

GEOMETRIAS DO MILHEIRO

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ÍNDICE

apresentação	003
referências	011
1. milheiros	015
2. estudos	023
3. sistema	033
4. maquetes	055
5. intervenções	075
bibliografia	103
agradecimentos	105

apresentação

O presente trabalho surgiu inicialmente da vontade de refletir sobre a arquitetura a partir da investigação experimental de algum elemento arquitetônico. Essa ideia partiu da leitura da obra *Elements* do arquiteto Rem Koolhas, em que o autor enfoca os fragmentos do léxico que compõe a arquitetura.

O método deveria ser experimental, correspondendo ao desejo de escolher algum elemento que pudesse ser trabalhado de forma viável durante o desenvolvimento deste trabalho final de graduação, mas que também carregasse possibilidades simbólicas e plásticas além de seus usos típicos, que proporcionassem caminhos interessantes a serem explorados durante o processo.

Encontrei no tijolo, o bloco cerâmico perfurado típico da construção civil brasileira, o objeto de estudo que procurava. A ideia veio da sugestão de um grande amigo que acompanhou essa fase inicial e, depois, foi elaborada a partir da observação pessoal do meu entorno, que naquele momento, devido à pandemia, era a minha cidade natal Maringá, da qual saí para estudar arquitetura em São Paulo e nunca pude voltar para permanecer por muito tempo, devido às demandas da faculdade. No entanto, esses intervalos entre curtas permanências me permitiam perceber que as mudanças ocorriam de forma drástica e rápida, considerando que sempre que eu voltava, o cenário havia mudado, perseguindo a expectativa de “progresso” da cidade. Neste momento recente, em que

prestei atenção neste ambiente pela primeira vez com olhos de quase arquiteta urbanista, com a minha experiência até o momento, pude observar como essas mudanças se davam, seu ritmo, sua aparência, sua linguagem. O que pude notar foi que essas mudanças não se davam de uma hora pra outra, mas sim ocorriam desde que nasci, e o bairro em que cresci, pouco se assemelha ao que hoje se apresenta.

Um fator importante para comparar essas observações era a presença constante do tijolo, mais especificamente, montes de tijolos situados em terrenos dispersos pelo bairro. A recorrência desse elemento arquitetônico tornou possível identificá-lo como símbolo dessa mudança na paisagem que tanto chamava minha atenção; ele estava presente em praticamente todas as construções, de diversas escalas, valores, localização e usos.

Me dediquei então a encontrar quais aspectos do tijolo eu poderia trabalhar. A princípio separei a pesquisa em quatro frentes: a matéria, a forma, a técnica e a cultura material. A partir dessa pesquisa inicial pude perceber a vasta história e possibilidades de abordagem que esse material me proporcionava, no entanto, foi em sua forma e em toda simbologia que carrega, que encontrei o caminho a seguir no trabalho. Com isso, delineei o que seria o léxico representante deste elemento, como ele se apresentava na paisagem e toda a linguagem que o envolvia. Devido ao uso mais característico

deste elemento para a construção civil, sua comercialização é feita em grandes volumes, tendo como unidade de medida desta quantidade o “milheiro”, que equivale a 1000 tijolos.

Por ser a unidade básica, a palavra milheiro se tornou também a denominação dos montes de tijolos de quantidades variadas posicionados em frente a terrenos vazios e construções em andamento. Diante das alterações estéticas de cada obra, a cena recorrente dos milheiros chamava atenção para a variação das cores de cada conjunto, resultante da variedade de matéria-prima e da influência das relações de luz e sombra a cada período do dia. A coloração típica do tijolo, derivada dos tons da terra, sua matéria originária, se integram com os tons avermelhados que caracterizam os solos da paisagem, o que faz toda materialidade parecer impregnada pela poeira vermelha presente na região. Dessa forma, o artefato humano preserva relações com o ambiente natural mesmo que transformado por um processo industrial.

Em busca de referências que pudesse guiar o caminho do trabalho, encontrei nas obras dos artistas construtivistas e minimalistas as características que precisava para conceber o que pretendia, como forma com que tais autores descontextualizavam os objetos trabalhados, gerando uma impressão de descolamento da realidade, assim como nas obras de arquitetos que experimentavam a espacialidade sem a intenção primária de atender funcionalidades adequadas ao

corpo humano. O aspecto mais crucial dessa pesquisa foi encontrar os sistemas elaborados por esses artistas para criação das obras, geralmente a partir de esquemas geométricos, por exemplo, o processo em que Peter Eisenman faz o exercício de decomposição de suas casas, criando um jogo combinatório infinito, ou os exercícios de composição propostos por Rodchenko na Escola Vkhutemas.

Construir com tijolos requer, primeiramente, o entendimento das tipologias do elemento, considerando que no mercado esse material se encontra em formas diversificadas em dimensões, mas preservando a característica básica das duas faces menores opostas perfuradas e as demais quatro faces contínuas. Foi necessário, então, estabelecer as dimensões do tijolo-tipo para a realização dos estudos, já que até mesmo os tijolos feitos na mesma linha de produção podem diferir sutilmente entre si.

Nos primeiros experimentos, também pude perceber o quanto árduo era o trabalho de carregá-los e posicioná-los mesmo em pequenas quantidades, o que tomaria muita energia e espaço de movimentação, limitando as possibilidades de experimentação. Foi então que decidi que trabalharia, primeiramente, com a criação de maquetes a partir de modelos do tijolo-tipo em escala 1:5, confeccionados em blocos de madeira, resultando em 2000 unidades, correspondentes a dois milheiros.

Com os bloquinhos, pude me desprender das dificuldades de execução e expandir as possibilidades de criação das composições. No entanto, seu tamanho e peso, geravam uma facilidade de manuseio que resultou, primeiramente, em formas baseadas somente no empilhamento e compactação. Buscava um outro caminho para os experimentos, que envolvia a modulação de vazios e a criação de trajetos, partindo da forma simples para concepção espacial.

Nesse momento, também encontrei as dificuldades decorrentes da criação livre, sem regras, notando que era preciso constringir e criar diretrizes. Dessa maneira, a partir de formas geométricas e operações simples, utilizando parâmetros de composição e organização espacial, elaborei um sistema de criação de formas para as intervenções que gostaria de propor.

Após escolhidas as formas que embasariam as fiadas, realizei maquetes com os bloquinhos para entender até onde conseguiria alcançar em altura e quais padrões de empilhamento utilizar para cada família de formas, já que não seria utilizado nenhum aglutinante entre os blocos; somente o força da gravidade manteria a estrutura em pé.

Após esses resultados, seriam realizadas as intervenções, num processo que seria como a reorganização de milheiros reais, existentes em algum terreno no território em que deli-

mitei a pesquisa. Para a realização das intervenções, foram escolhidas três formas e dois terrenos.

Os terrenos escolhidos eram unidades representativas da paisagem dessa cidade em expansão. Ambos possuíam milheiros no momento desta produção, embora com tipos de tijolos diferentes, o que requeria um planejamento quanto a utilização de cada conjunto. A preparação do terreno foi feita com enxada e rastelo, visando uniformizar o solo mas considerando as limitações de interferência permitida pelos proprietários dos terrenos. Em nenhum dos casos foi alcançada uma superfície plana perfeita, mas de certa forma essas imperfeições me fizeram entender mais ainda as características do material escolhido para o trabalho, uma vez que o acúmulo de distorções nos eixos do empilhamento geravam formas imprevistas e deixava evidente o processo e as características da construção com esse material.

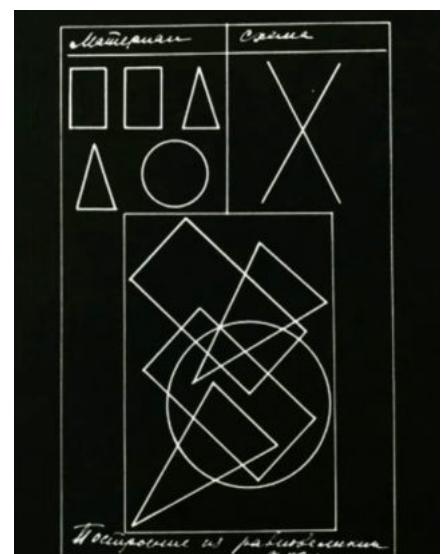
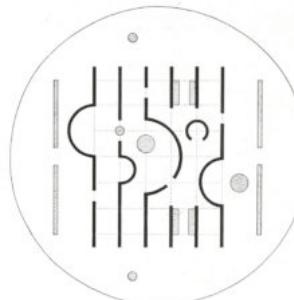
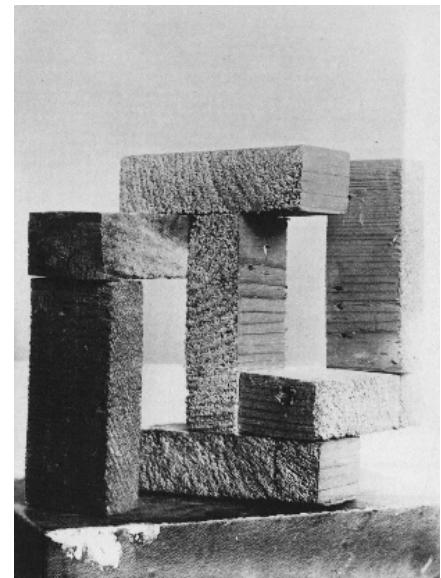
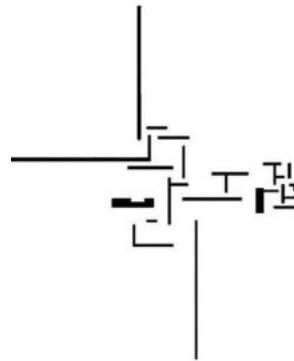
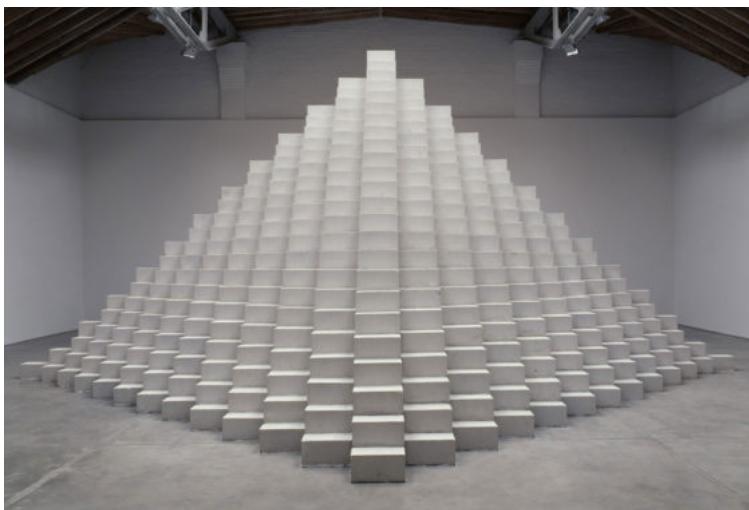
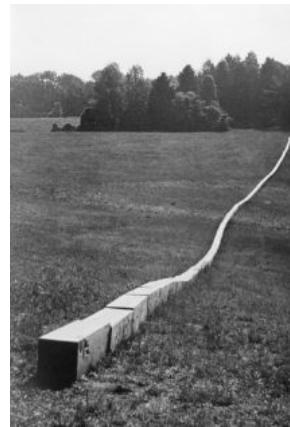
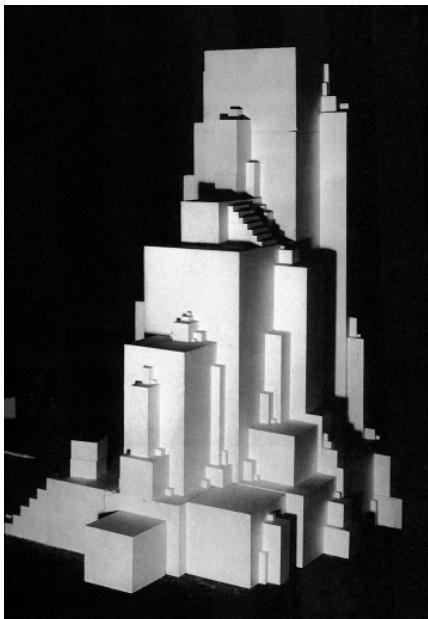
Depois de preparar o terreno, eram demarcadas guias no chão com estacas de madeira e fios de nylon, que também foram utilizados como compasso para as formas circulares. Apesar de haver um projeto para cada intervenção, me deixei guiar pela experiência de construir naquele contexto, permitindo alterações no projeto inicial. A primeira intervenção demonstrou quão árduo é o trabalho de construir, pois cada tijolo pesa em média 1kg, no entanto devido a quantidade necessária para construir qualquer estrutura, o trabalho tende

a ser otimizado carregando-se mais do que uma unidade por percurso, demandando também equipamentos que facilitassem carregá-los. Para as próximas intervenções foi utilizada uma carriola e luvas específicas para carregar objetos corantes, popularmente conhecidas como “luva de pedreiro”.

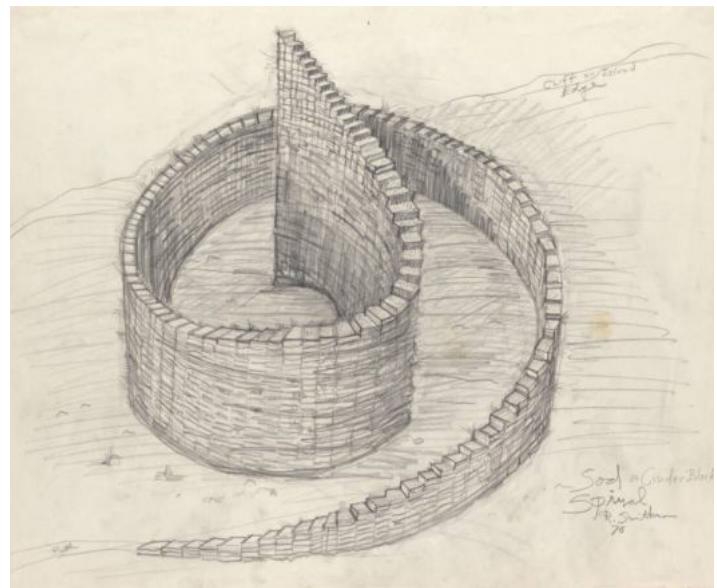
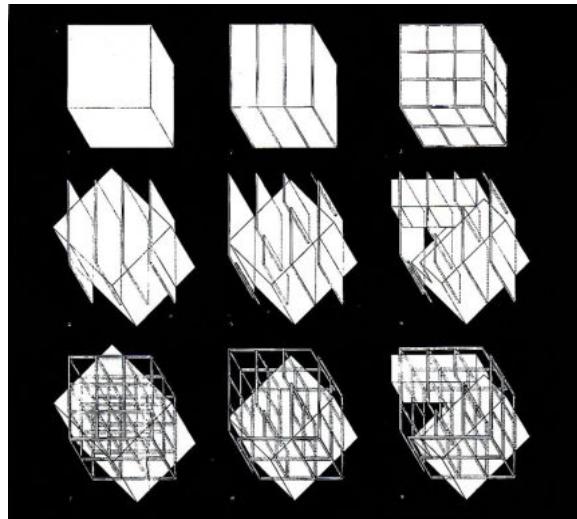
Fotografar as intervenções também levou a observações interessantes como o horário que as cenas seriam registradas, considerando a luz e as sombras de cada localização, bem como, cada forma traria um resultado diferente de percepção do conjunto de objetos em cada terreno. O ato de experimentar e criar sem restrições gerou muitas angústias e dificuldades no caminho. Devido à mudança de escala do objeto para o processo criativo, pode ter havido também um descolamento da expectativa inicial em relação ao conjunto da paisagem real. A finalização do trabalho, no entanto, permitiu uma apreciação do processo em que pude identificar a estética resultante das imperfeições geradas pela materialidade local, potencializando a integração da intervenção ao léxico que descreve a vista daquelas cenas cotidianamente encontradas pelo bairro. O caráter provisório destas intervenções também dialoga com a efemeridade destes milheiros que são desintegrados em poucos dias e são recompostos em novas estruturas. A apreciação das alterações estéticas derivadas da variação de luz e sombras ao longo do dia também remete à caracterização do milheiro como testemunho da transitiedade da forma urbana.

referências

Alexander Rodchenko
Kazimir Malevich
Sol LeWitt
Mies Van Der Rohe
Aldo Van Eyck
Carl Andre



Carlos Fajardo
Richard Serra
Peter Eisenman
Robert Smithson



to roll	to curve	to scatter	to modulate
to crease	to lift	to arrange	to distill
to fold	to relax	to repair	of waves
to store	to impress	to discard	of electromagnetic
to bind	to fire	to pair	of inertia
to shorten	to flood	to distribute	of ionization
to twist	to concur	to surface	of polarization
to dapple	to rotate	to complement	of refraction
to crumple	to curve	to enclose	of simultaneity
to shave	to support	to surround	of tides
to tear	to hook	to encircle	of reflection
to chip	to suspend	to hide	of equilibrium
to split	to spread	to cover	of symmetry
to cut	to hang	to wrap	of fluctuation
to sever	to collect	to dig	to stretch
to drop	of tension	to tilt	to erase
to remove	of gravity	to bind	to spray
to simplify	of entropy	to wave	to systematicate
to differ	of nature	to join	to refer
to disarrange	Grouping	to match	to place
To open	of feltings	to laminate	of mapping
to mix	to grasp	to bond	of location
to splash	to grasp	to hinge	of context
to knot	to haptic	to make	of time
to spill	to haptic	to expand	of carbonization
to droop	to heap	to dilute	to continue
to float	to gather	to light	



1. milheiros







2. estudos

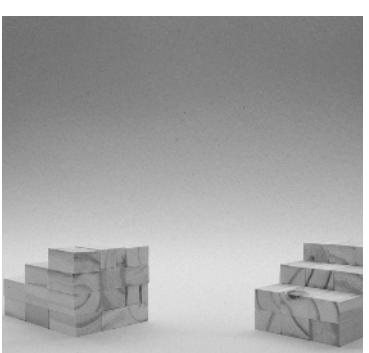
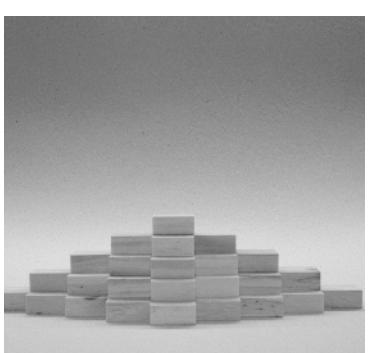
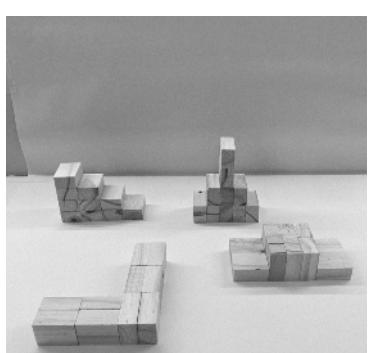
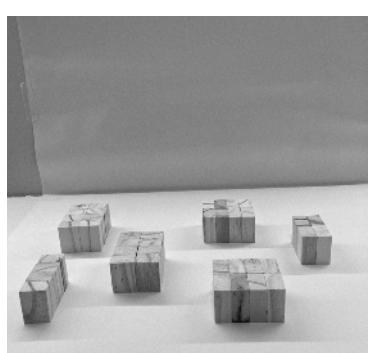
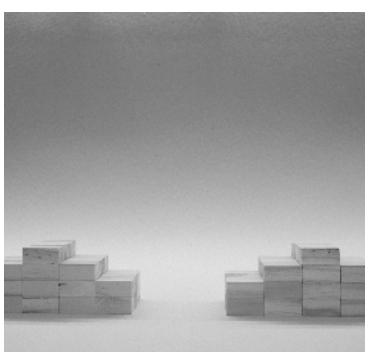
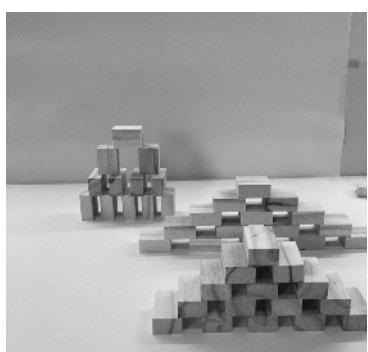
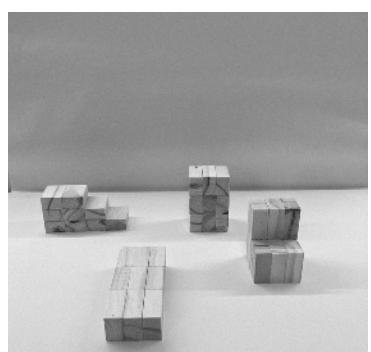
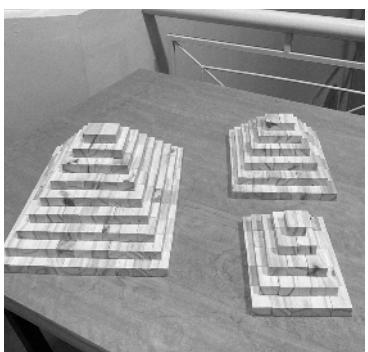
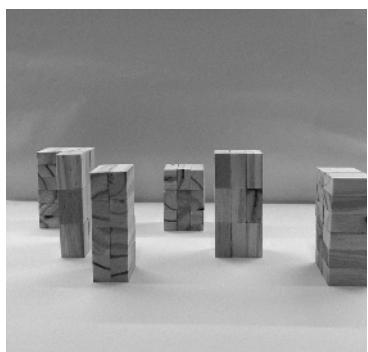
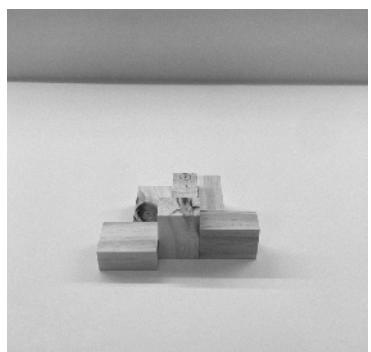
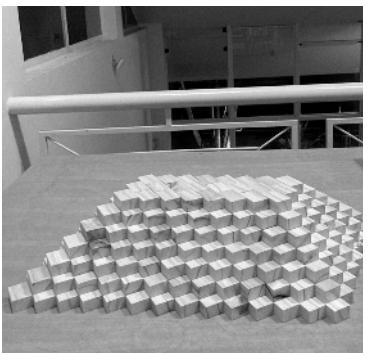
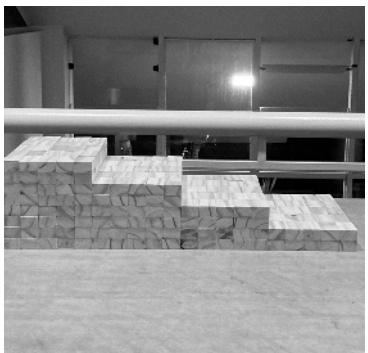
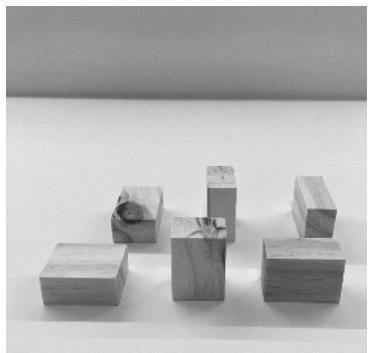
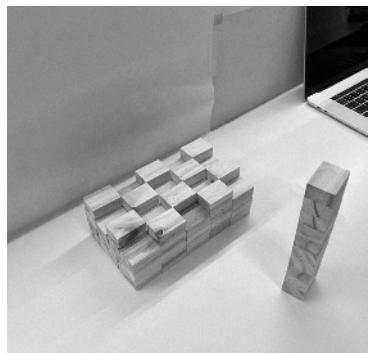
materiais

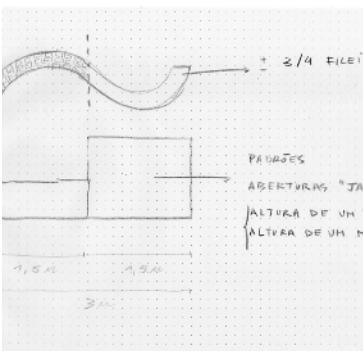
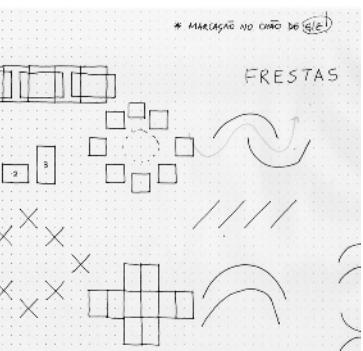
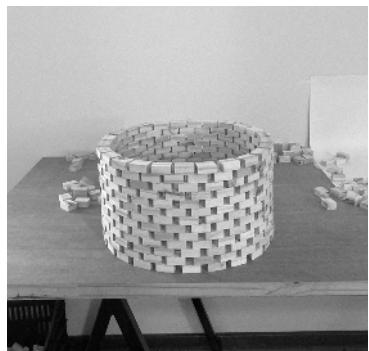
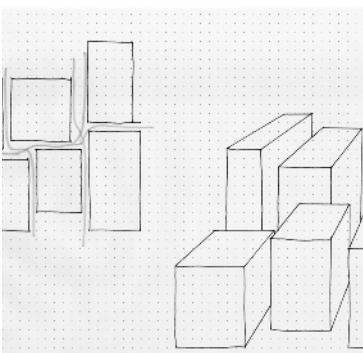
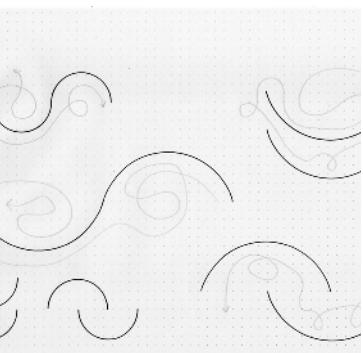
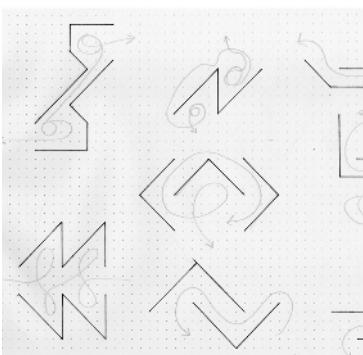
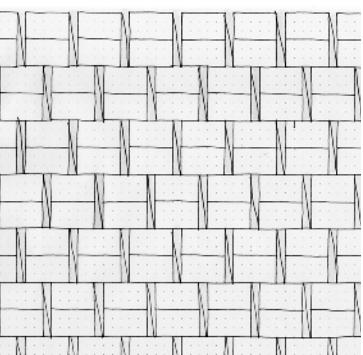
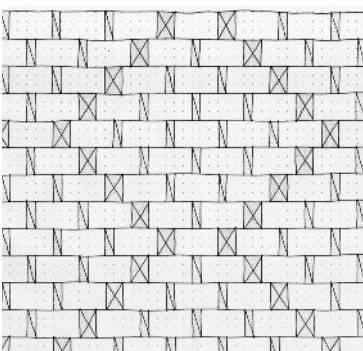
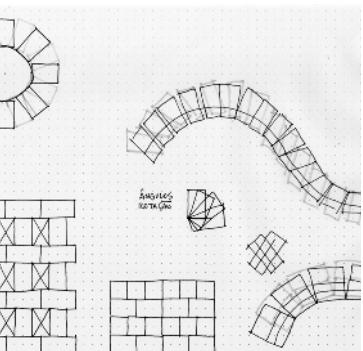
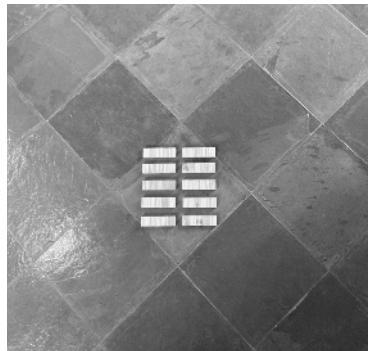


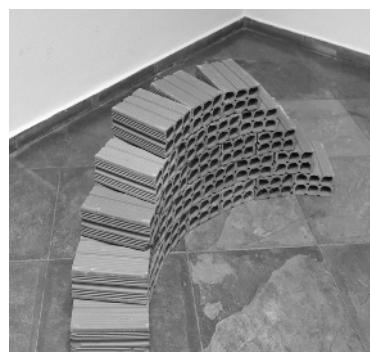
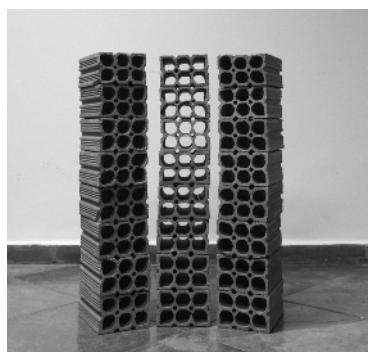
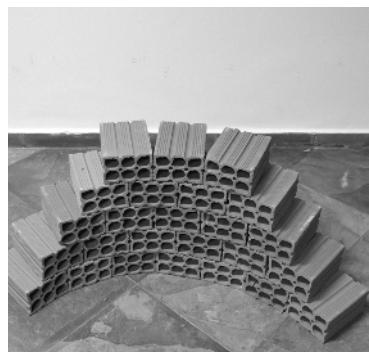
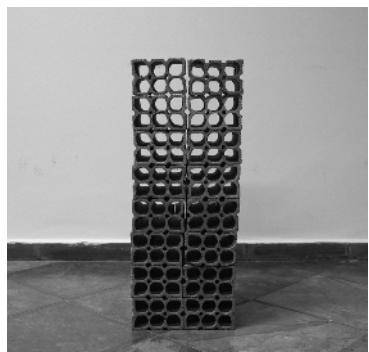
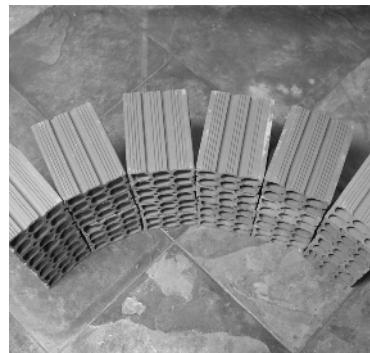
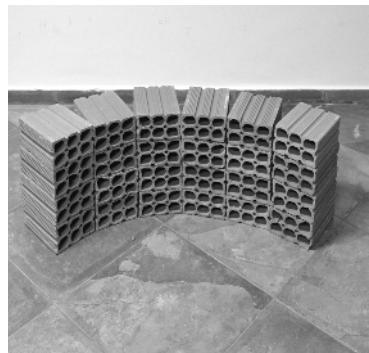
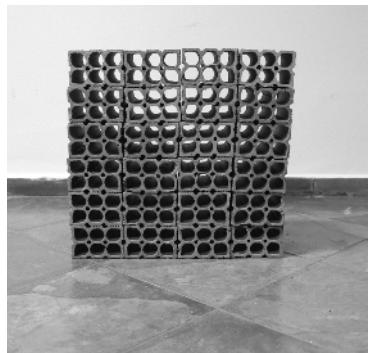
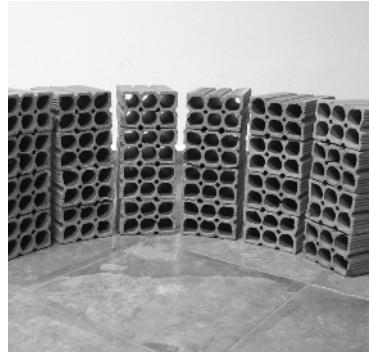
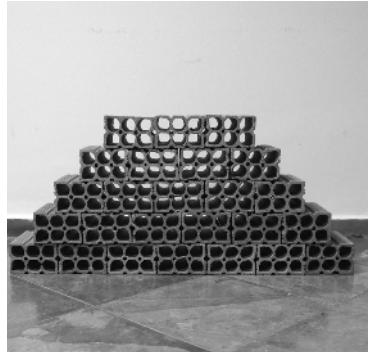
100 tijolos
20x10x15cm



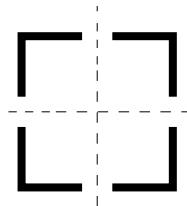
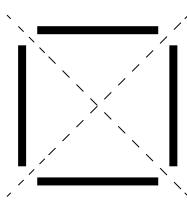
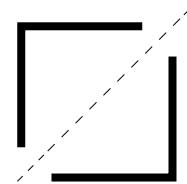
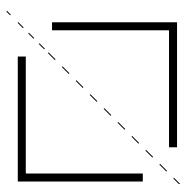
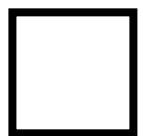
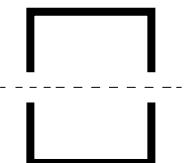
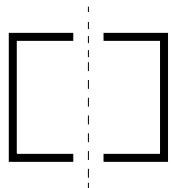
2000 bloquinhos
4x2x3cm





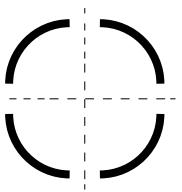
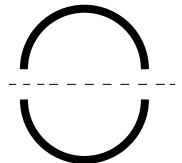
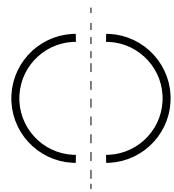
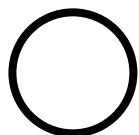


3. Sistema



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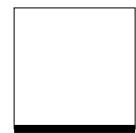
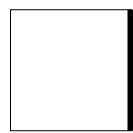
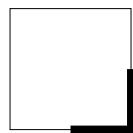
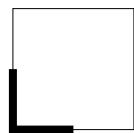
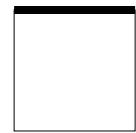
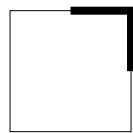
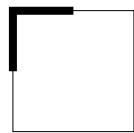
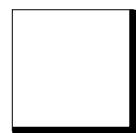
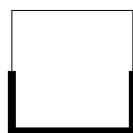
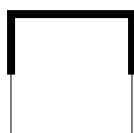
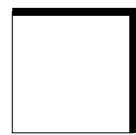
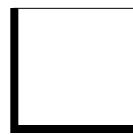
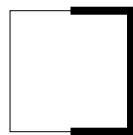
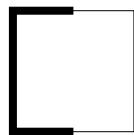
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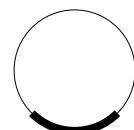
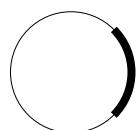
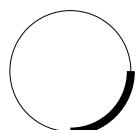
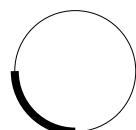
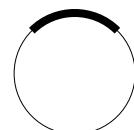
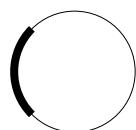
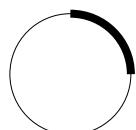
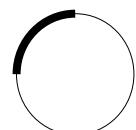
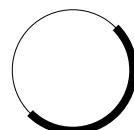
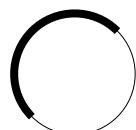
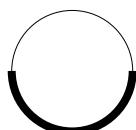
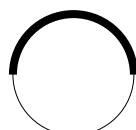
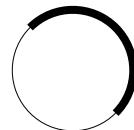
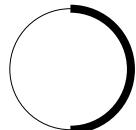
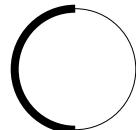


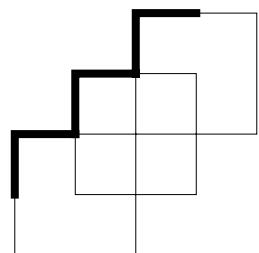
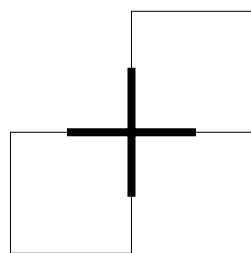
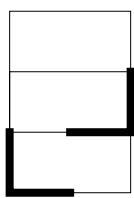
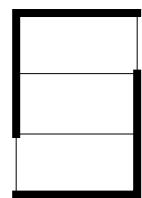
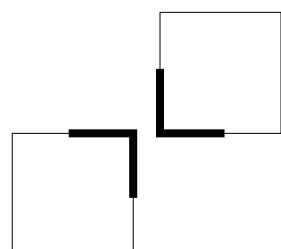
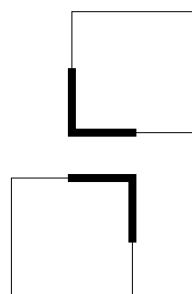
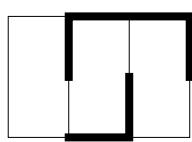
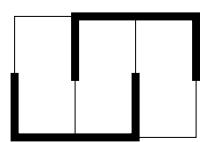
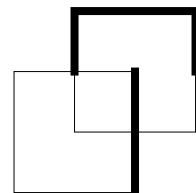
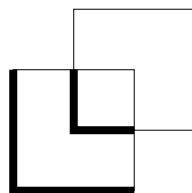
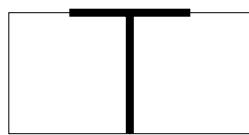
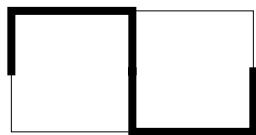


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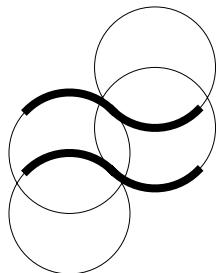
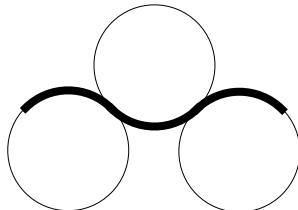
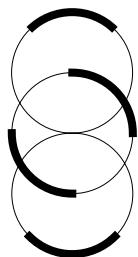
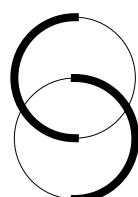
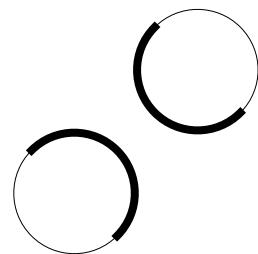
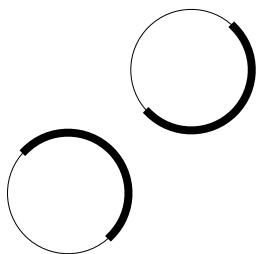
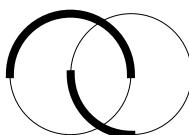
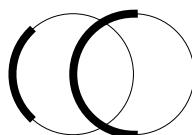
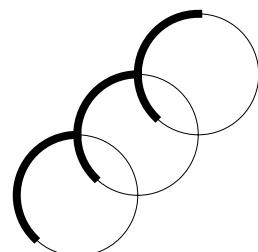
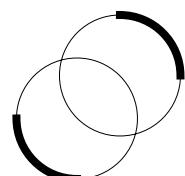
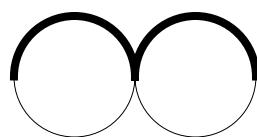
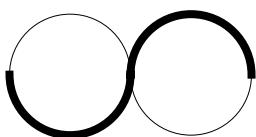
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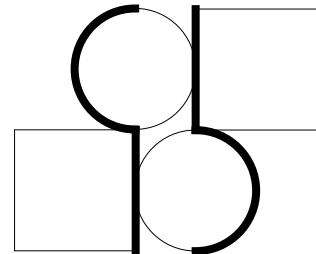
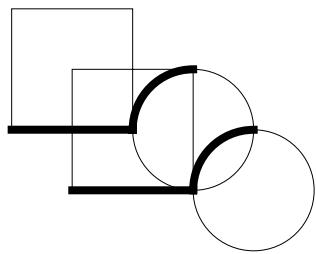
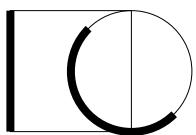
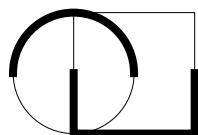
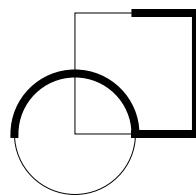
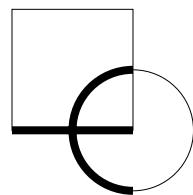
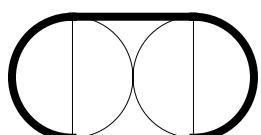
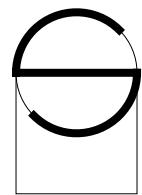
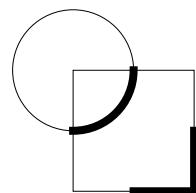
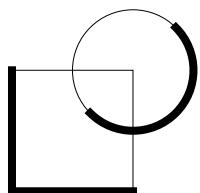
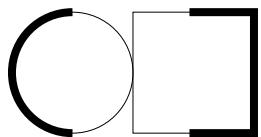
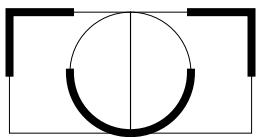
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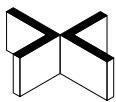
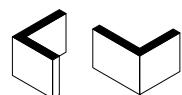
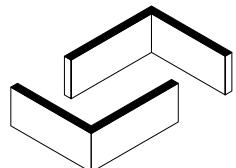
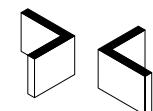
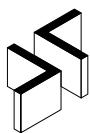
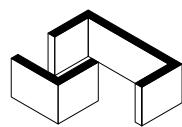
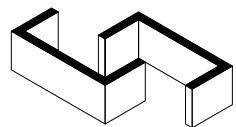
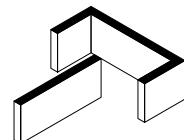
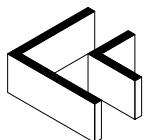
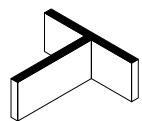
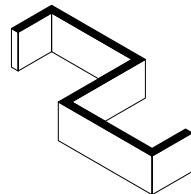


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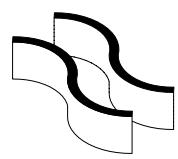
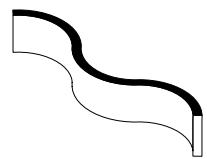
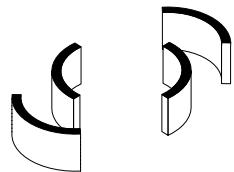
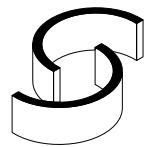
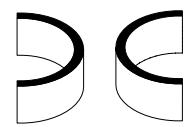
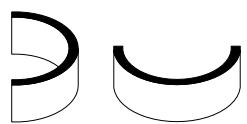
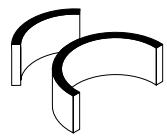
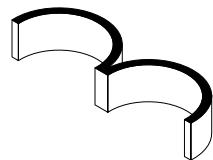
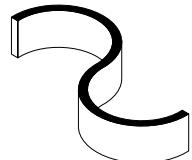


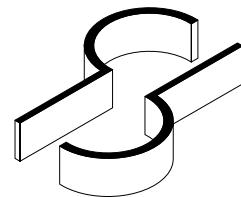
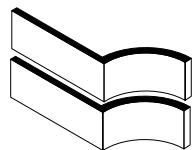
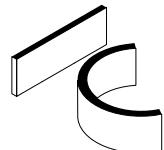
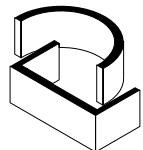
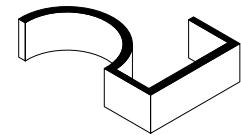
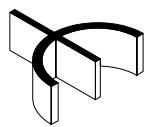
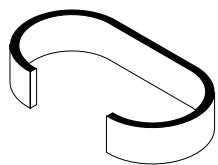
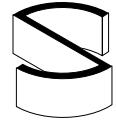
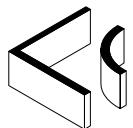
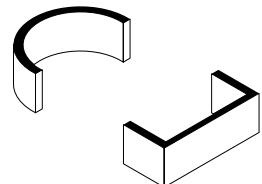
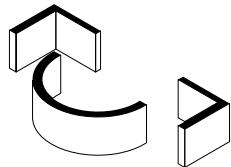
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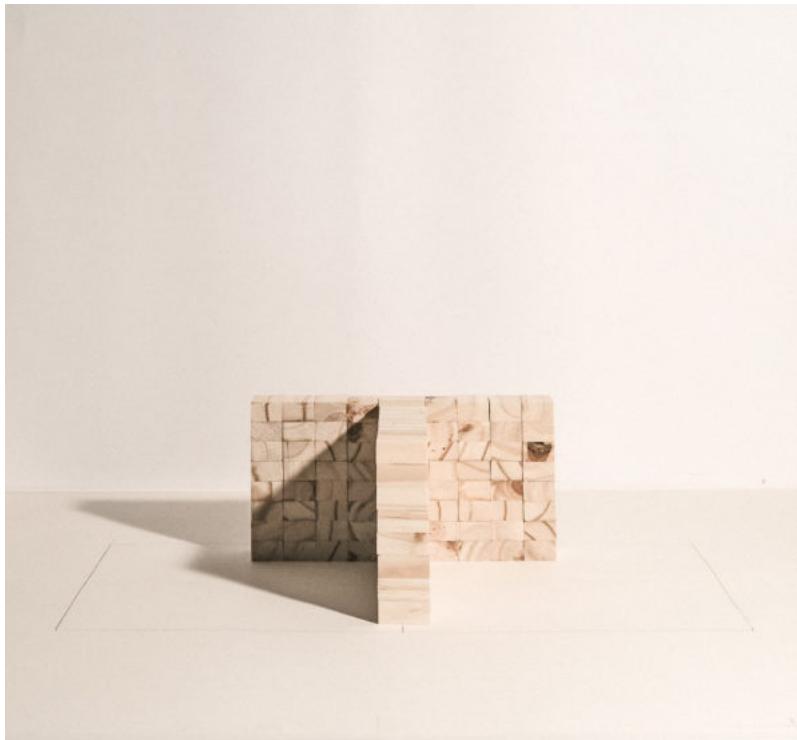
○ + ○ + ↑

○ + ○ × ↑

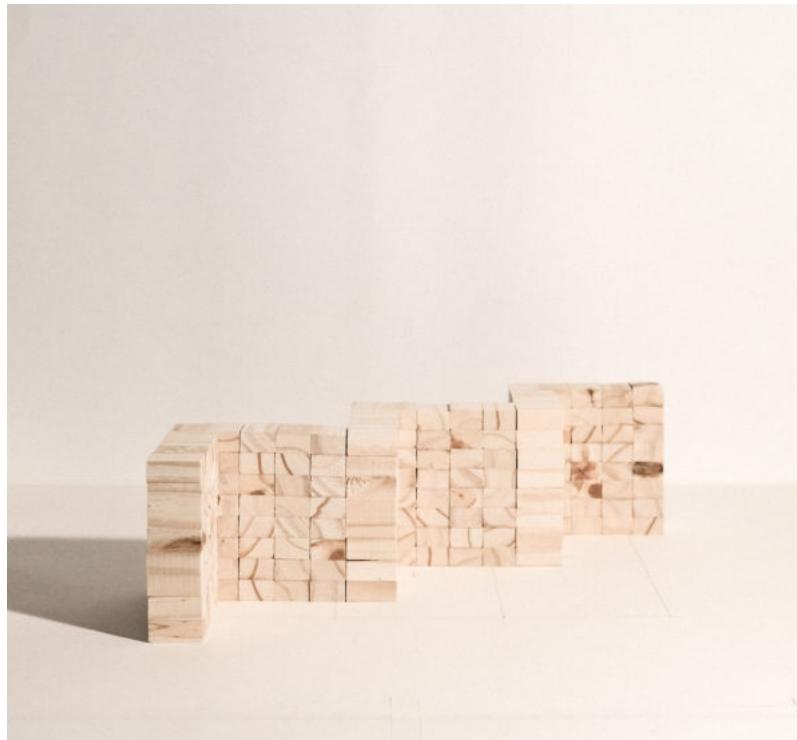
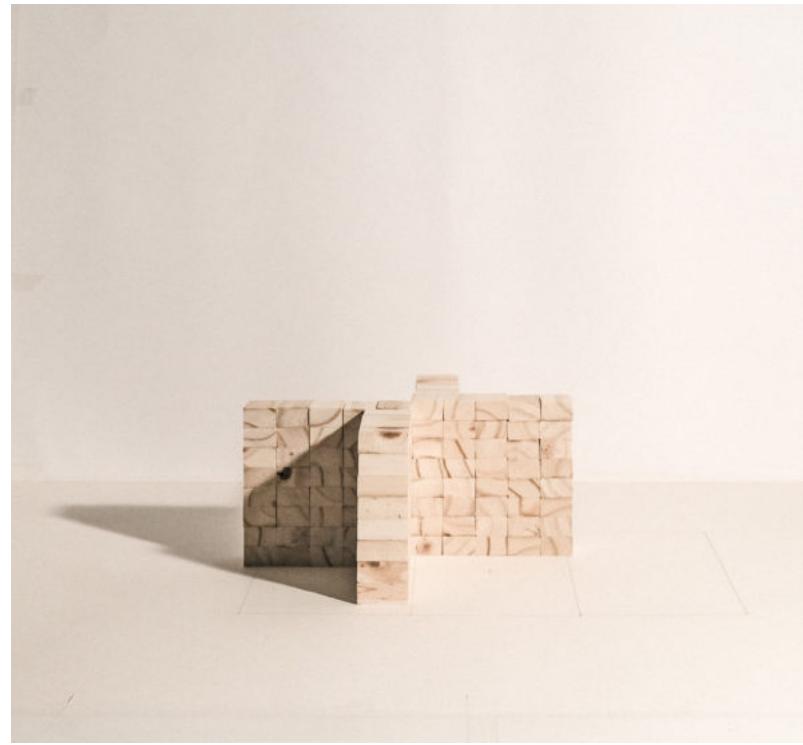
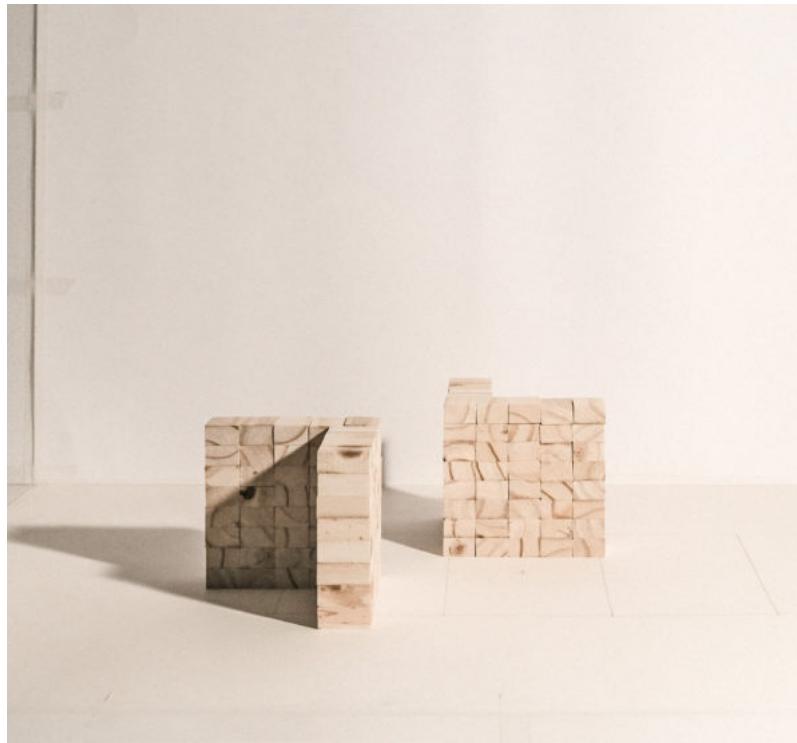


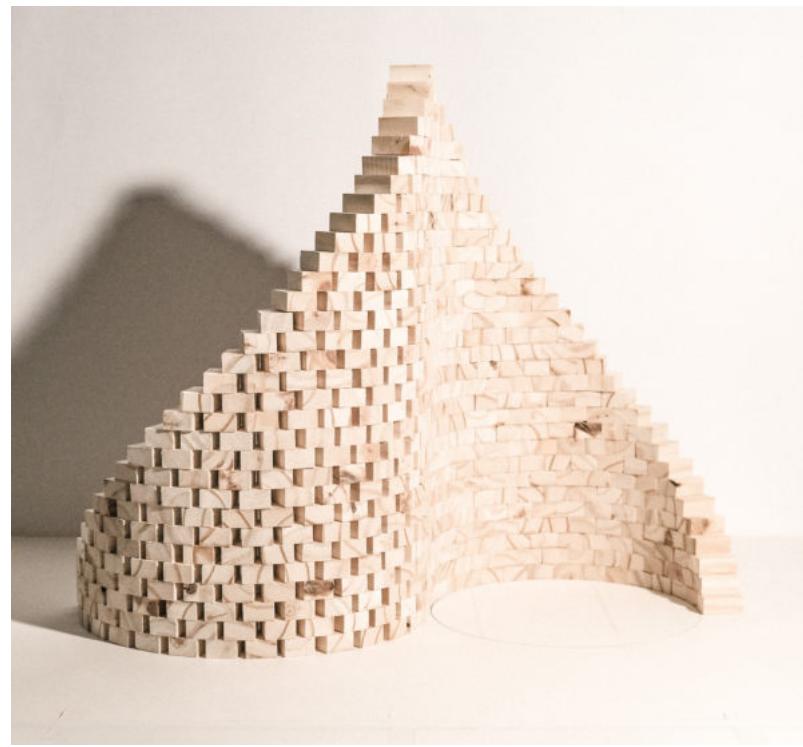


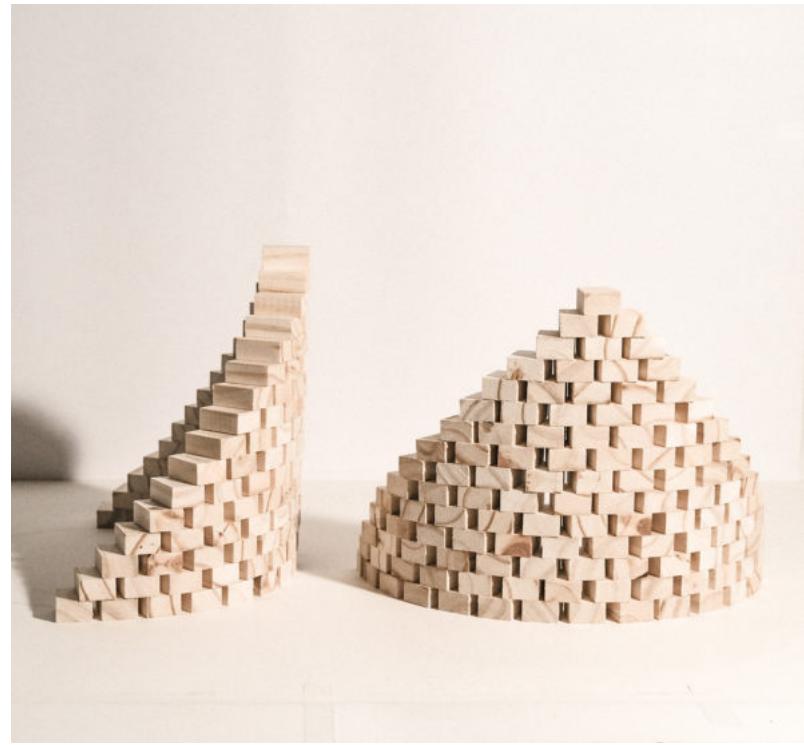
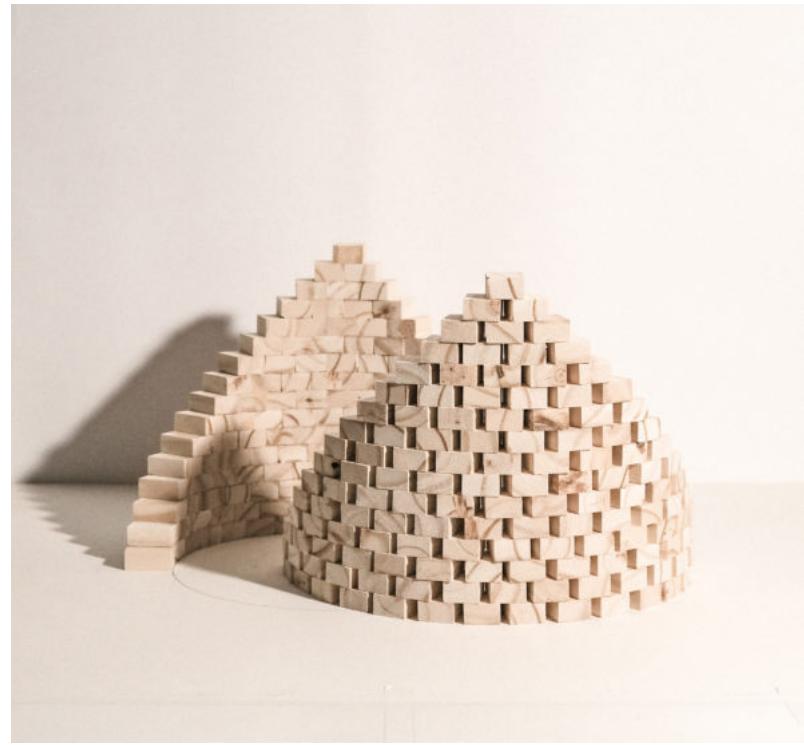
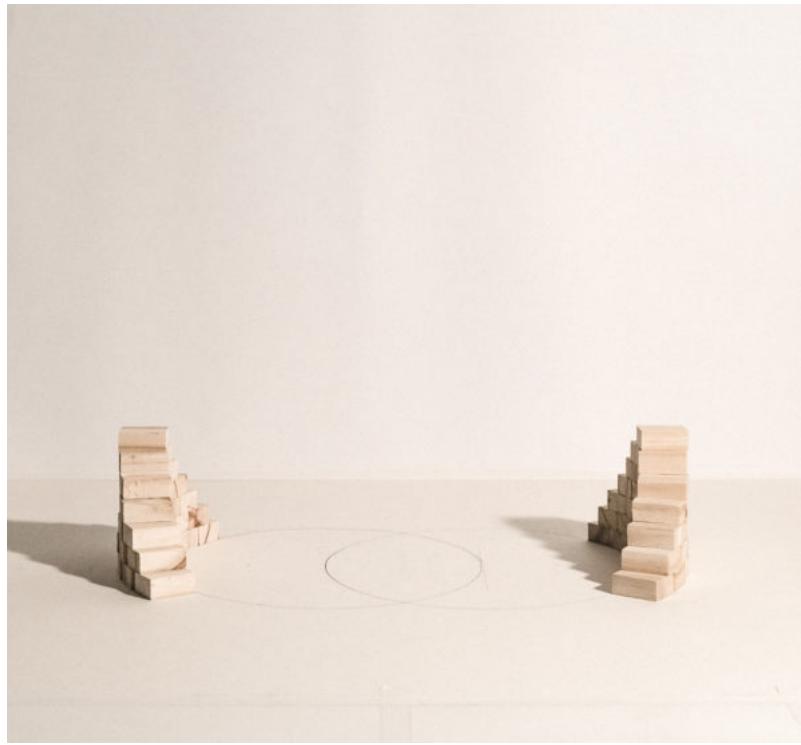
4. maquetes

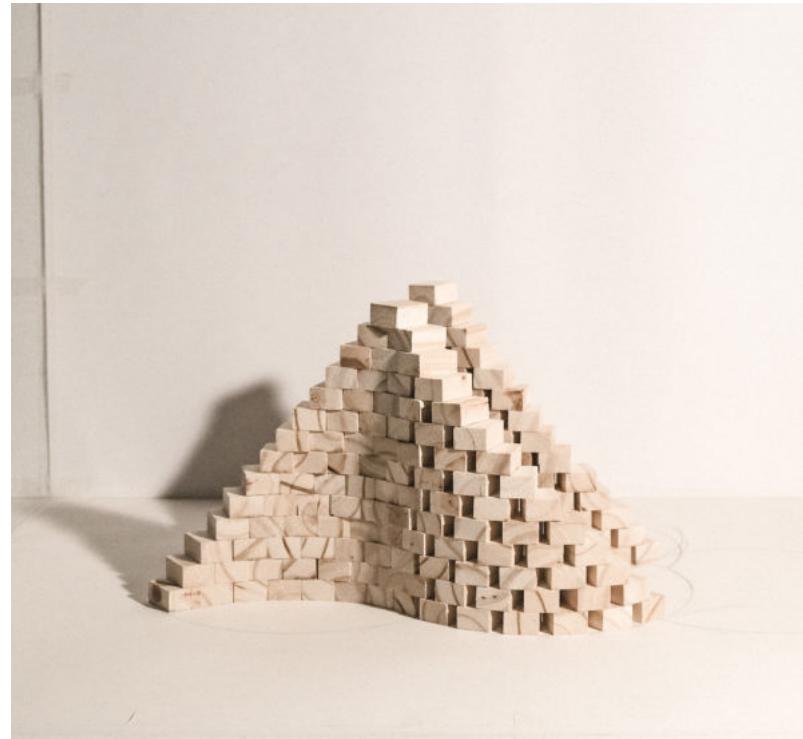
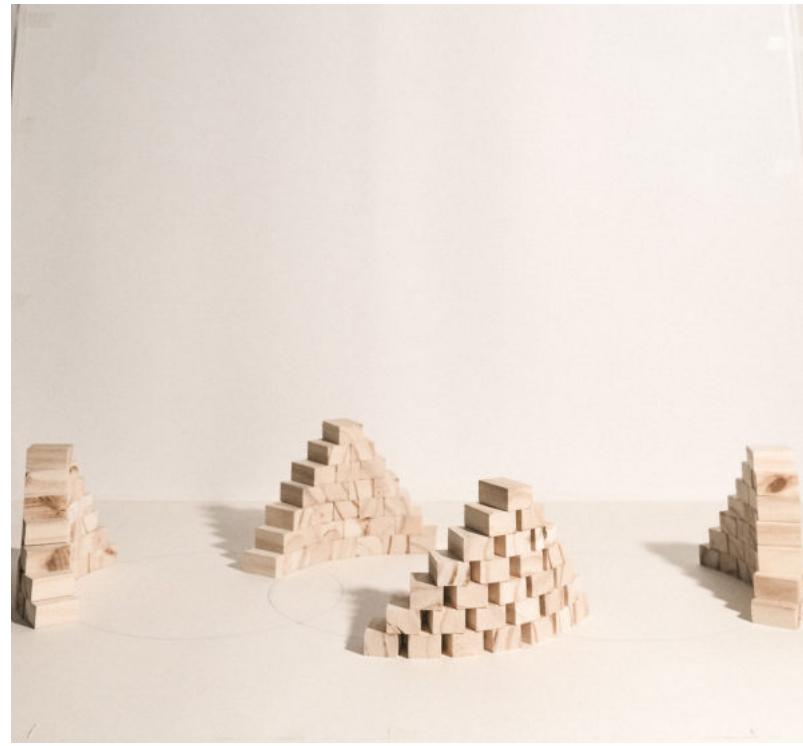
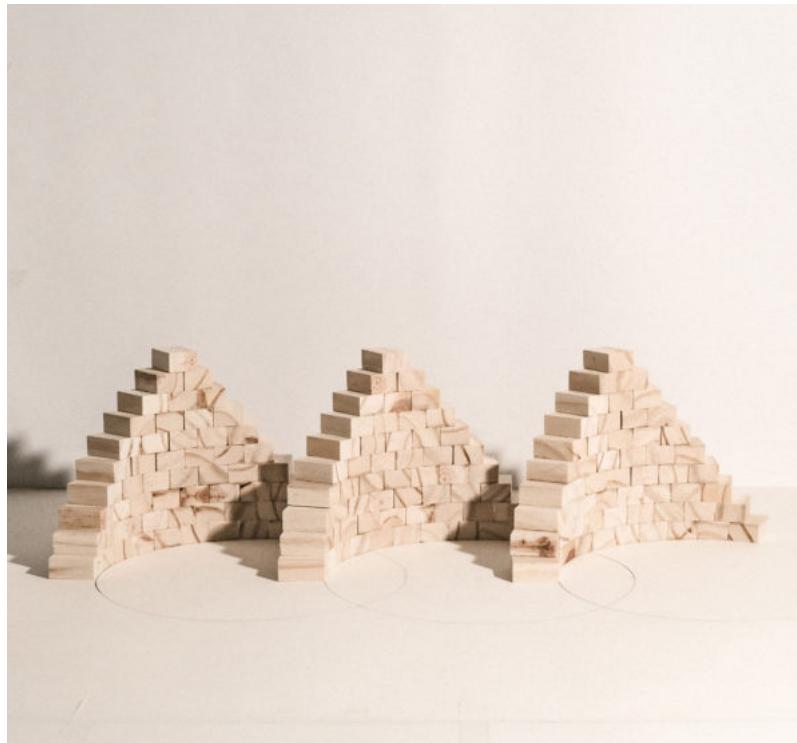




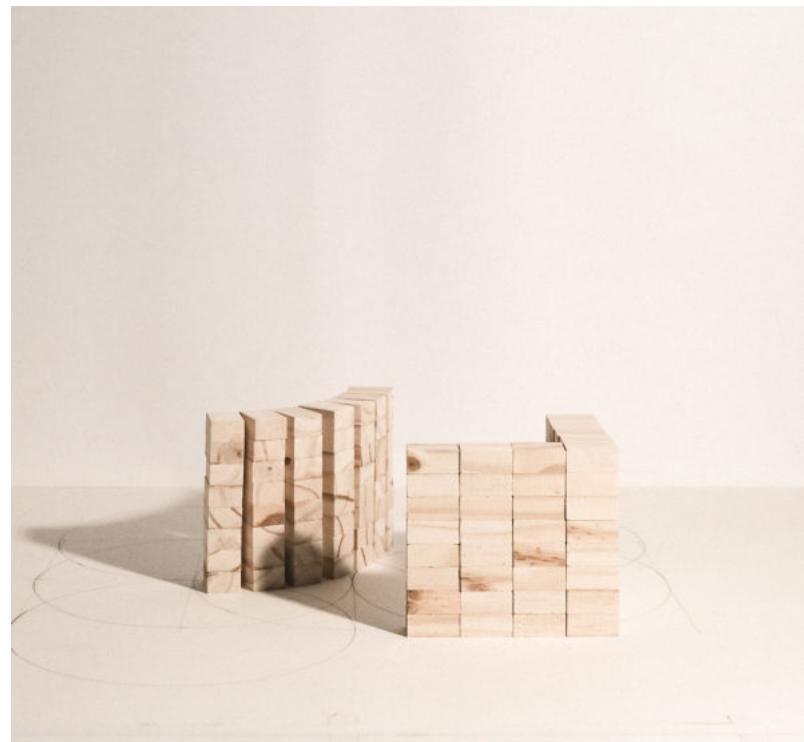
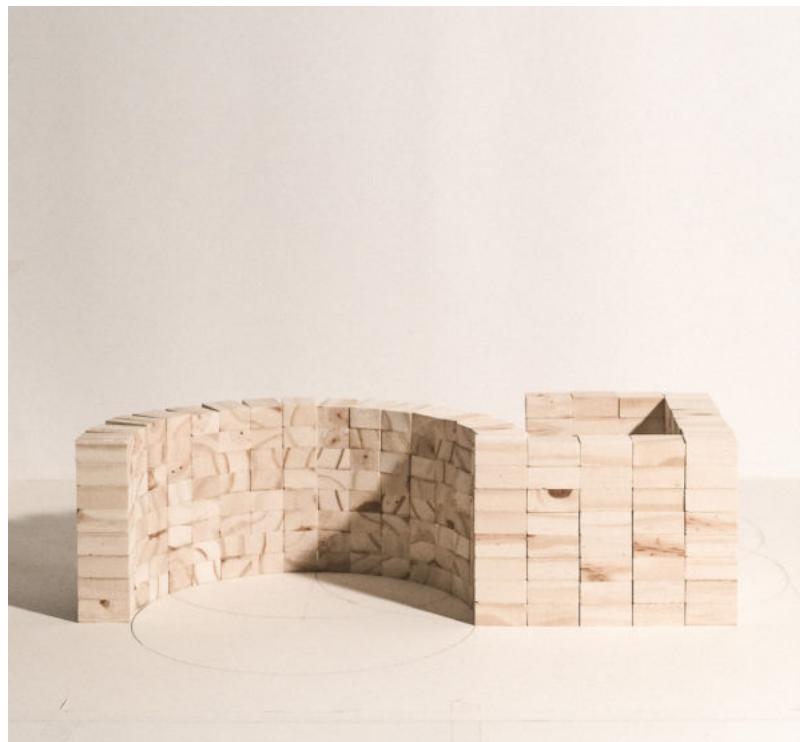


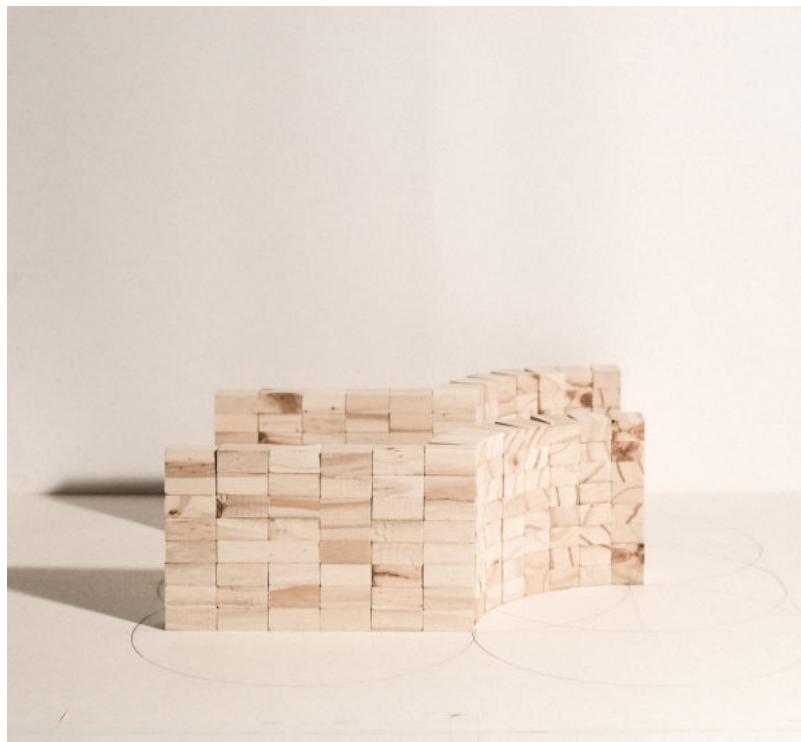






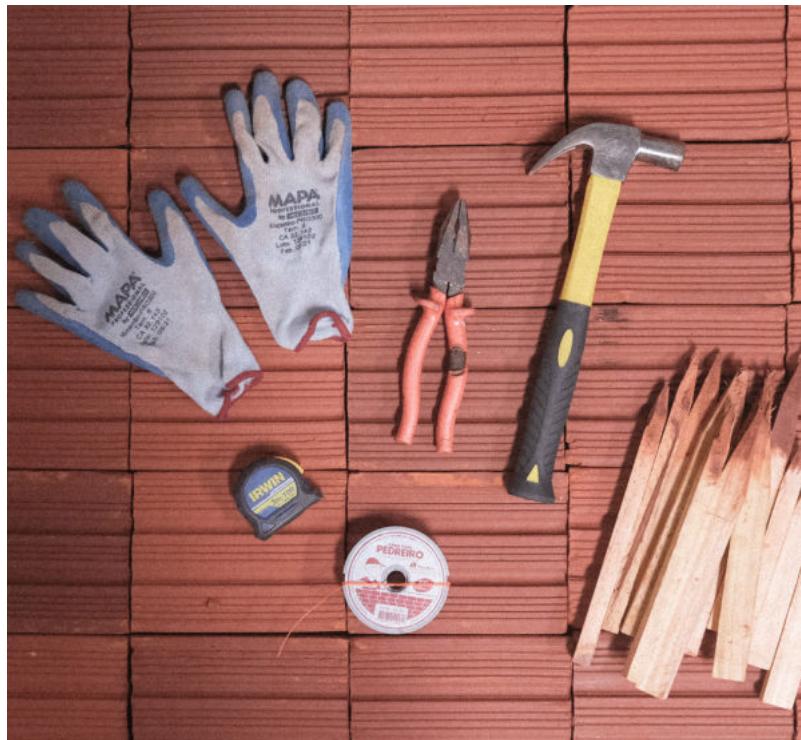






5. intervenções

materiais



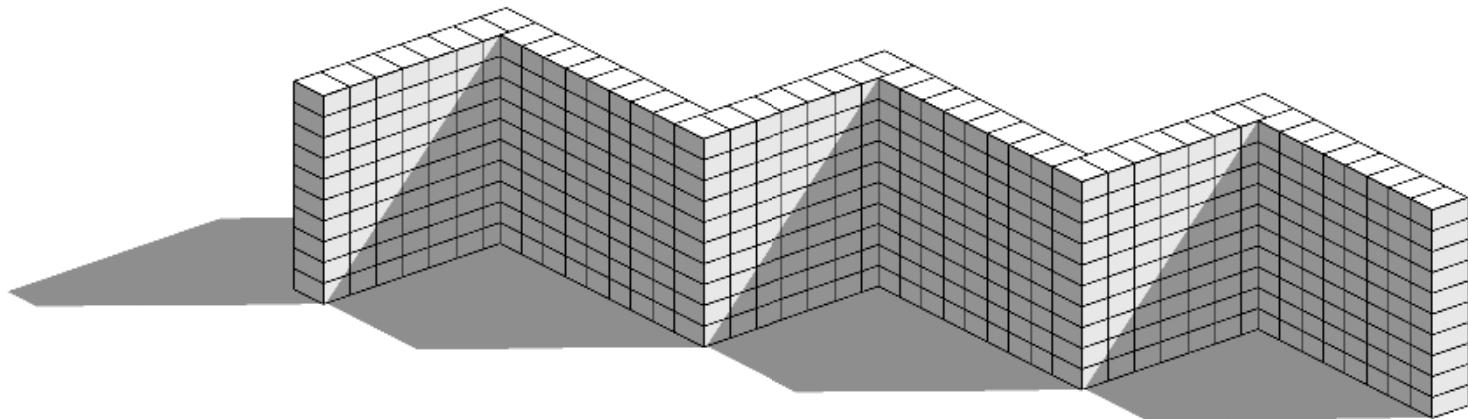
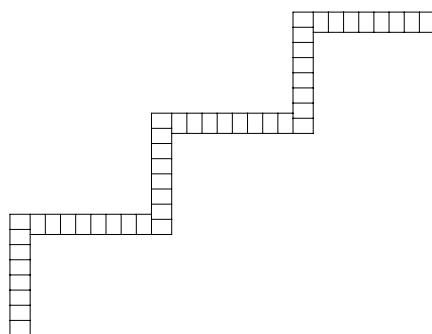
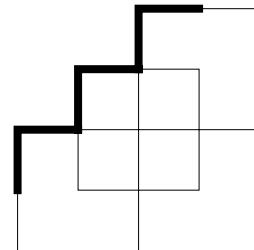
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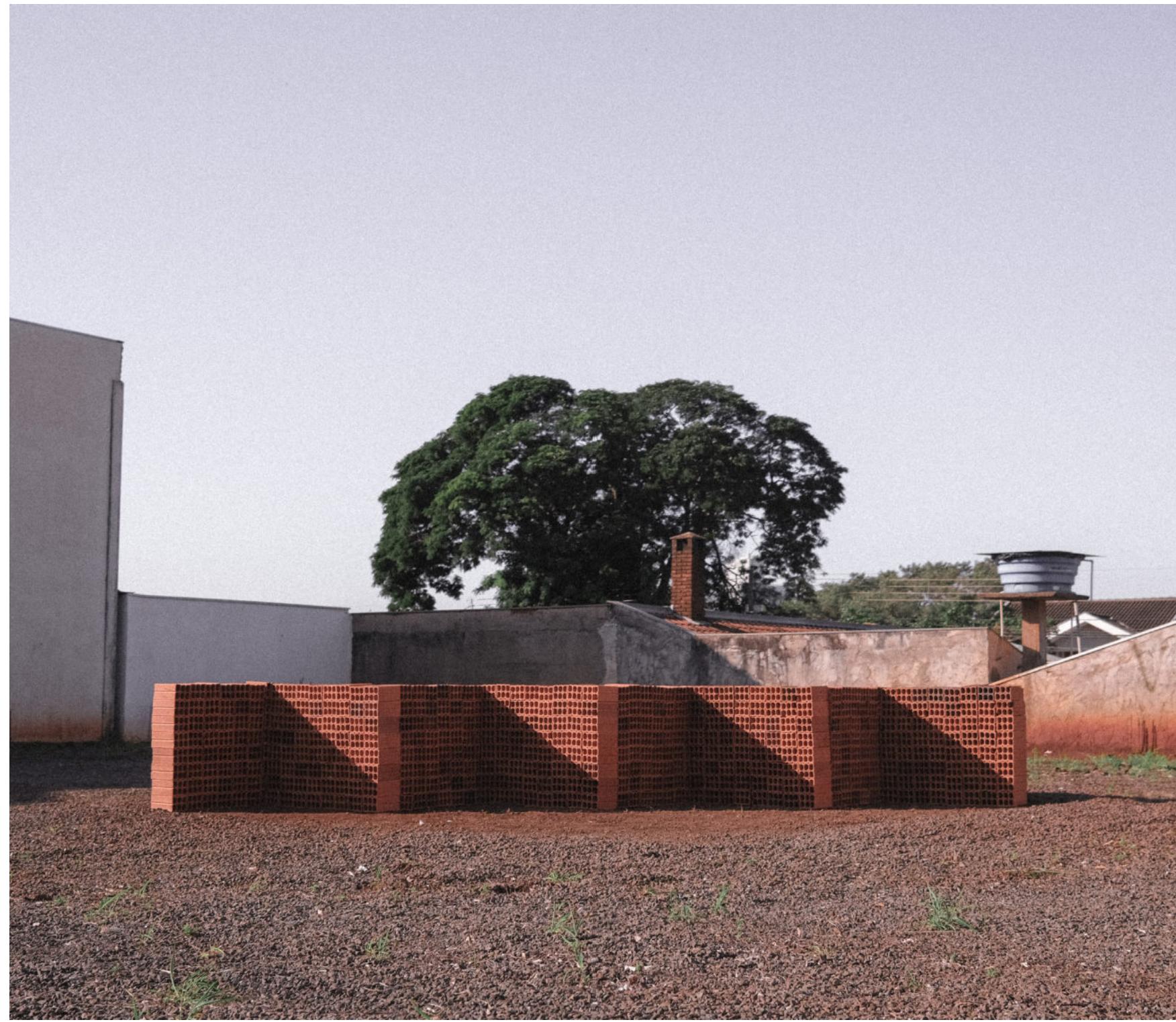


078

intervenção 1

486 tijolos
420 x 320 x 100cm



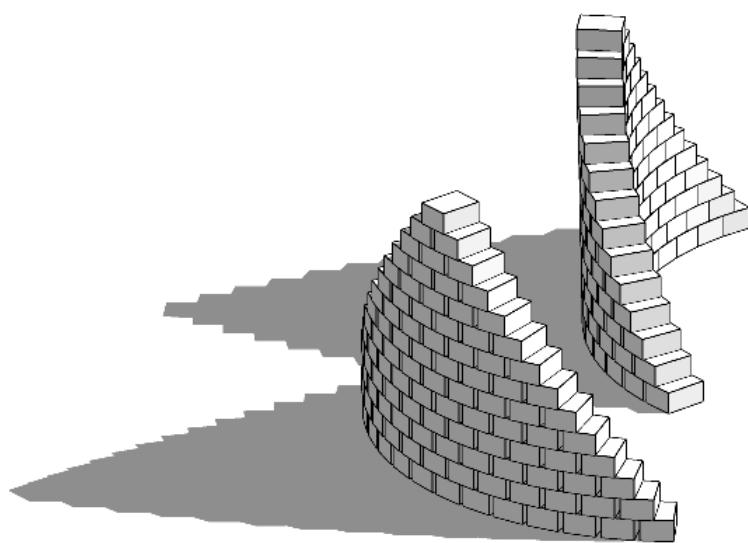
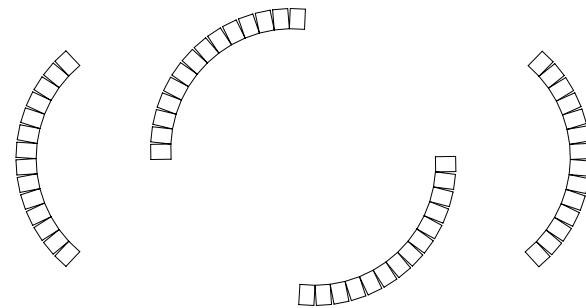
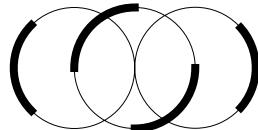




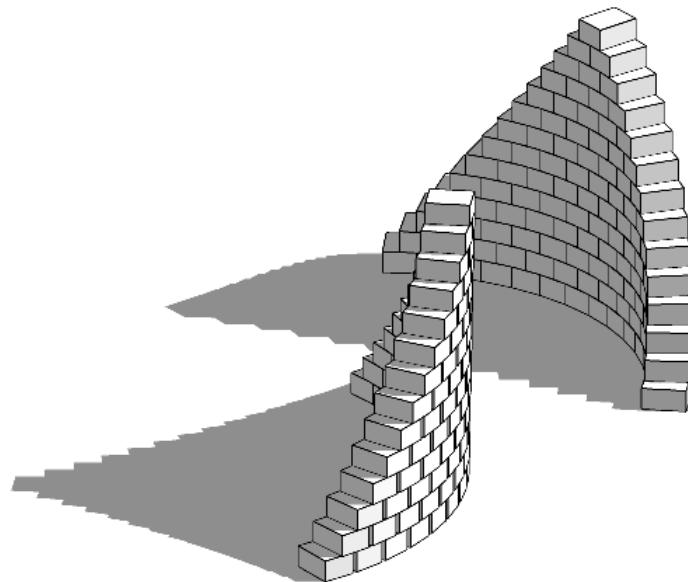


intervenção 2

420 tijolos
570 x 290 x 140cm



087



088

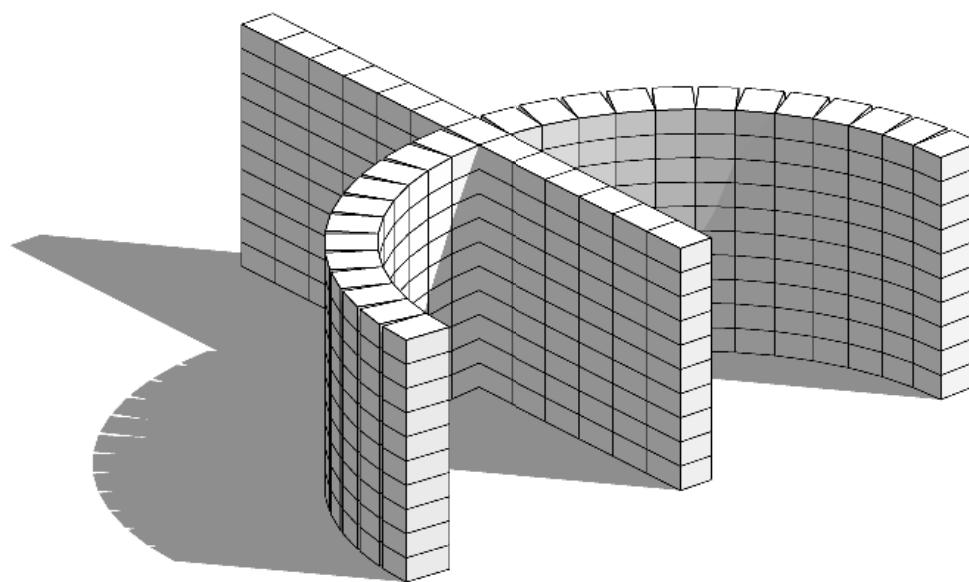
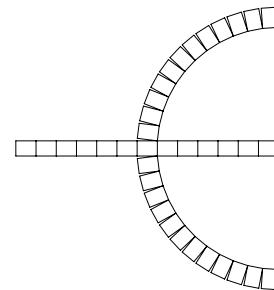
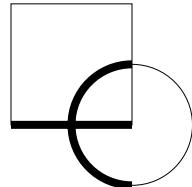






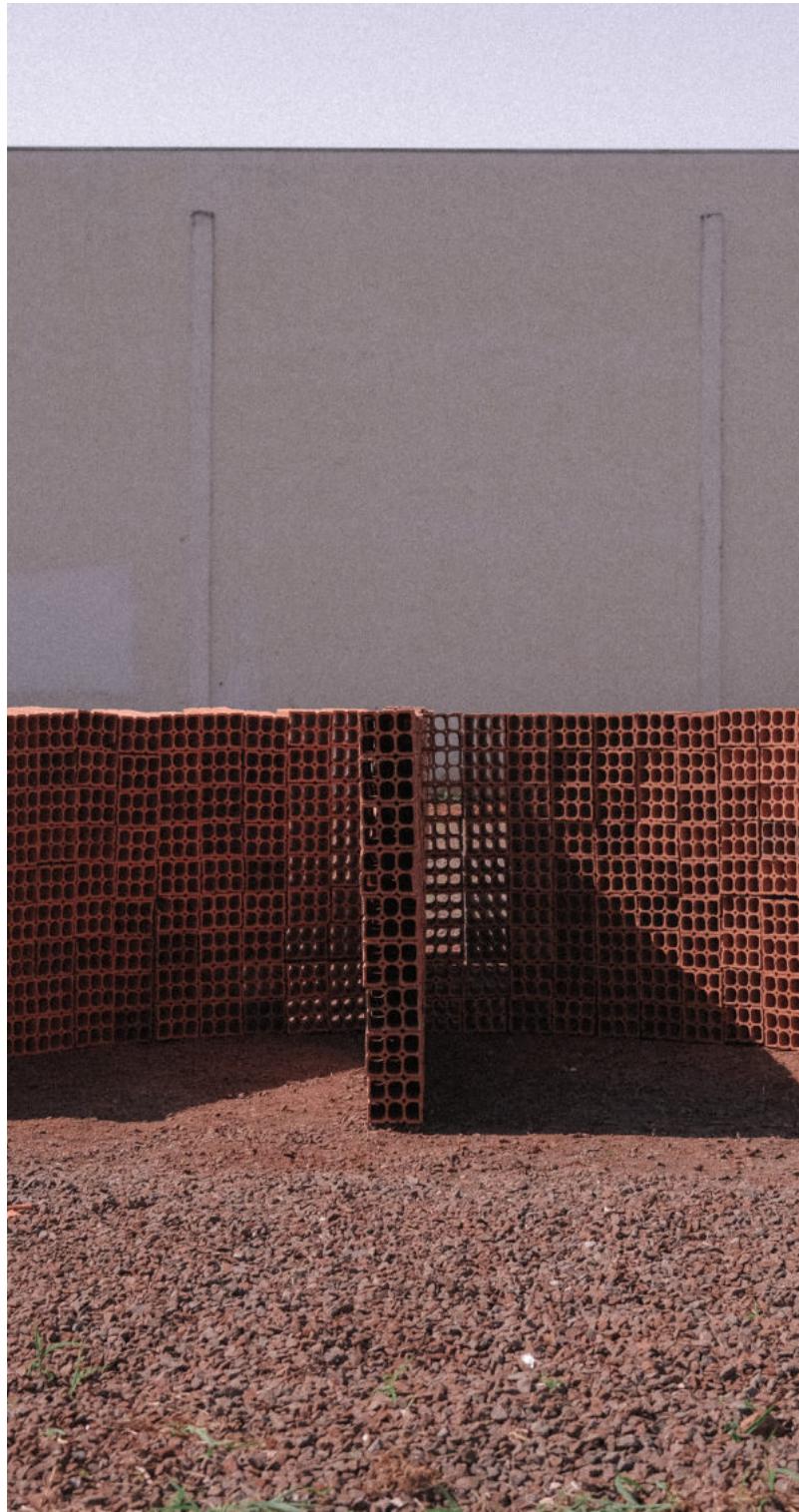
intervenção 3

372 tijolos
280 x 260 x 100cm









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