the residents¹. In L'Aquila the notion of *immota manet* utilizes a different perception of preservation, a pre-modern definition of the term that means substitution. The definition of re-placement becomes blurred, landing somewhere between 1. to take place of and 2. to put back in a previous place or position. Function is prioritized over aesthetics, if it works the same way it once had, then it has been maintained. The Latin phrase is historically associated with the series of earthquakes that have struck the settlement since the XIIIth century and consequently inspired a creative desire for resilience amongst its inhabitants.

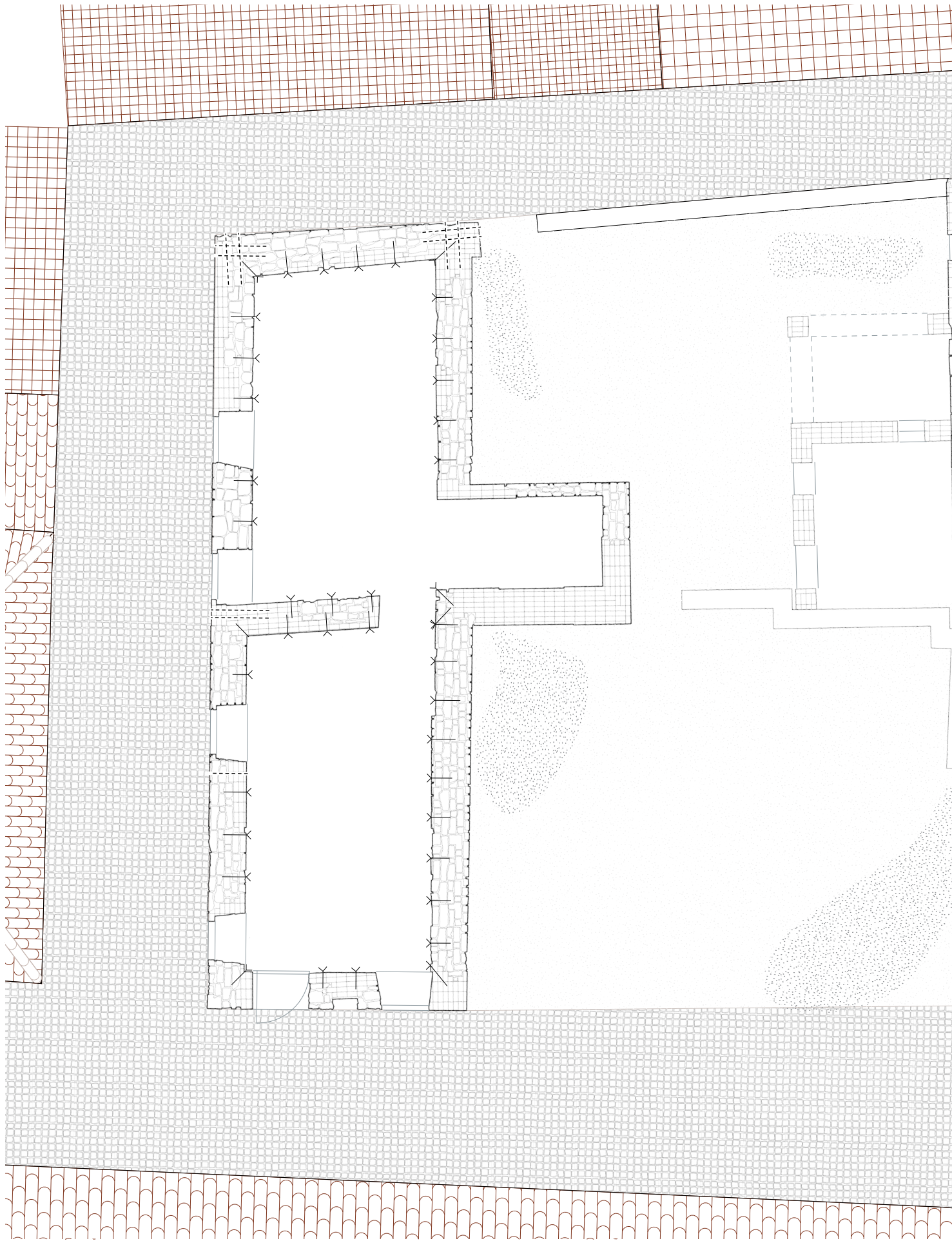
After the 2009 earthquake, the idea of place in L'Aquila became a contended question. The tragedy brought forward the serious task of reconstructing, moving beyond grief to rethink appropriate ways to maintain, rebuild, unbuild, reinforce, and make usable again. Three forces were at play², 1) the national enforcement to rebuild according to preservation laws, supported by the complete government funding of the reconstruction efforts, 2) the need to become usable again 3) and the material inheritance of the remaining building fabric. Reconstruction efforts were divided by block³, as demonstrated within the architectural timeline on page 59, in L'Aquila city blocks function in structural unison and should therefore be re-built as single construction sites. Even when they are made up of several houses with different destruction ratings.

In part 3, I take on the role of the architect maintainer centering support in my explorations, returning to the site of the city block described in part 1. With the brothel destroyed the site remains divided, with two building groups standing apart and at seismic risk. Thus the block has a necessity to build, to connect the two buildings to strengthen and protect the existing building stock. In part 3 I am offering four options to unfold in time, seeking to evaluate each material choice against its structural stability, durability, buildability, aesthetic resonance, and maintenance routines.

1. Luca Carosi, interview by Adriana Giorgis, August 2, 2023, in-person interview.

2. Ufficio Speciale Per La Ricostruzione Dell'Aquila, "Comunicazione," <https://usra.it/> (accessed September 13, 2023).

3. Luca Carosi, interview by Adriana Giorgis, August 2, 2023, in-person interview.



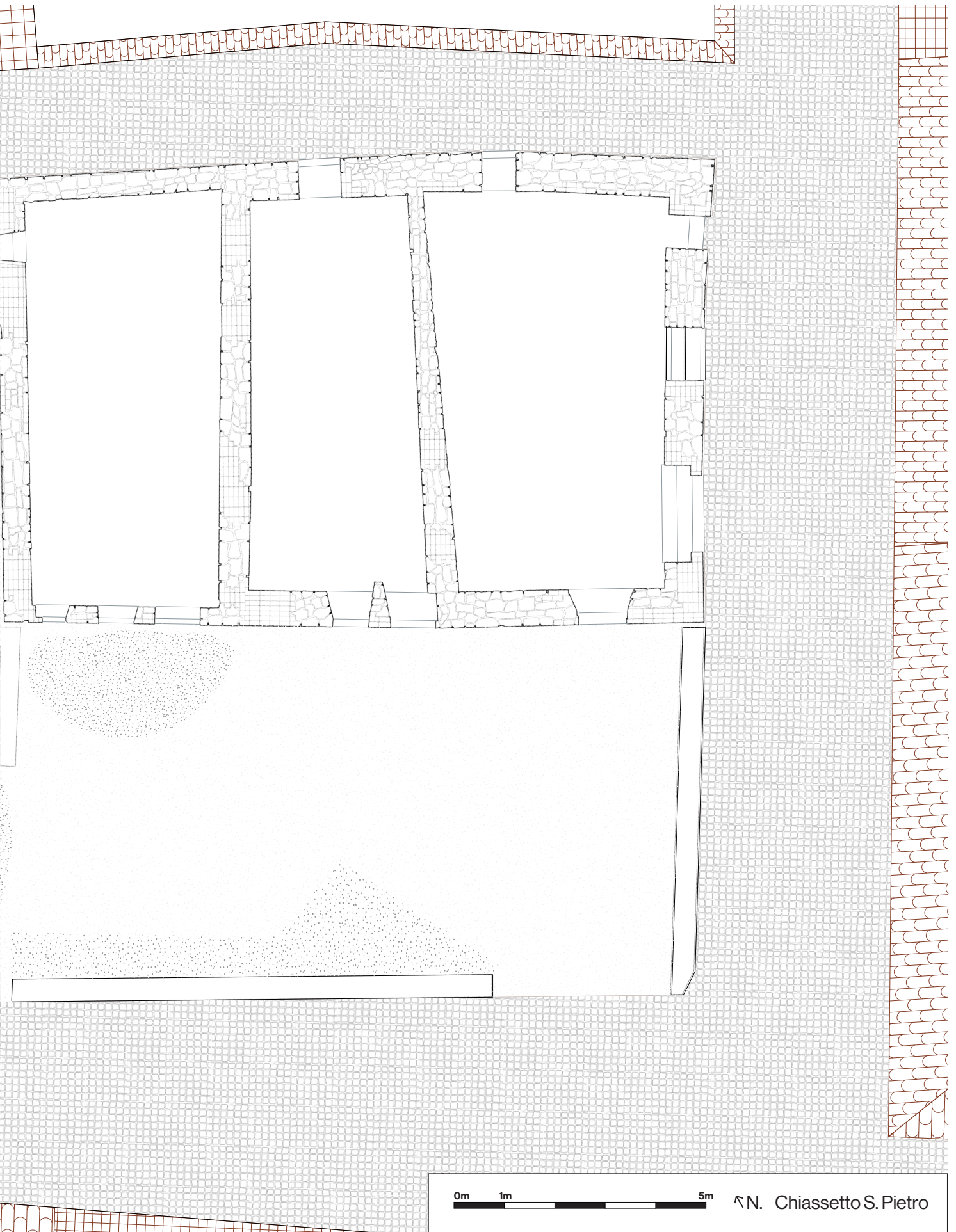
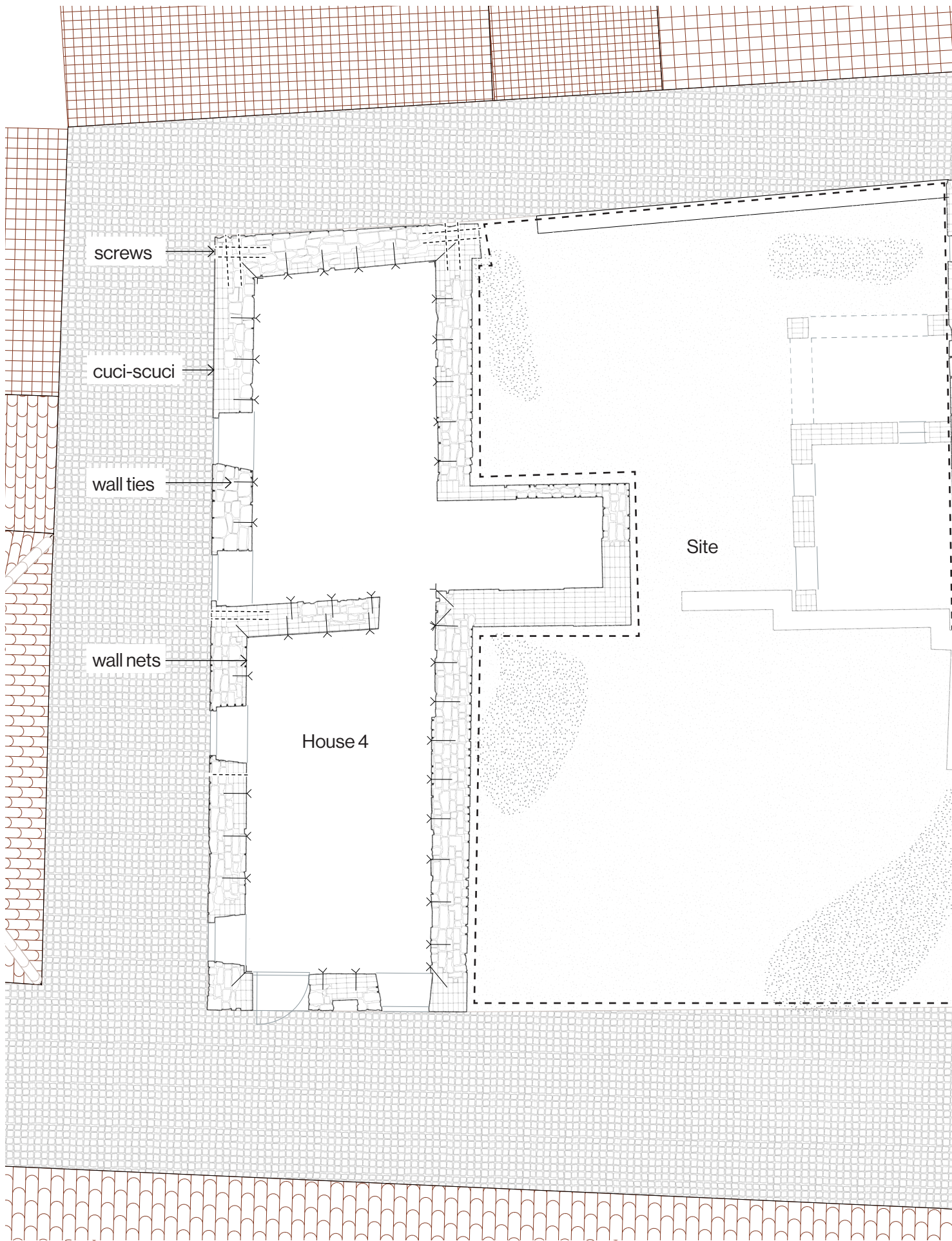


Fig. 66: Plan drawing of site



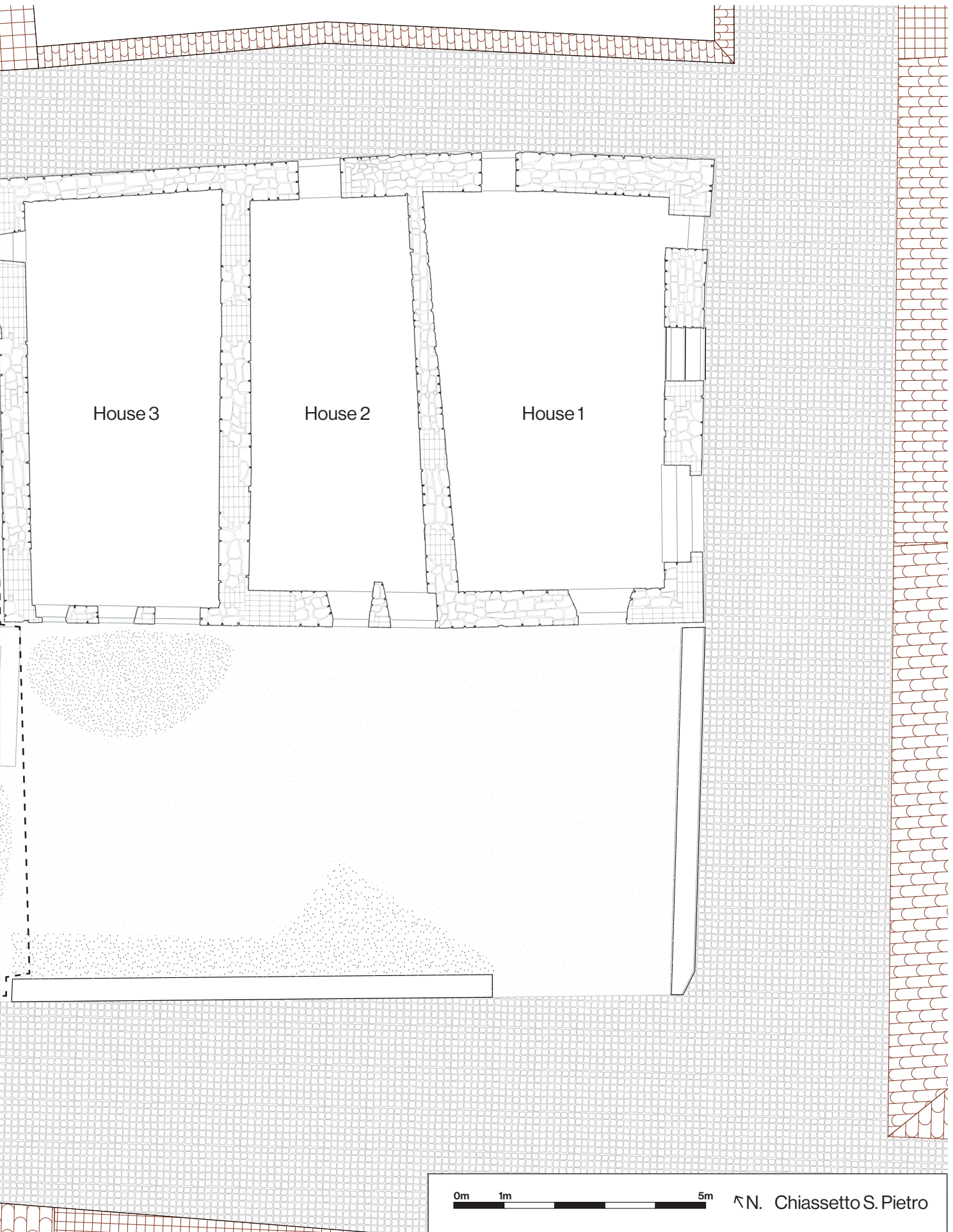
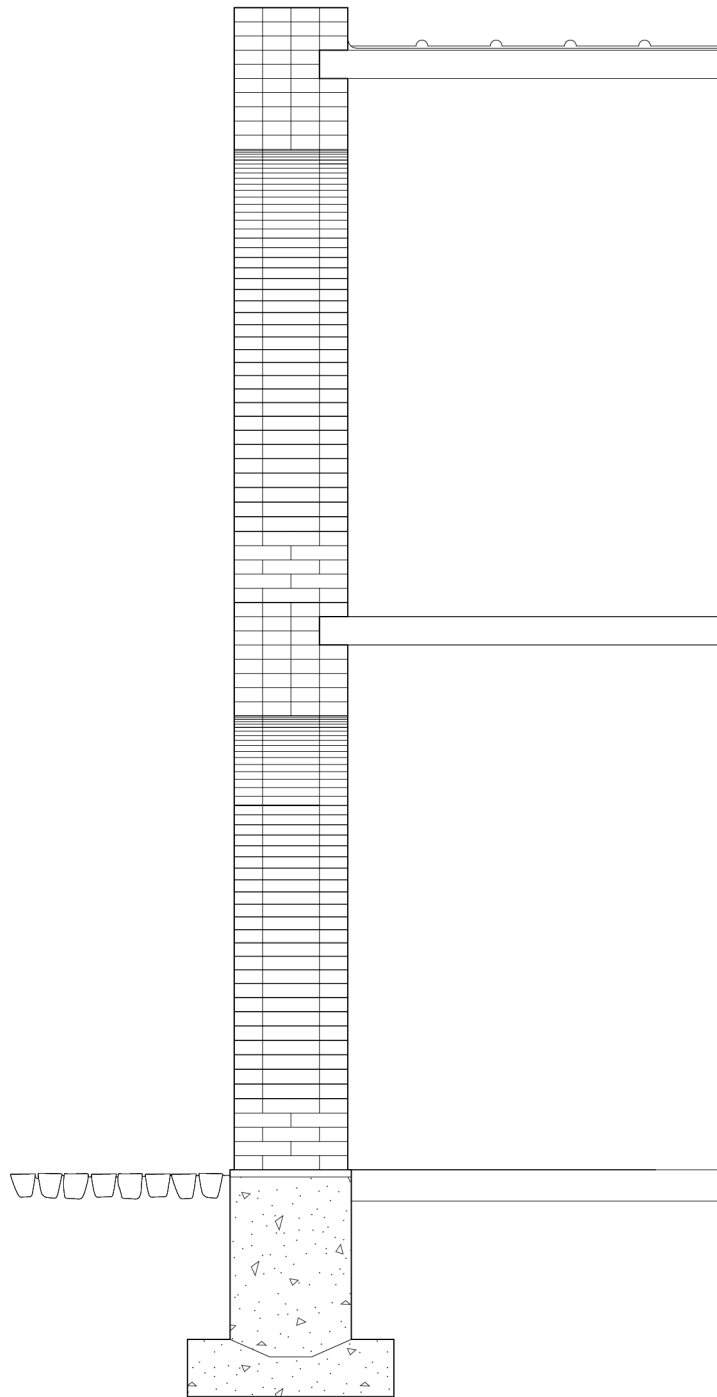


Fig. 67: Annotated plan drawing of site



BRICK VAULTS

Bricks are a pervasive material in L'Aquila. Today, they are produced and fired in kilns around 1h30 min away from the city. This option offers brick vaults, designed to strenghten both sides of the block through thick butressing. These vaults enable an open column grid on the ground floor preserving a semi-public space on the ground and providing inhabitable space on the second story.



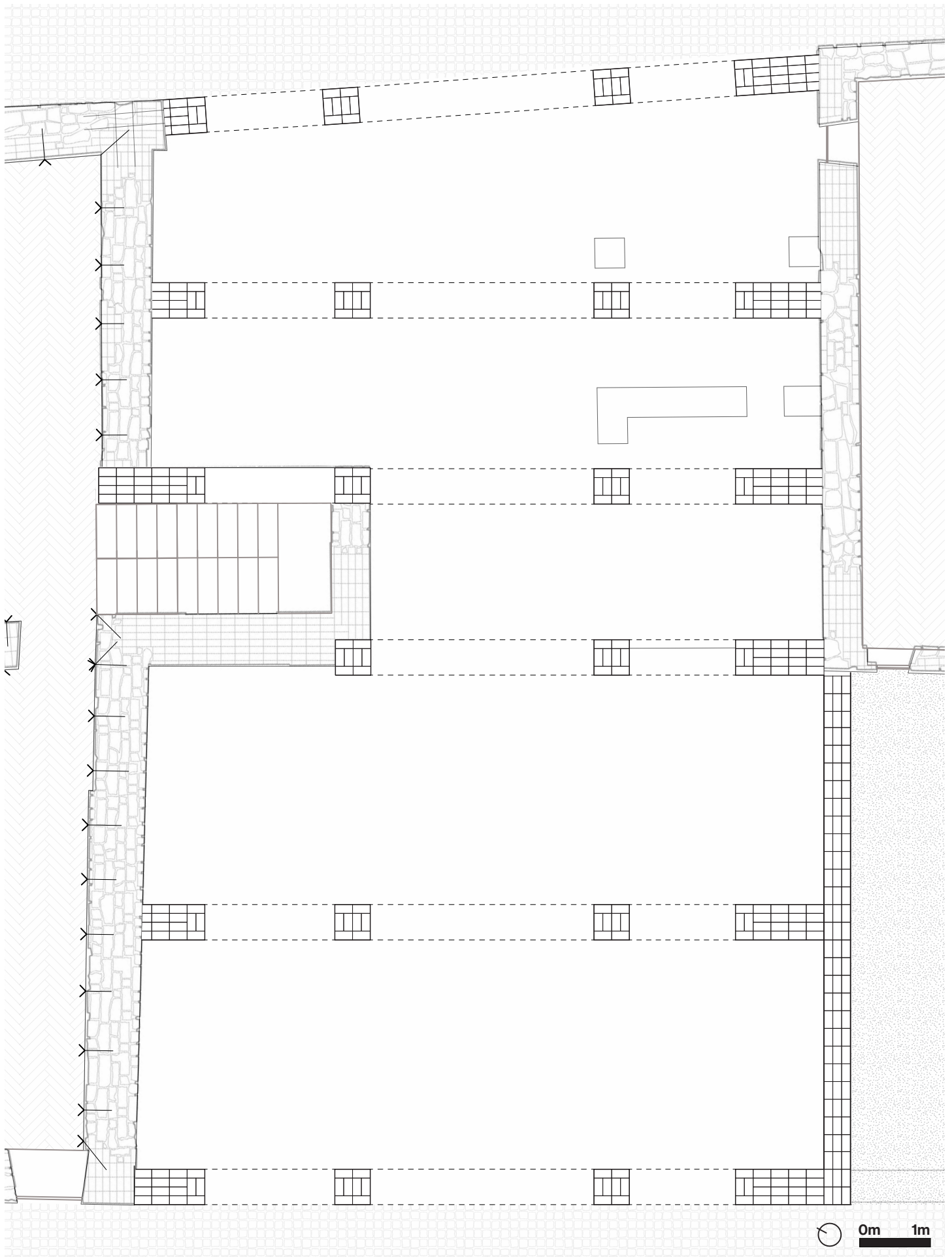
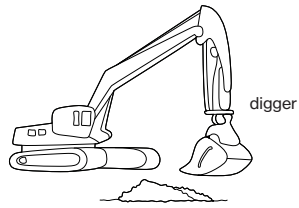
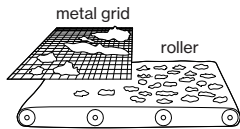


Fig.70: Plan of option 1 - Brick

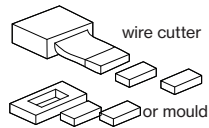
Sourcing + Production



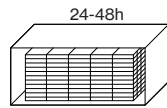
Clay Extraction



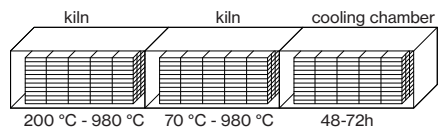
Sifting



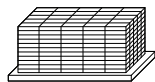
Forming



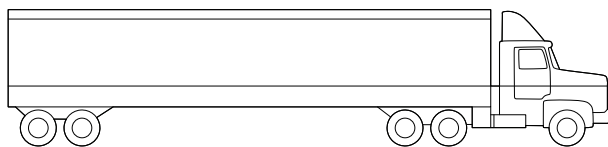
Drying Oven



Firing

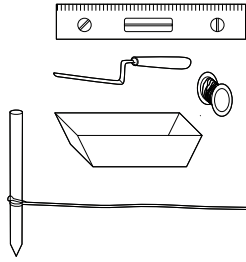


Packaging



Delivery

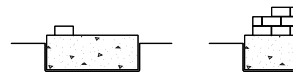
Build



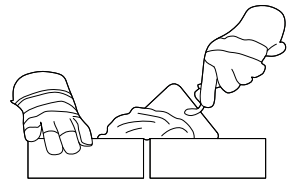
Tool



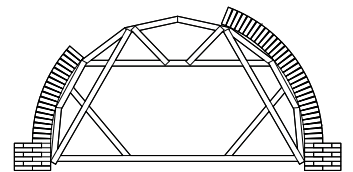
Labour



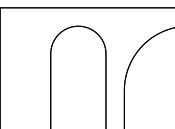
Assembly



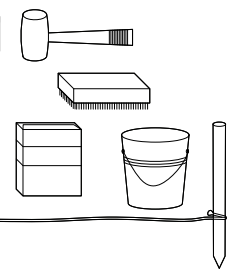
Labour



Assembly



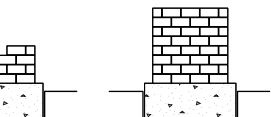
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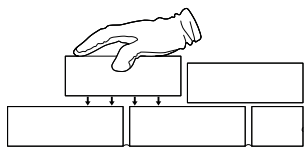
ols



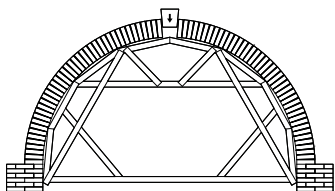
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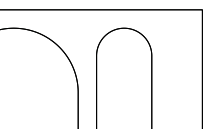
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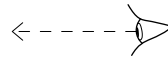
or



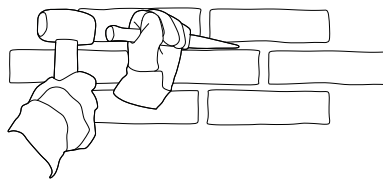
mbly



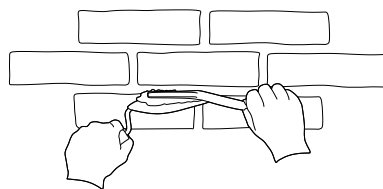
Maintaining



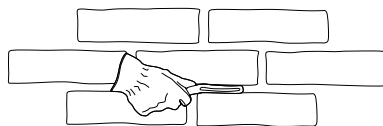
Survey



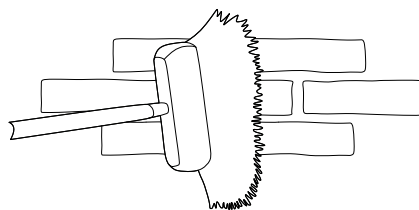
Carving



Mortar

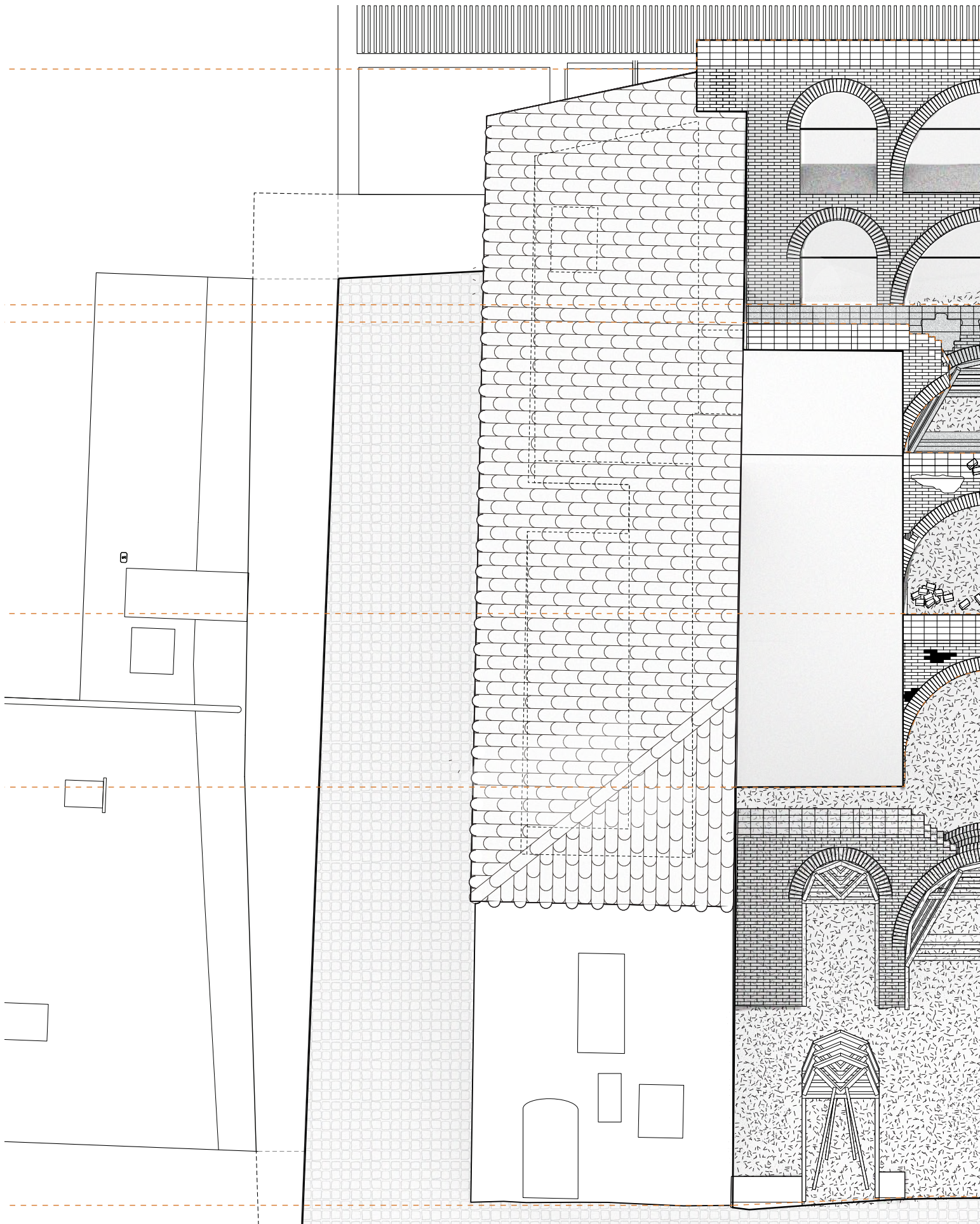


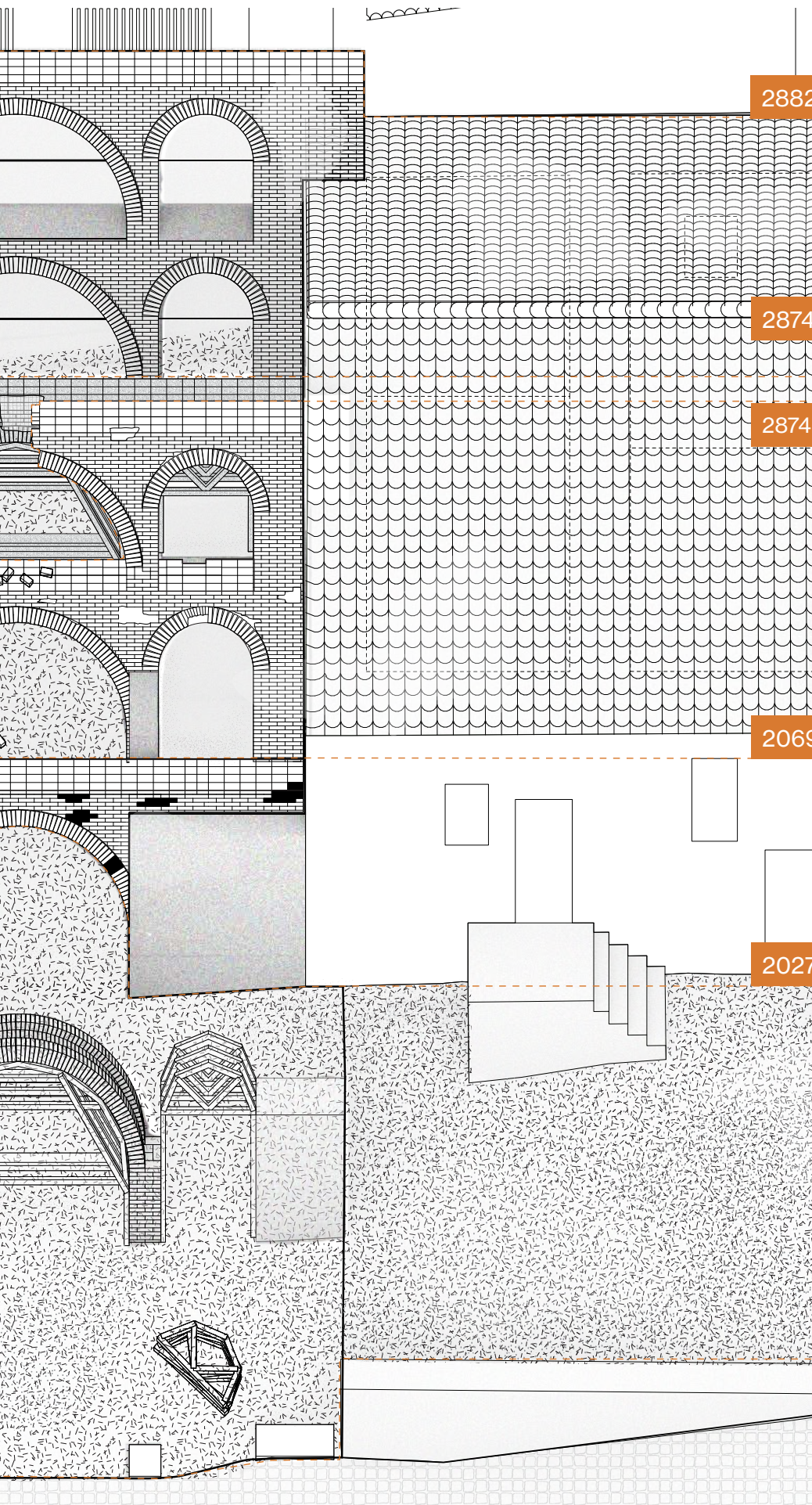
Packing



Brushing

Fig.71: Material sequence of option 1 - Brick





2882: In Use

City wide rebuilding efforts delayed the reconstruction but finally the building is in use again. Tension ties have been added to further solidify the entire block. Some bricks have been replaced.

2874: Structural Freezing

Damaged vaults are braced with scaffolding to prevent crumbling.

2874: Seismic Destruction

A 4.7 magnitude earthquake shakes the city. Some of the vaults crumble but much of it remains intact thanks to the regular repointing and maintenance executed by the residents.

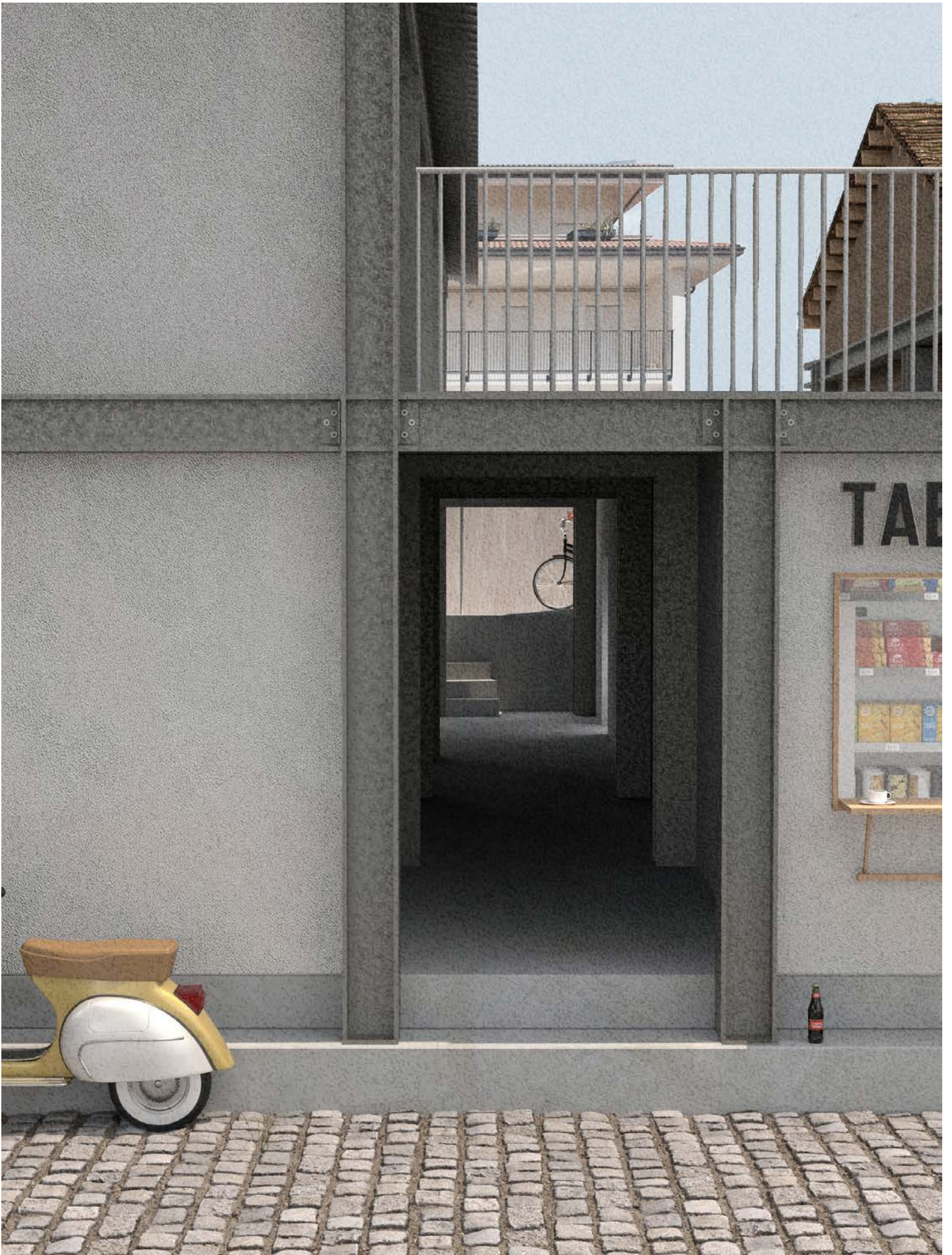
2069: Brick Repointing

42 years after construction, a first round of repointing is executed on the exposed vaults. A few bricks are replaced.

2027: Construction

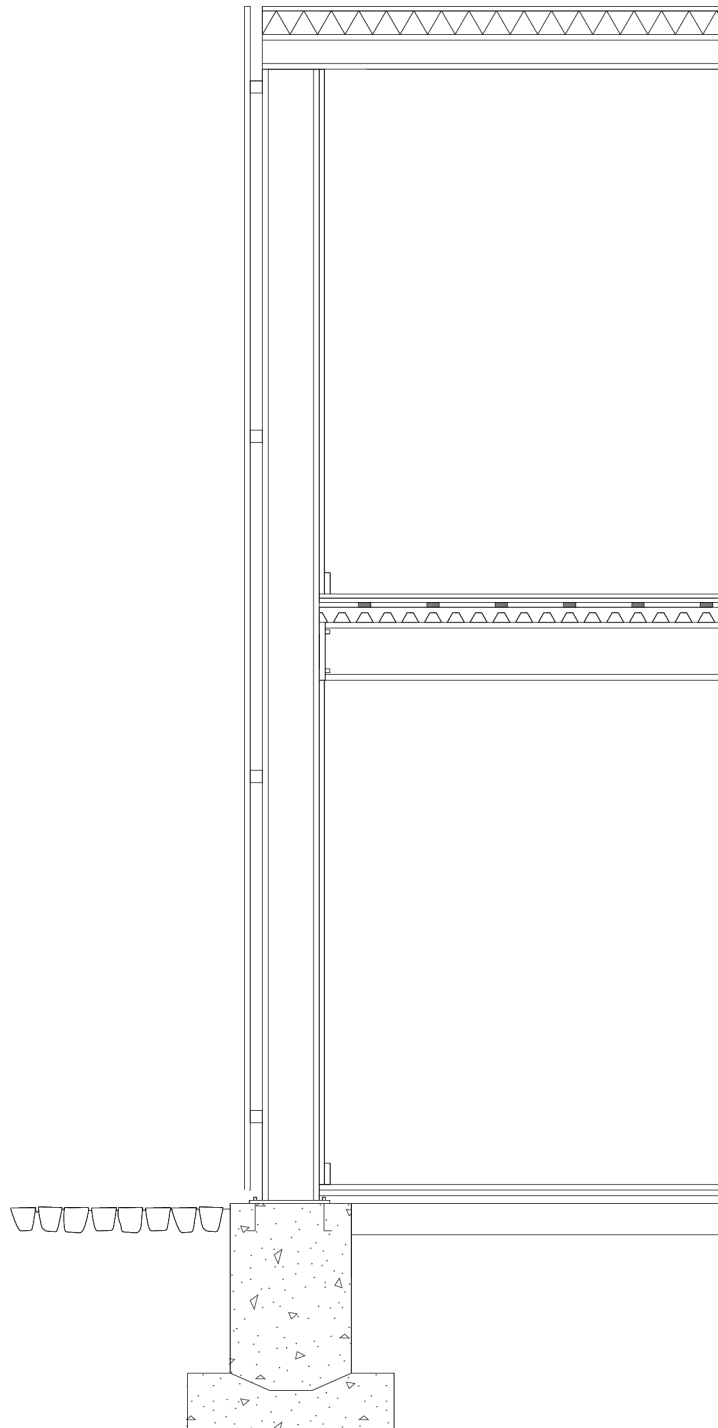
After the removal of debris and the repairs of the existing structures are finished, construction on the site begins. Pallets of bricks are delivered via truck along the narrow roads and timber vault scaffolding are assembled on site.

Fig.72: Axonometric timeline of option 1 - Brick



STEEL STRUCTURE

Steel was chosen because Italy is a leading manufacturer in Europe. It is an economically and easily available material in l'Aquila. In plan, steel allows for the semi-public alleyway to be preserved cutting through the ground floor and dividing enclosed space for different programs. Steel introduces the notion of structure and skin, unlike the existing thick masonry walls on the site it enables a flexibility of spaces and introduces an alternative maintenance timeline on the site.



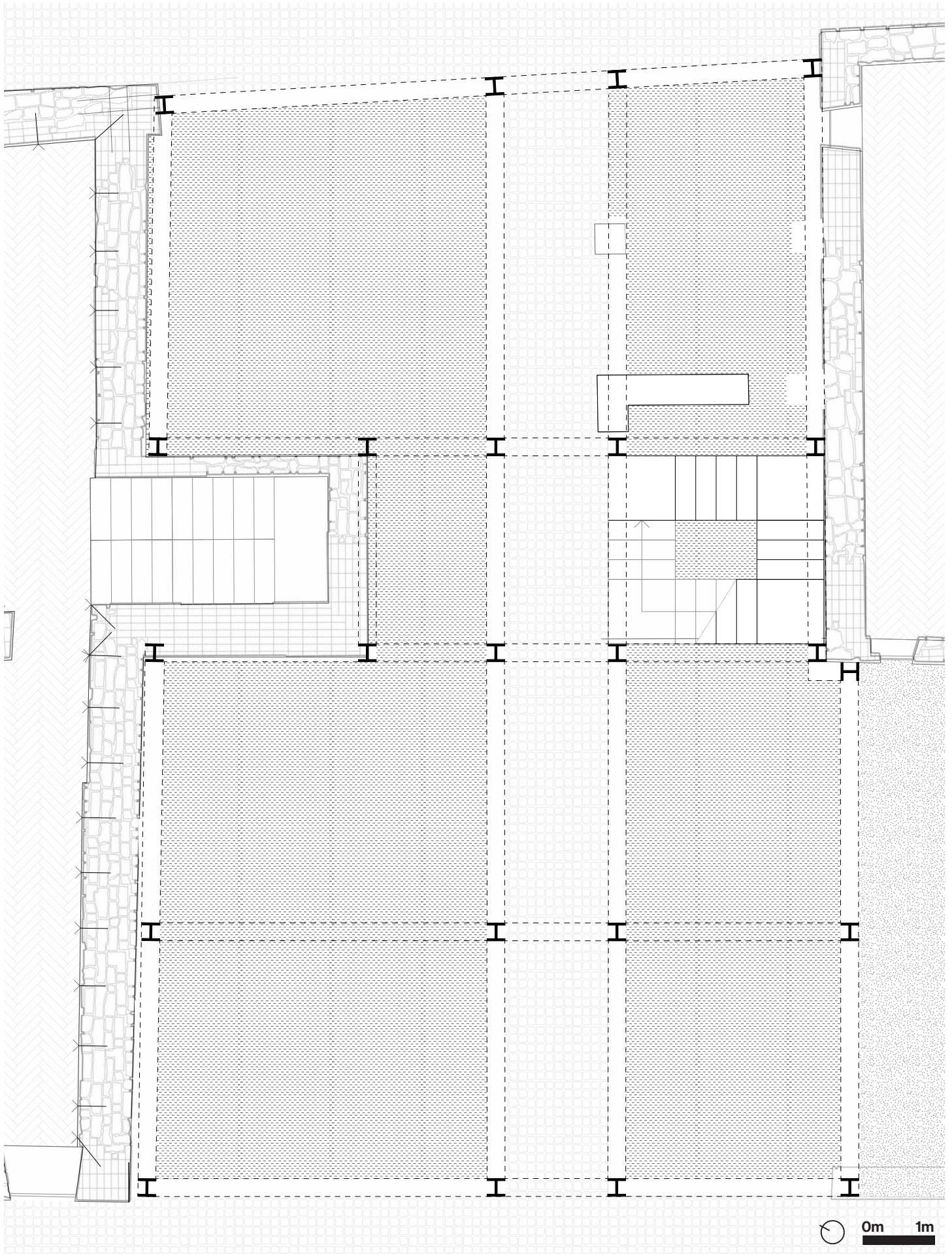
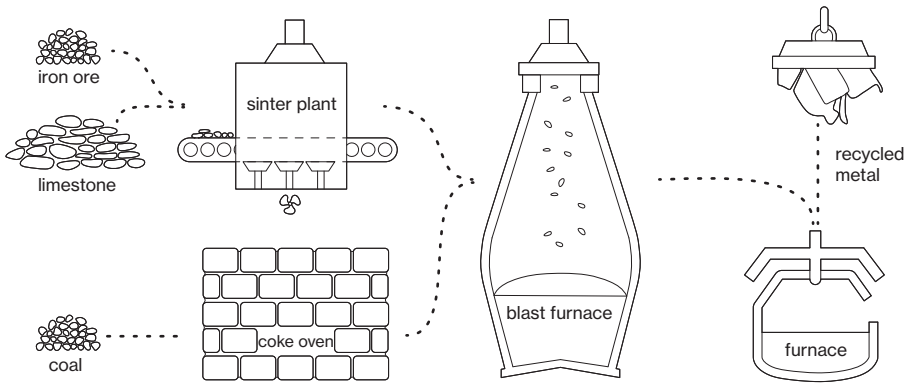
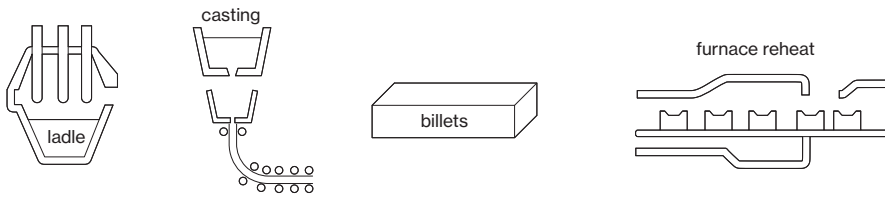


Fig.75: Plan of option 2 - Steel

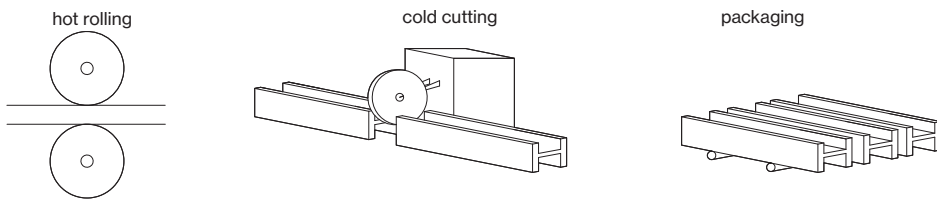
Sourcing + Production



Raw Materials +
Iron / Steel Making



Continuous Casting

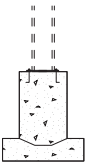


Finished Product

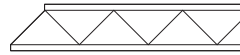
Build



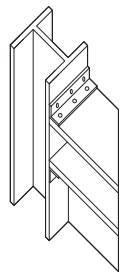
La



Site



Moving

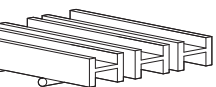


Joining

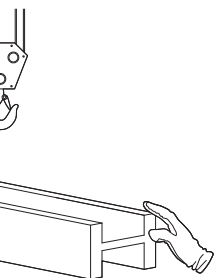
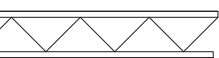
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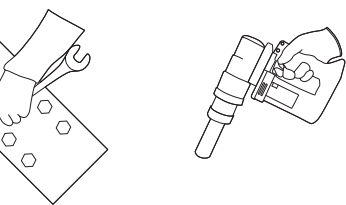
bor



Setting



Tools

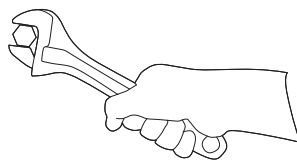


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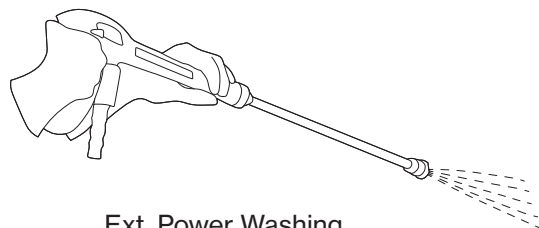
Maintaining



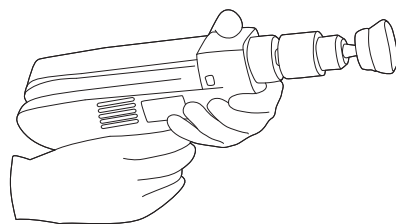
Survey



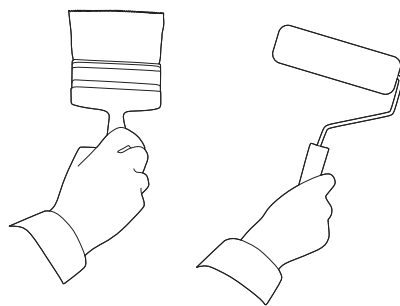
Bolt Tightening



Ext. Power Washing

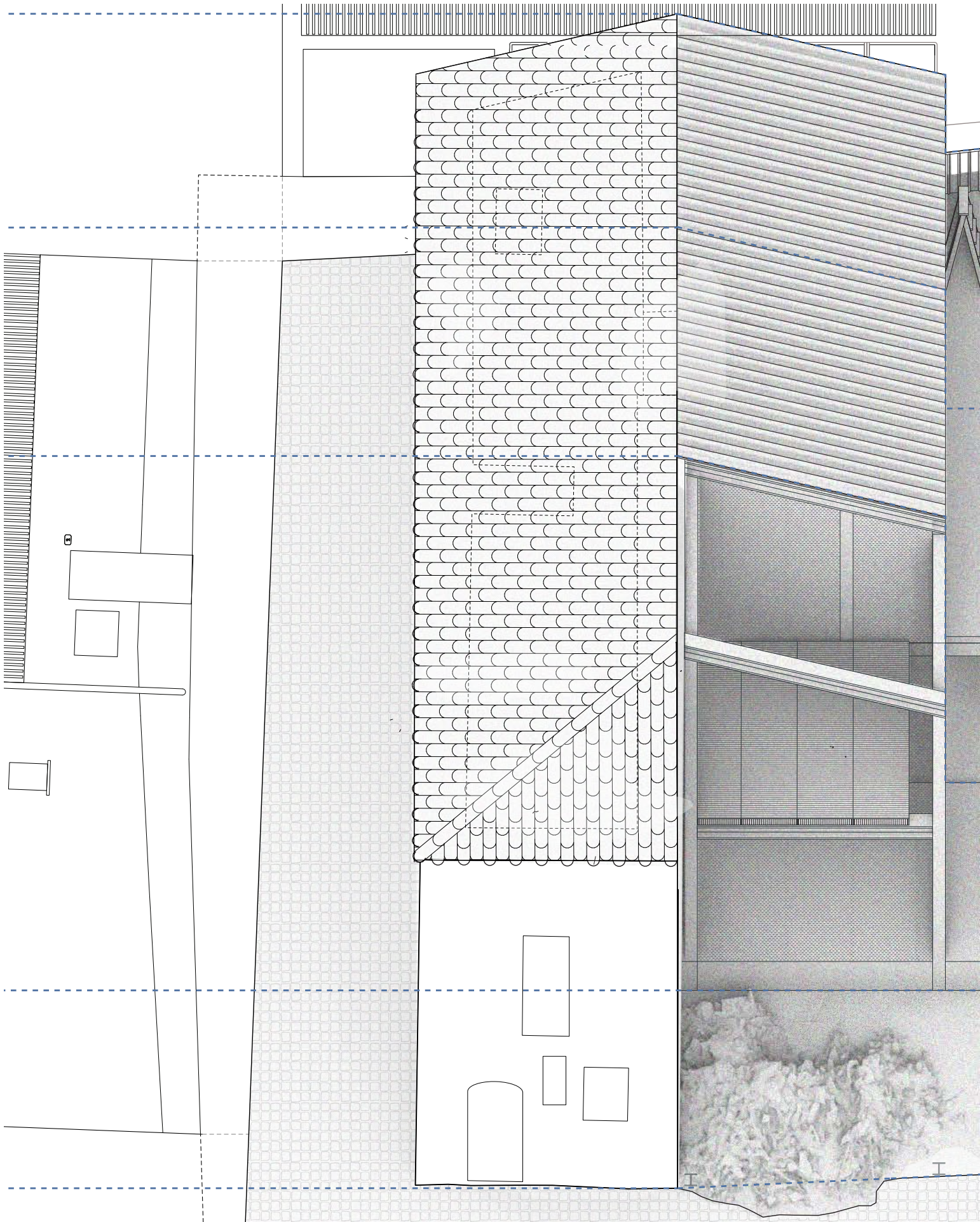


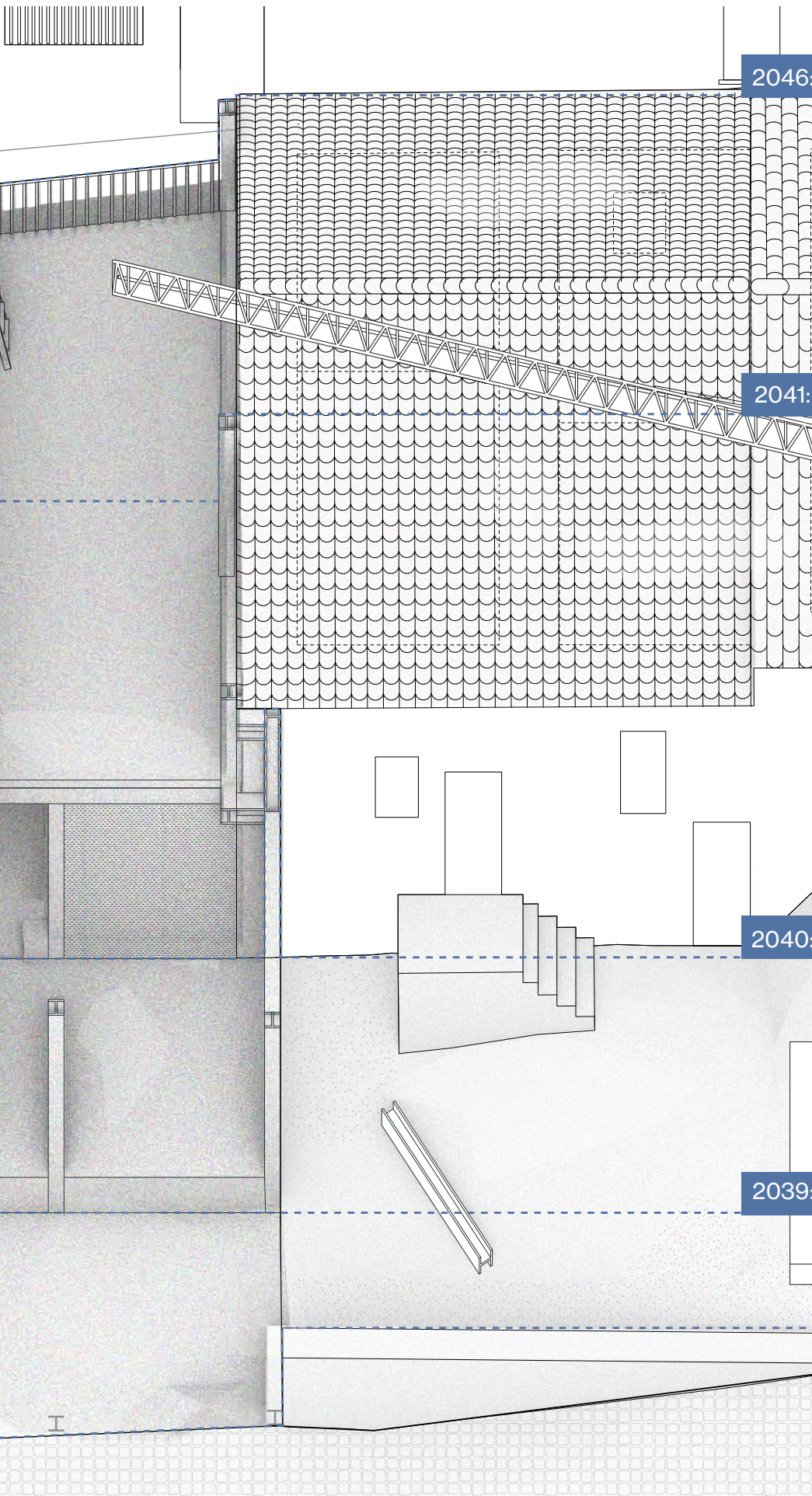
Sanding



Protective Coat

Fig.76: Material sequence of option 2 - Steel





2046: Maintenance Survey

Six years after completion a first round of maintenance survey is conducted by an engineer together with the owner. They inspect the state of the bolts holding beams together, and discuss an upcoming first round of protective repainting on the parts of the structure exposed to weather.

2041: In Use

The building is only half enclosed on the second story, matching the existing profile of the house on the North of the block. It leaves space for the family living in it to throw a party for their daughter's 8th birthday.

2040: Construction [crane]

Only 6 months later the foundations have been poured, and a small crane is brought on site. Prefabricated steel members are delivered by truck and quickly assembled by a team of four.

2039: Clearing of Site

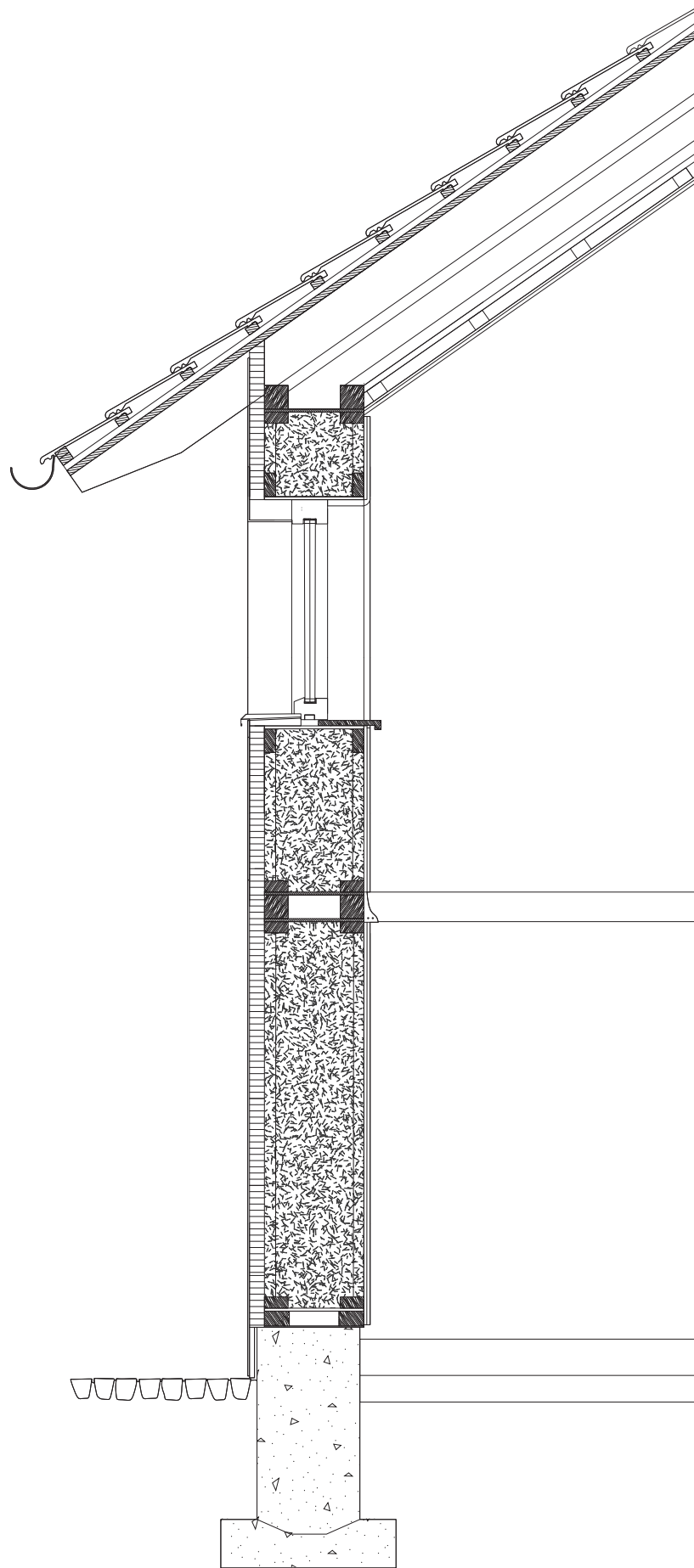
Following the repairs of the existing structures on the site, works are halted due to a burocratic mistake. Finally solidification of the building block begins in 2039 with the clearing of the brothel debris.

Fig.77: Axonometric timeline of option 2 - Steel



STRAW PREFABRICATED PANELS

Straw was chosen because L'Aquila is located in a pastoral and agricultural setting. Approach to the city happens through agricultural fields of wheat and straw and hay for cattle. It was selected as a subversive structural system, in a context with rigid aesthetic considerations, seamlessly inserting a new technology within the building fabric.



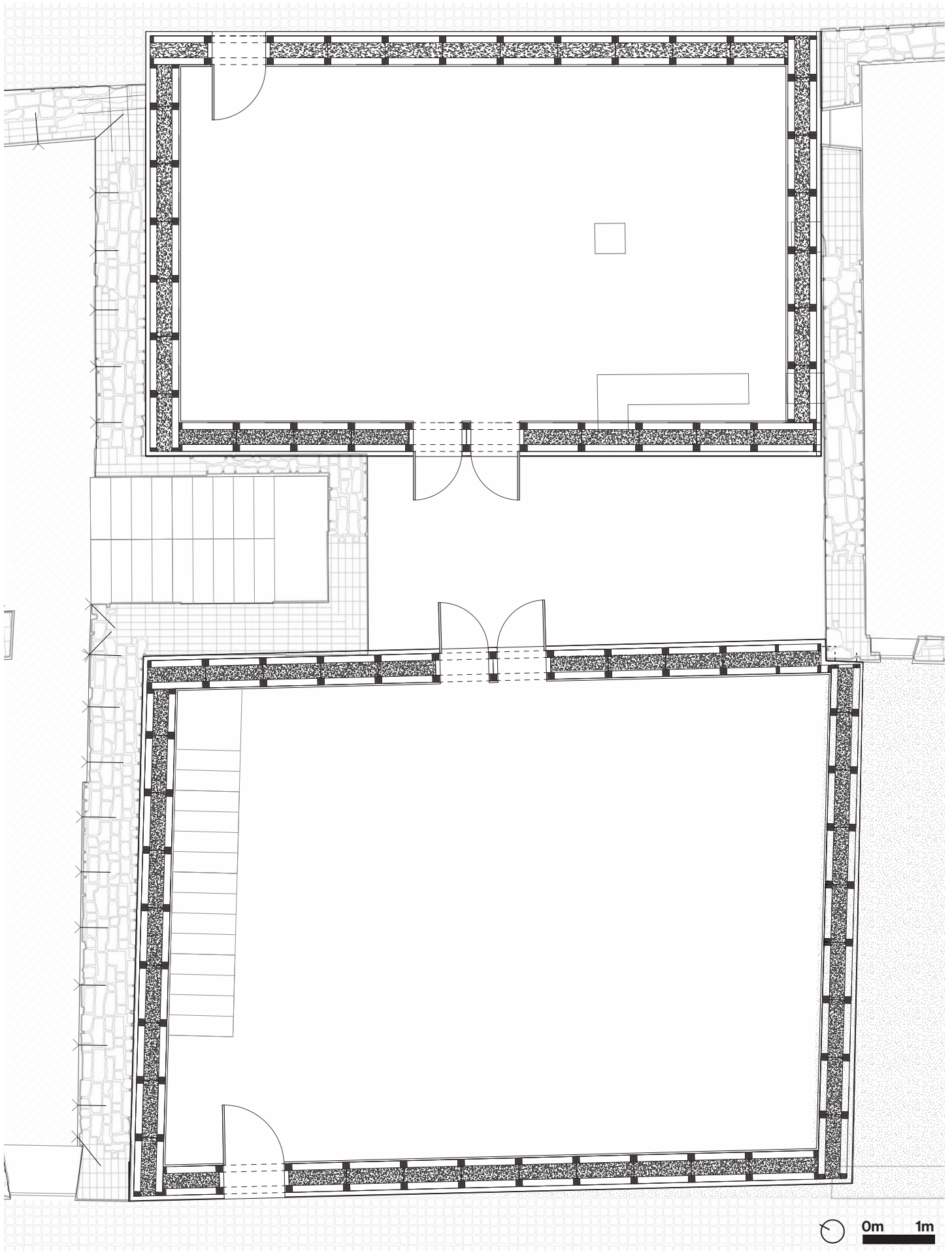
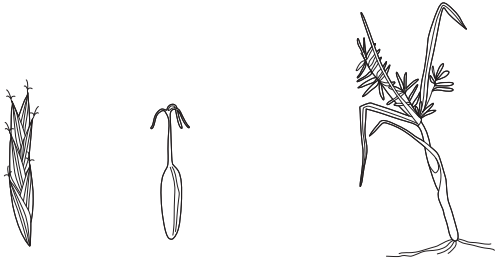
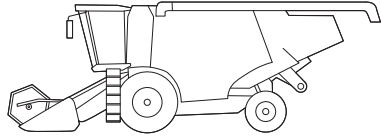


Fig.80: Plan of option 3 - Straw

Sourcing + Production



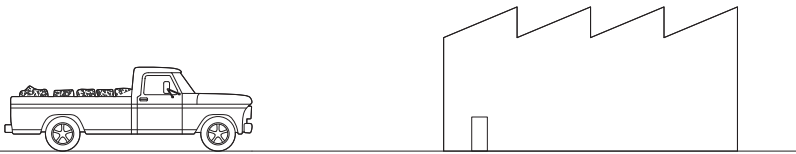
Straw Plant



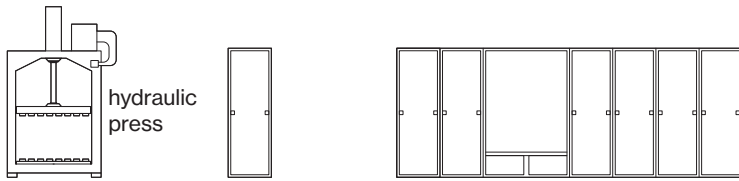
Harvesting



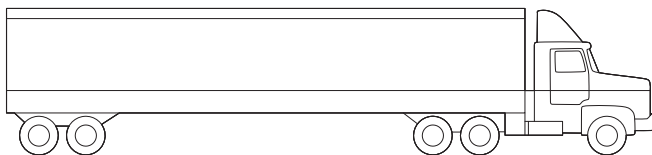
Bale Drying



Delivery to Factory



Pressing + Panel Assembly

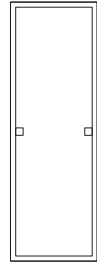


Shipping

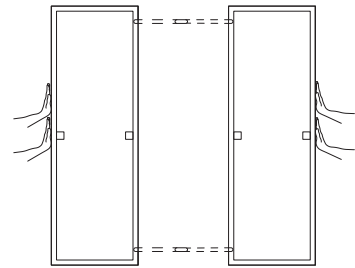
Build



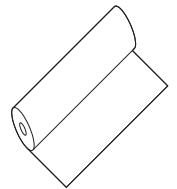
Labor +



Pa



Panel Alignme

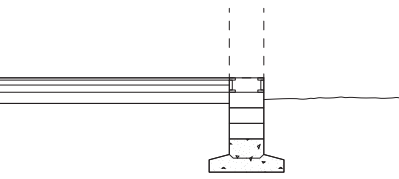


Airtight Barrier +

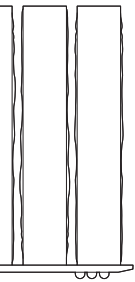


Air-tig

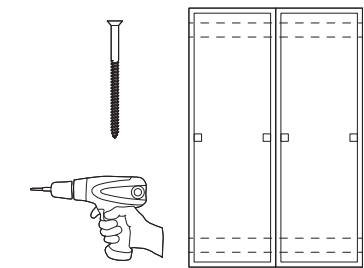
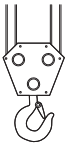
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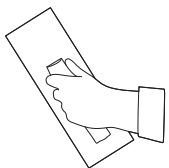
Site Setting



parts



ent + Joining



+ Plastering

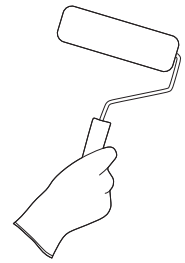


nt Test

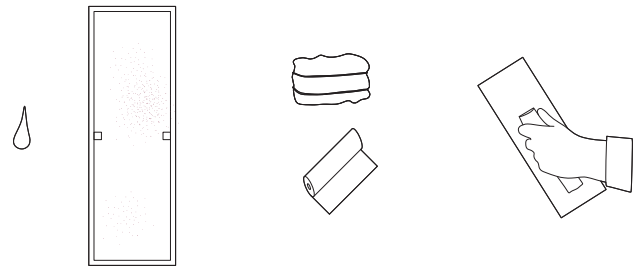
Maintaining



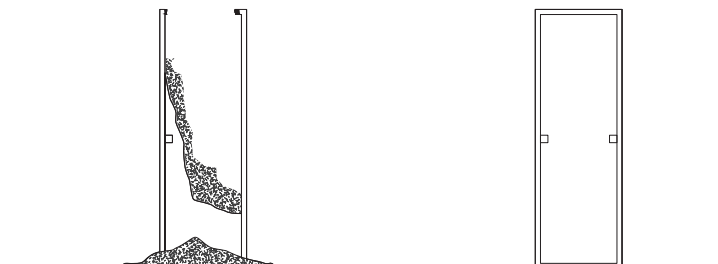
Scrub + Paint



Re-Plaster

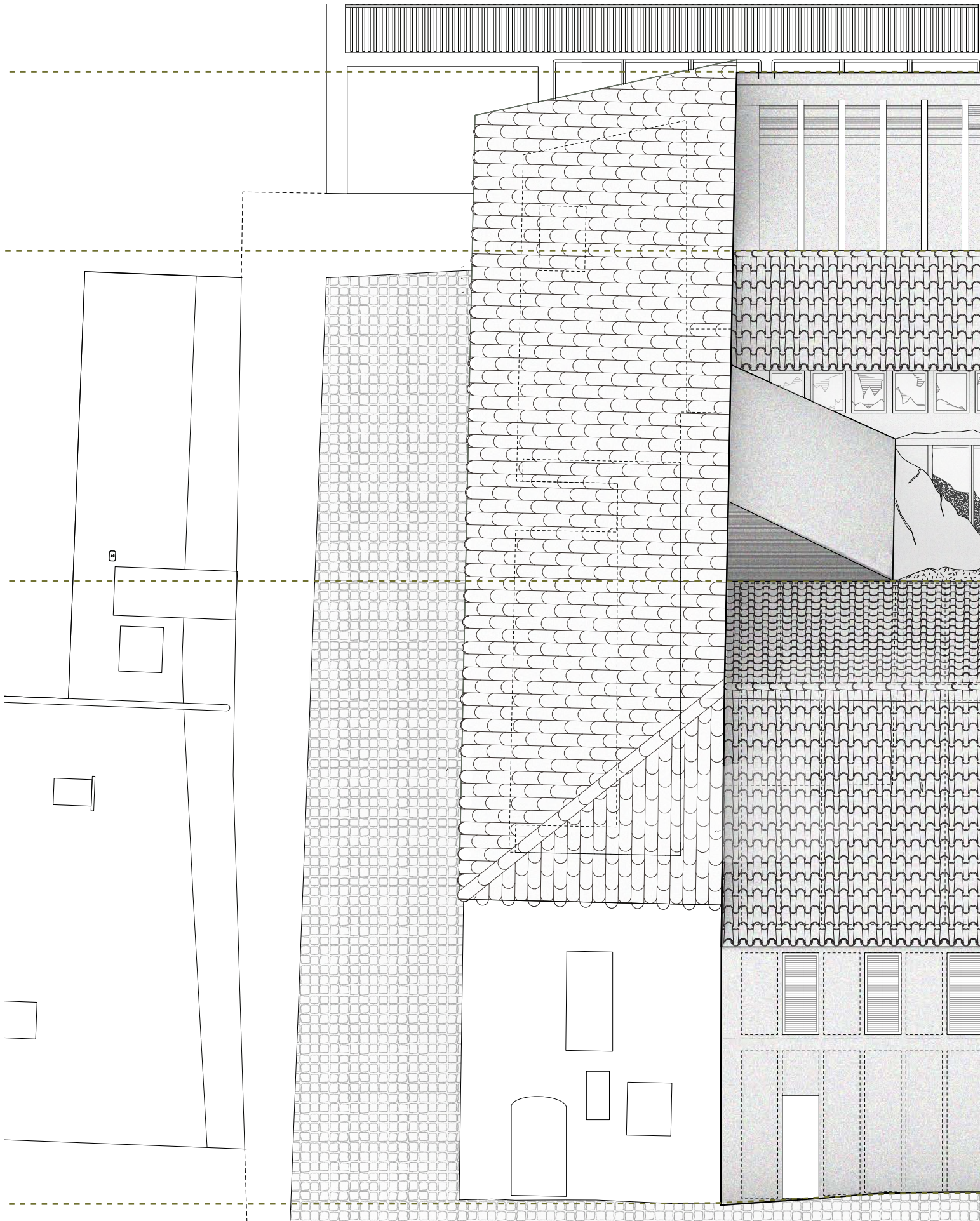


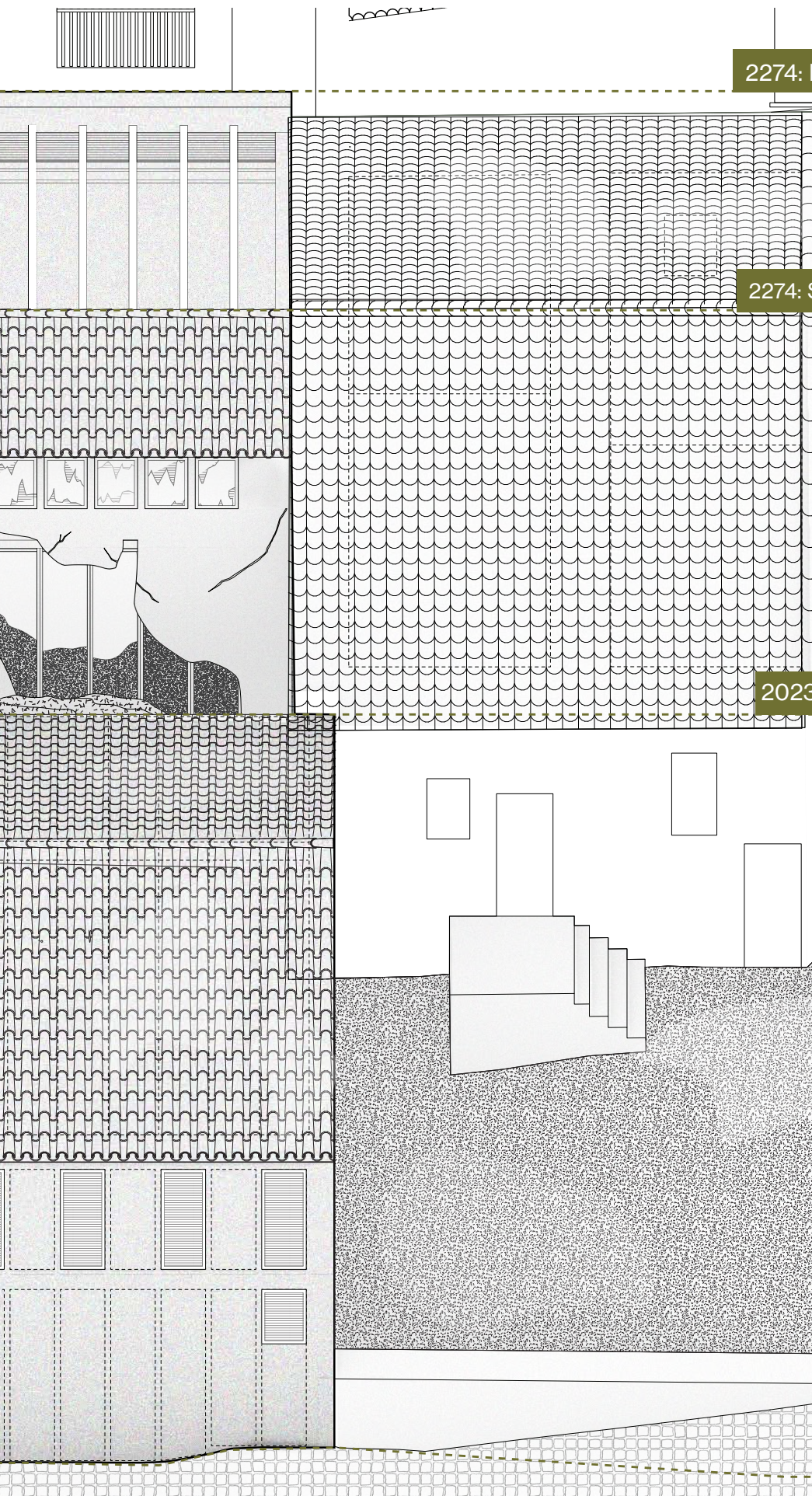
Mold Removal + Replacement



Panel Replacement

Fig.81: Material sequence of option 3 - Straw





2274: Rebuilding

After thorough inspection and structural stabilization, the destroyed panels are sent for repacking, and the windows are repalced. Reconstruction is finished only 10 months after the earthquake.

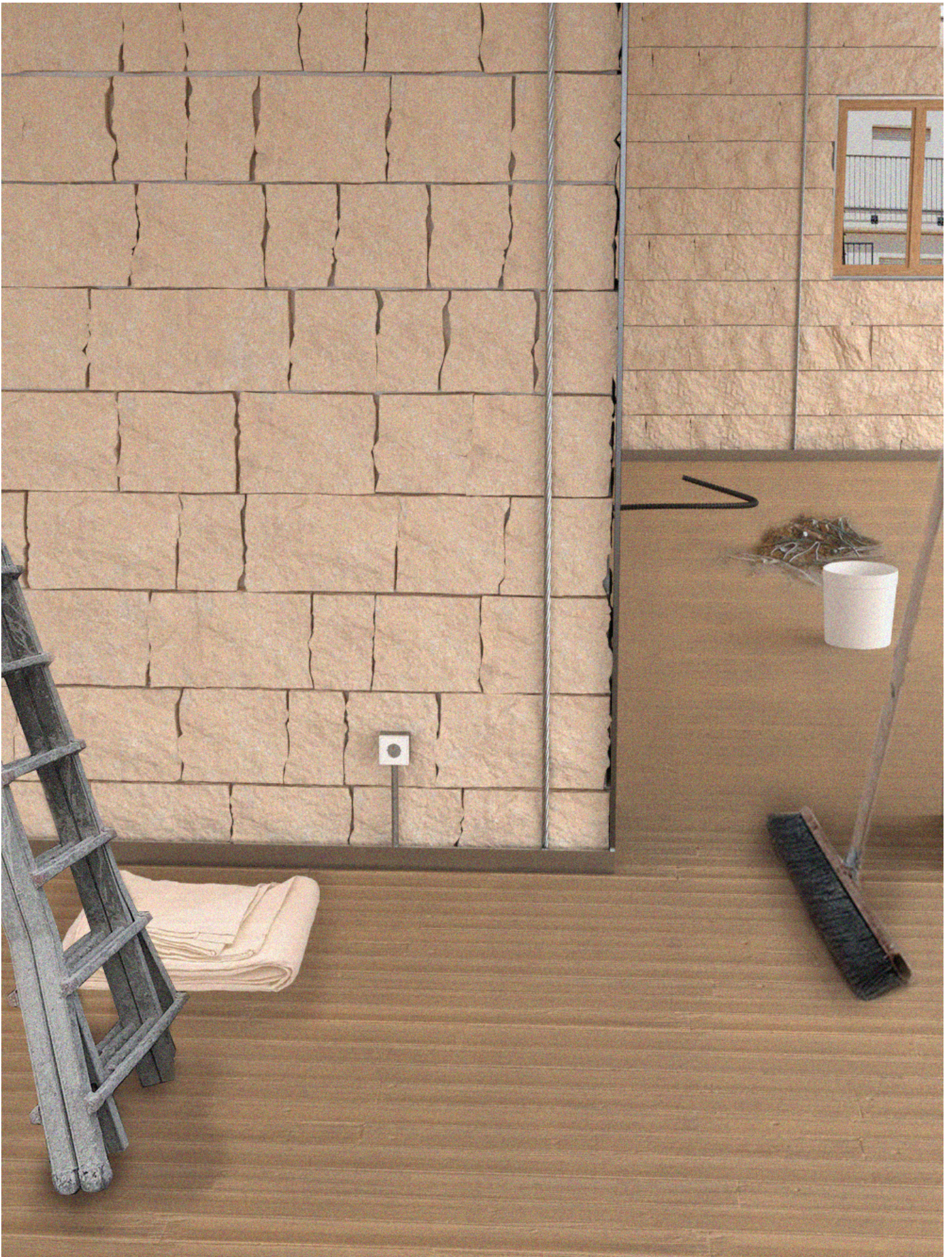
2274: Seismic Destruction

A magnitude 4.6 earthquake crumbles the city as well as the straw buildings. The plaster cover crumbles, the windows shatter but most of the timber structure remains intact. The ground is covered in straw.

2023: Building Completed

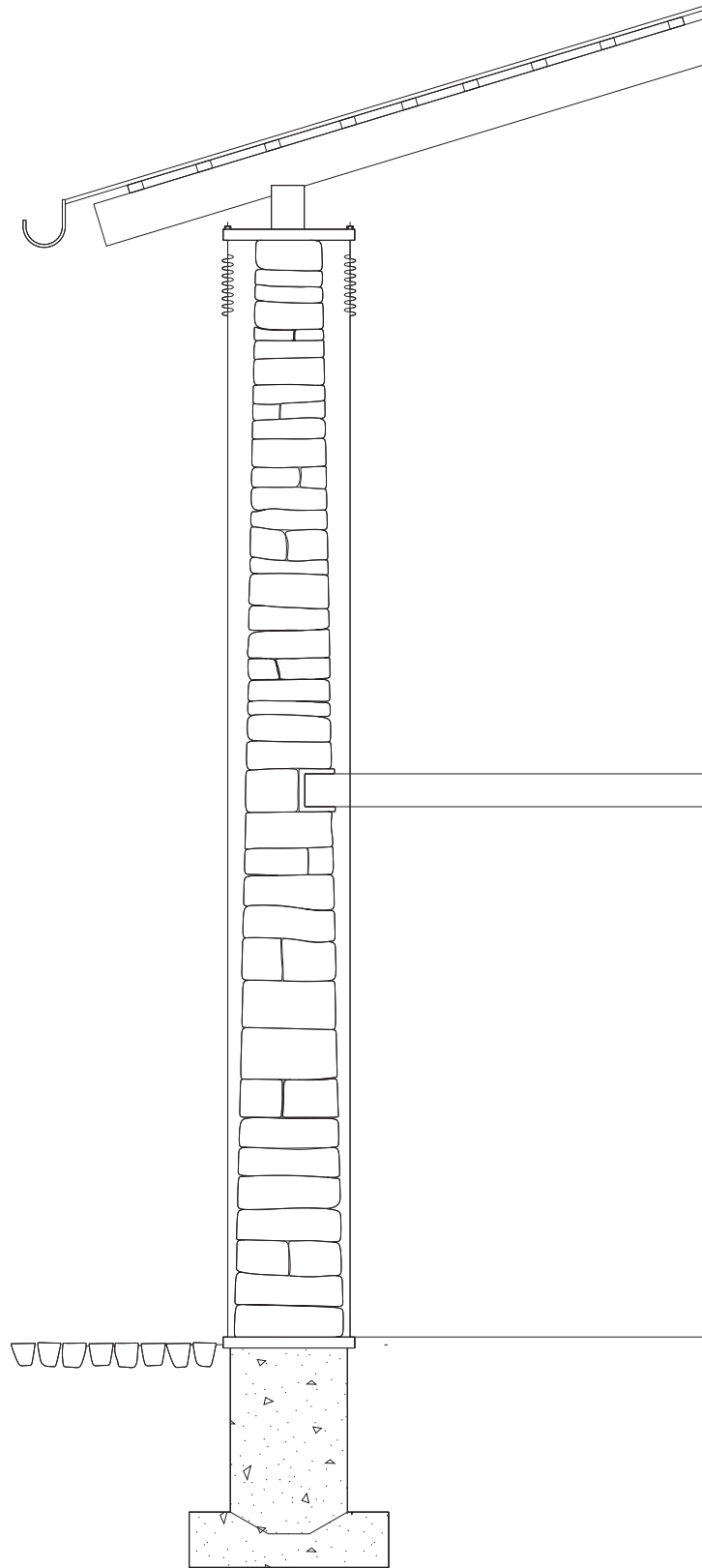
The aesthetic ramification of straw is very seamless. To accomodate the stuctural solidification of the block the straw scheme incorporates two buildings, sharing a middle courtyard. In 2023, through the productive speed of prefabricated panels the buildings are completed. On-site construction lasts 7 weeks in total and doesn't require a crane.

Fig.82: Axonometric timeline of option 3 - Straw



POST TENSIONED STONE

Finally, post-tensioned stone. There is a quarry 45 minutes away, extracting stones similar in texture and coloration to the ones found in L'Aquila. The material imagines a similar aesthetic to the one on site, but made with a visually present structural support system, truly reflecting the existing image of the city.



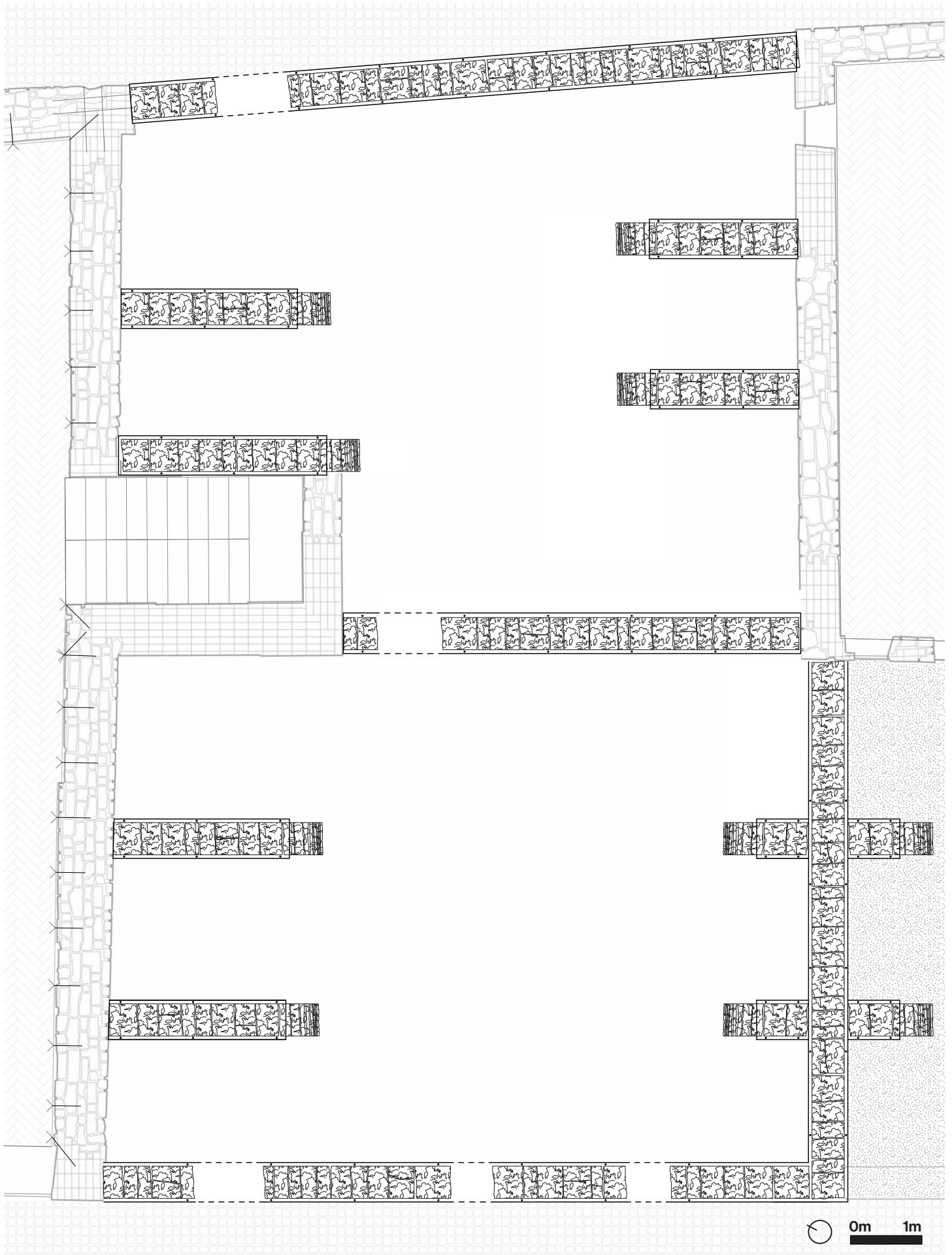
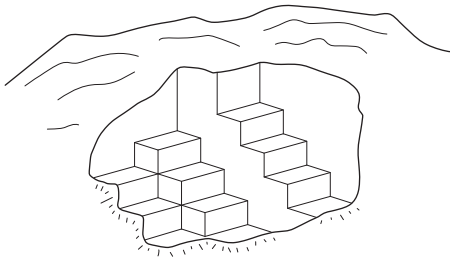
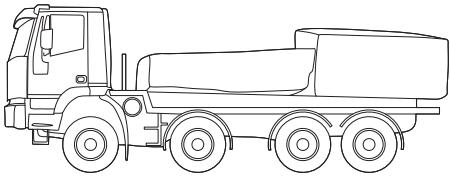


Fig.85: Plan of option 4 - Stone

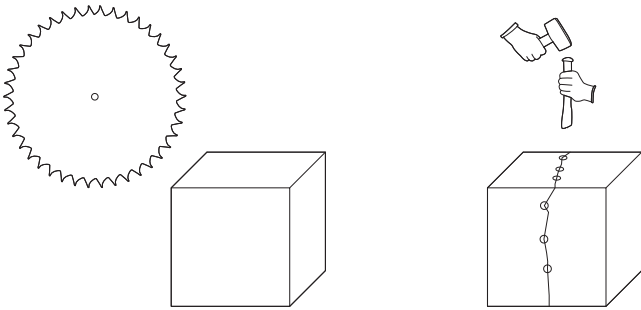
Sourcing + Production



Quarrying Local Stone



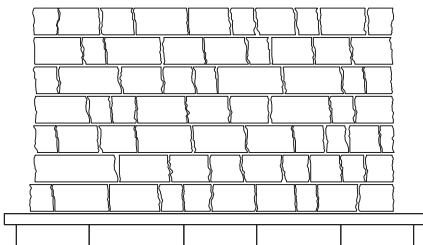
Moving Stone



Cutting Tools

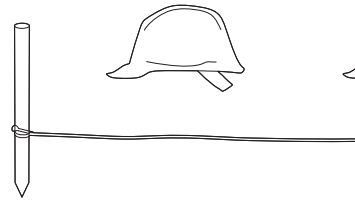


OR Collecting Stones



Shipping

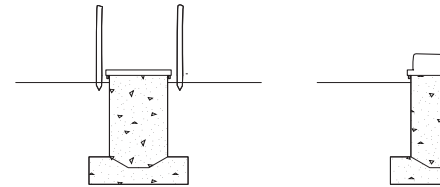
Build



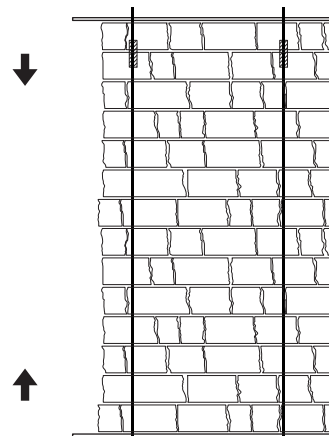
Labor + Essential



Moving

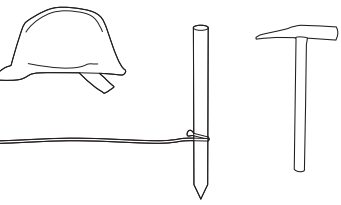


Constr

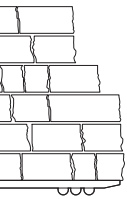


Post-Tens

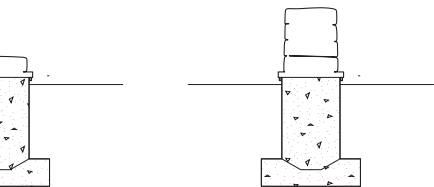
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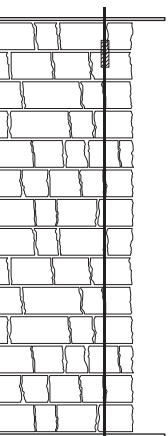
Tools



Stock



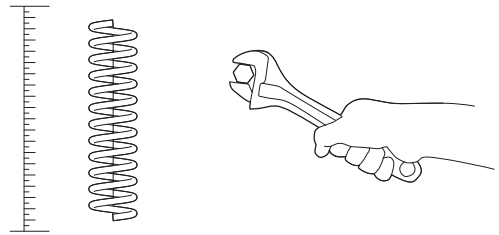
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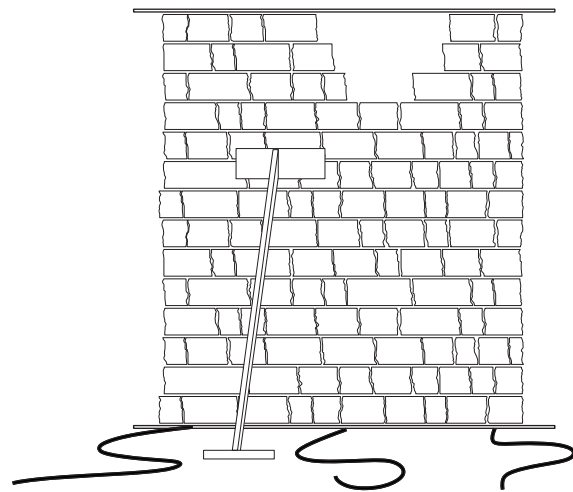
ioning



Maintaining

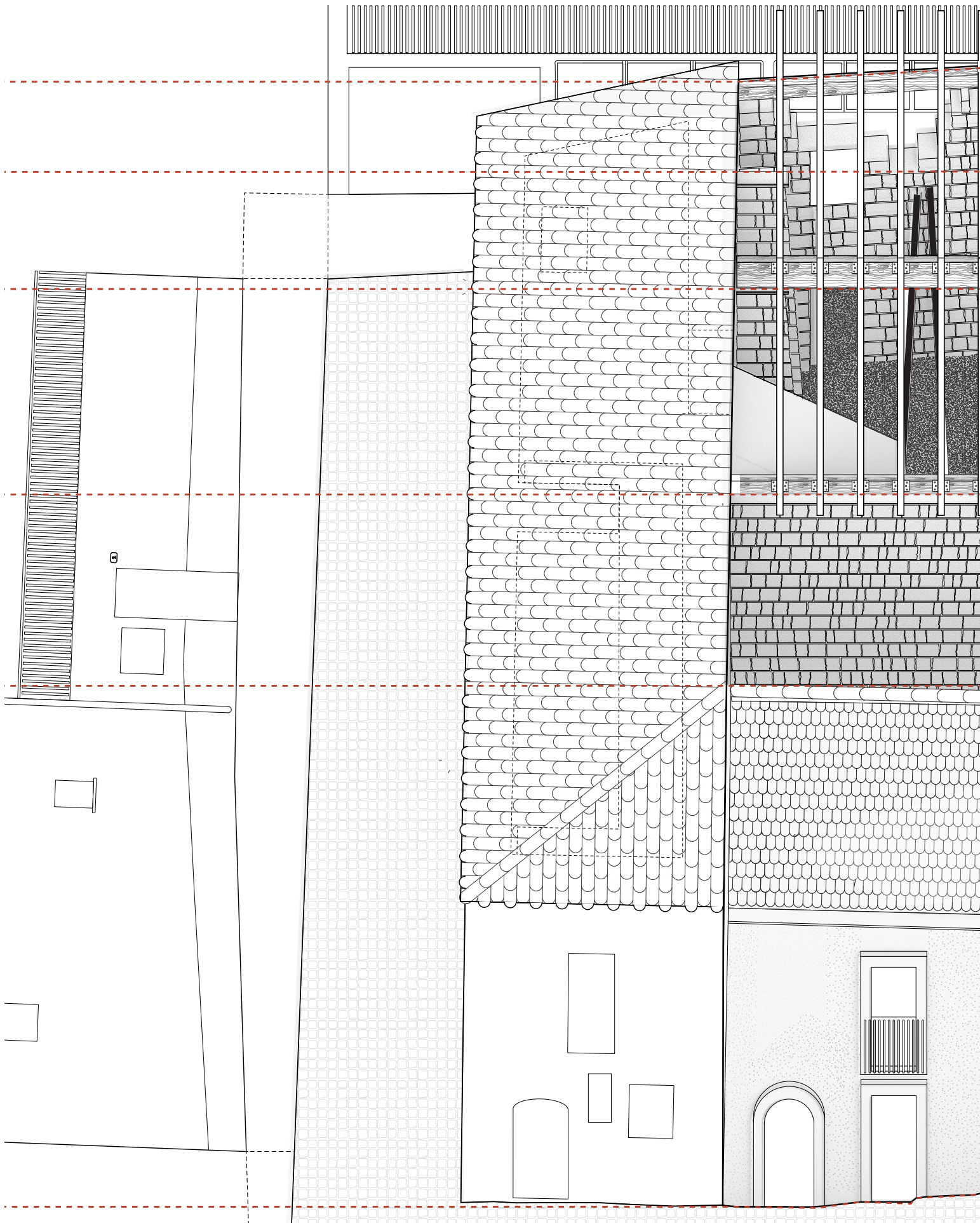


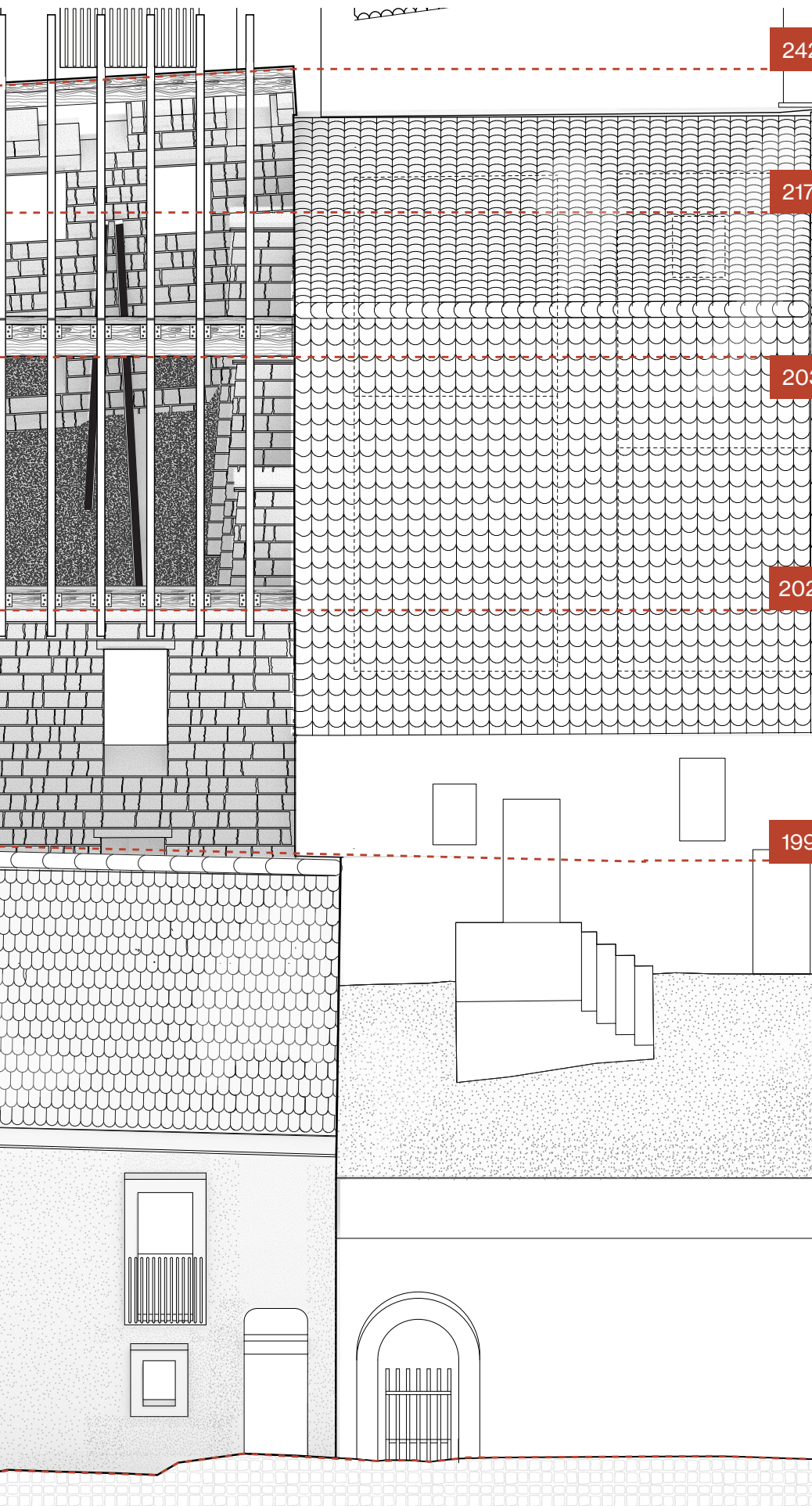
Inspection +
Tension Tightening



Stabilizing +
Rebuilding

Fig.86: Material sequence of option 4 - Stone





2425: Stone Re-Alignment

After inspection stones are deemed misaligned. The wall is braced, the stones repositioned + re-tensioned.

2173: Biennial Re-tensioning

Every two years the springs are inspected and if the tension has let up become retightened according to safety standards.

2030: In Use

The two story building is in use. Tension cables run through both stories and all other outfittings like sockets and pipes run exposed along the structural walls.

2025: Post-tension Buttressing

In 2024 construction began, blending both the stones from the rubble pile of the brothel and new stones from a local quarry. The scheme presents three crossing walls strenghtening the site and 10 buttresses in between.

1997: Brothel / In Use

In the late nineties up until the 2009 earthquake the building was used as a brothel.

Fig.87: Axonometric timeline of option 4 - Stone







Conclusion

The architect-maintainer requires their own language. A language that serves as a lens in which the history and use of the site are *immota manet*. This new language for maintenance considers existing buildings, embedding their future use through their formal and material qualities. Now more than ever we must consider longevity, as architecture grapples with rising temperatures, dwindling resources, and a reassessment of labor costs, maintenance plays a crucial role in achieving sustained use. Through the study of the values at play in L'Aquila, posing questions like, *How Old is Now?* prompts an expanded field of agency with renewed considerations of what it means to maintain.

In l'Aquila, maintenance is architecture; it is a creative act, not an administrative one. To maintain is to be in conversation with the past, present, and future uses of a project, moving beyond our myopic conception of time tethered to a single generation. If a project is designed to last far longer, program loses importance while material choice becomes paramount. Through four material iterations, brick, steel, straw, and stone, this thesis demonstrates an initial shift in the considerations an architect-maintainer confronts when building. What material will need the most maintenance? Which will be most easily replaced in the next centuries? Which will have the lowest upfront cost? These questions learn from the field of preservation, accepting unknowns and bringing them into conversation with engineering and architecture to meet the goals of continued use and longevity.

These questions challenge the current project delivery methods of architecture; a process that is fixated on the beginning and end. In practice, architects are brought onto a project, design a solution through drawing, and then supervise its execution until the project is delivered to the occupant. Contrary to this method, the architect-maintainers of l'Aquila prove a different mode of practice is possible. By working with the existing context, the architect-maintainers act as stewards of the lifespan of what is inherited. They display a different understanding of time and responsibilities: a *long-now*. This attitude towards time is the essential ingredient that blurs the existing lines between architecture and maintenance. The beginning and end must fall out of focus, and we must instead accept architecture as a continuity. Longevity is the collaborative product of generations, one that allows the act of building to take on new meanings.

Glossary

Abandonment

1. withdraw from
2. yielding to impulses

Alien

1. external
2. naturalized

Bond

1. restrains,
2. an adhesive, joiner
3. strengthens
4. an obligation

Change

1. alter, modify, replace
2. currency

Control

1. power to influence
2. standard of evaluation

Corrosion

1. damage, degradation
2. weaken

Crack

1. split line, fissure
2. sudden sharp noise
3. expert, skilled
4. a drug

Cure

1. relieve
2. preserve

Damage

1. harm
2. reparation/compensation

Date

1. day
2. appointment

Degradation

1. disintegration
2. humiliation

Demolition

1. destruction
2. defeat

Disassembly

1. take apart
2. decode

Edit

1. prepare, polish
2. change, insert or delete

Extend

1. expand, increase
2. hold out

Fixed

1. fastened
2. predetermined

Glue

1. fasten, fix
2. be gripped by

Mask

1. disguise, veil
2. protect
3. mimic/ a likeness

Mature

1. grown, of age
2. ripe
3. careful, sensible, thorough

Memory

1. remembrance, recollection
2. tribute, recognition
3. bank, disk, cache

Modify

1. alter
2. adapt

Monument

1. memorial, tombstone
2. record, reminder

Mortal

1. perishable
2. deadly, fatal
3. human
4. unforgivable

New

1. not existing before
2. existing but seen newly

Old

1. elderly, mature
2. former, obsolete

Original	<ol style="list-style-type: none"> 1. first earliest 2. authentic, real 3. non conformist, eccentric 	Time	<ol style="list-style-type: none"> 1. indefinite continued progress 2. measure
Preserve	<ol style="list-style-type: none"> 1. maintain, guard, keep 2. jam or pickle 3. domain, field, sanctuary 	Value	<ol style="list-style-type: none"> 1. merit, use 2. principles, morals 3. assess, rate 4. duration of sound signified by a note
Recreate	<ol style="list-style-type: none"> 1. create again, reproduce 2. leisure, enjoyment 	Wrap	<ol style="list-style-type: none"> 1. cover or enclose 2. automatic fit around in computing 3. a sandwich
Replace	<ol style="list-style-type: none"> 1. take the place of 2. return to place 		
Reserve	<ol style="list-style-type: none"> 1. put aside, book, hold, postpone 2. stock, bank supply 3. sanctuary 4. substitute, extras 	Young	<ol style="list-style-type: none"> 1. junior, youthful 2. offspring, family
Resilience	<ol style="list-style-type: none"> 1. toughness 2. flexibility 		
Revitalize	<ol style="list-style-type: none"> 1. imbue with new life 2. brace, fortify 		
Ruin	<ol style="list-style-type: none"> 1. state of decay, destroy 2. bankruptcy 		
Safeguard	<ol style="list-style-type: none"> 1. protect, defend 2. buffer, screen, shield 		
Save	<ol style="list-style-type: none"> 1. rescue 2. put aside, reserve 		
Scandal	<ol style="list-style-type: none"> 1. shame, dishonor 2. injustice, pity 		
Scars	<ol style="list-style-type: none"> 1. mark, blemish 2. damage, injury, shock 		

Appendix 1: Book Of Maintenance





Fig.90: Photos of 'Book of Maintenance' by Andy Ryan

Appendix 2: Material Samples Model



Fig. 91: Photos of material swatches model by Andy Ryan

Appendix 3: Presentation Set-up



Fig.92+ 93 Photo of thesis presentation by Mackinley Wang-Xu, Fig.94:Photo of thesis presentation by XDD44

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