

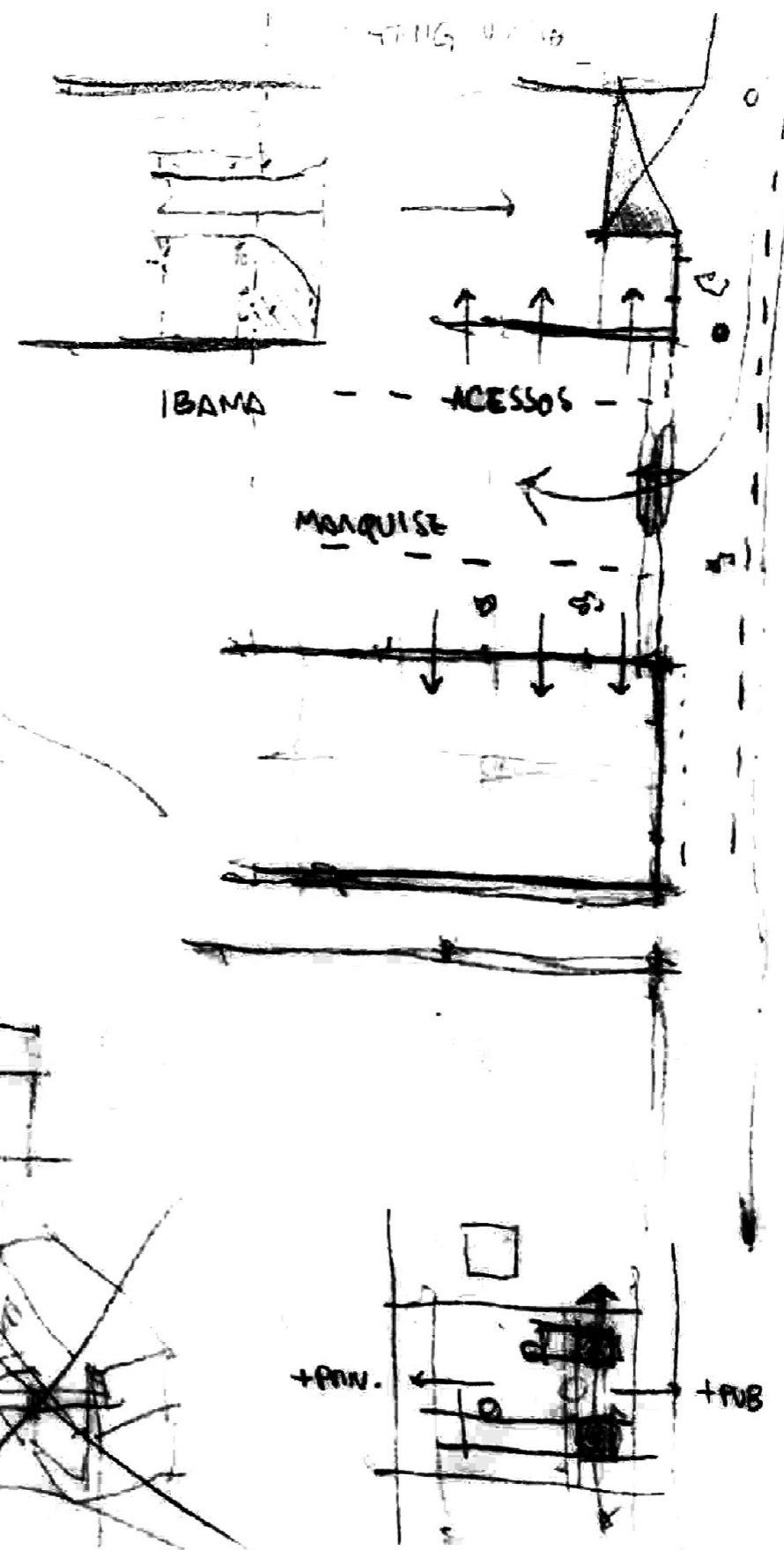
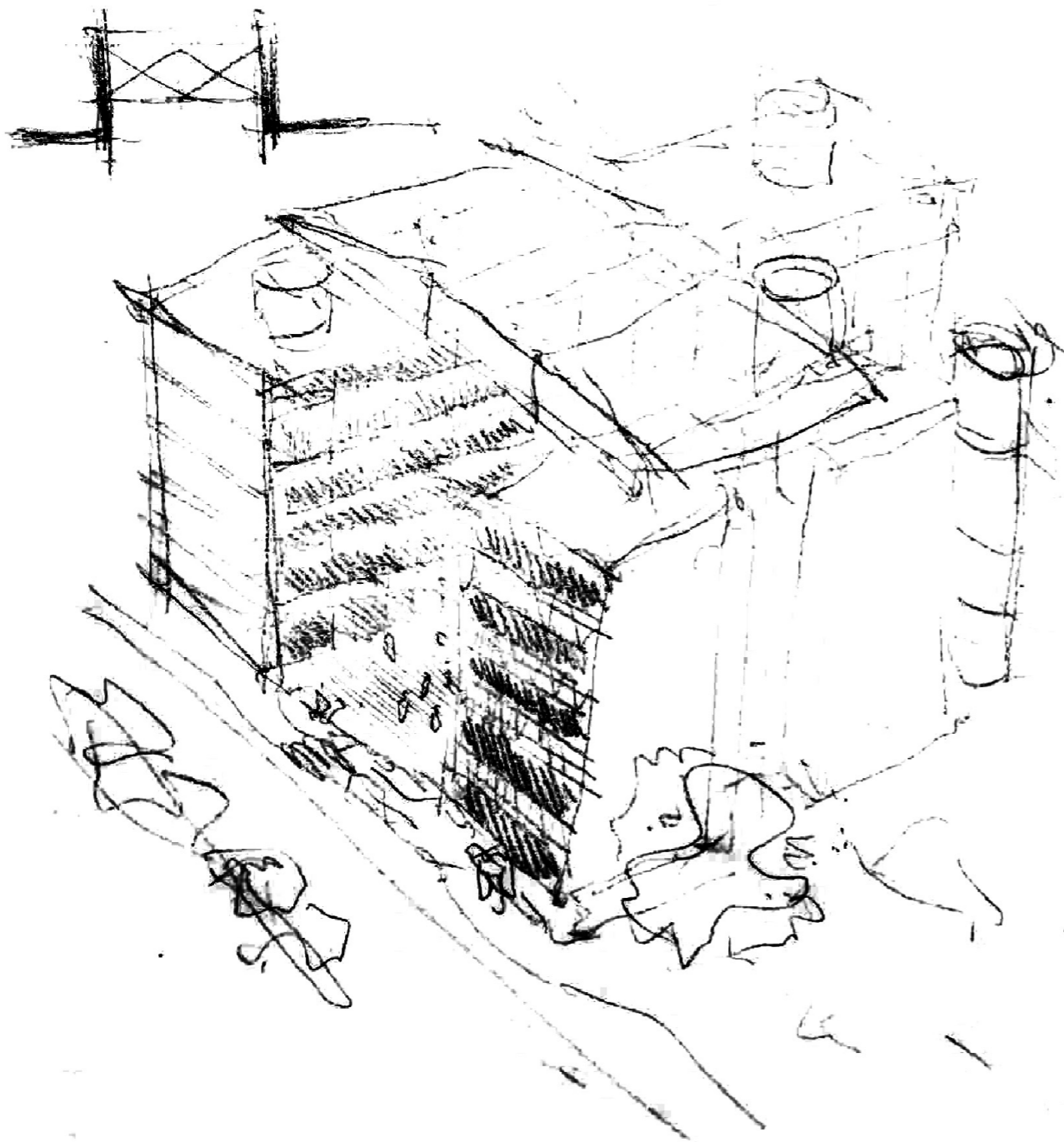
caderno anexo

projetar sobre edifícios:

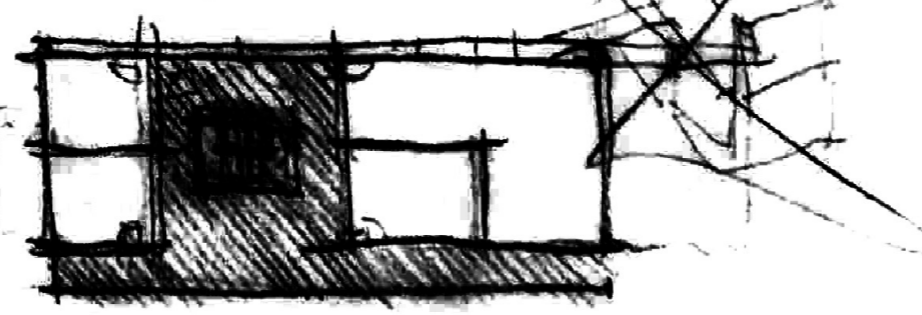
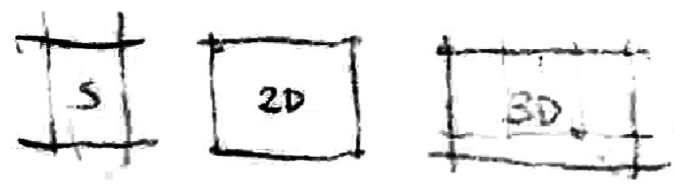
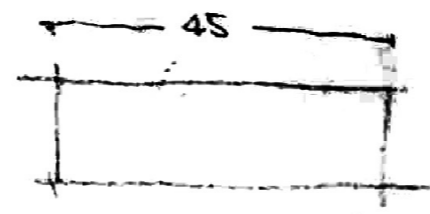
uma proposta de habitação social pré fabricada
na antiga sede do IBAMA

departamento de arquitetura e urbanismo, ufsc
trabalho de conclusão de curso
graduando, arthur santos de andrade
orientador, prof. dr. eduardo westphal

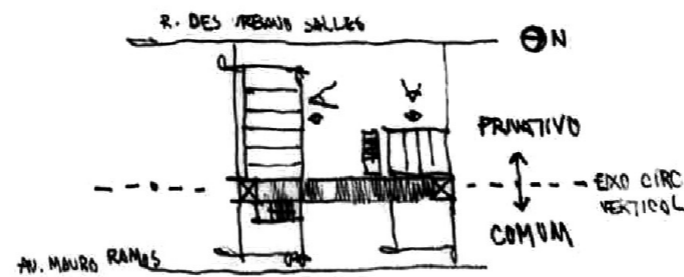
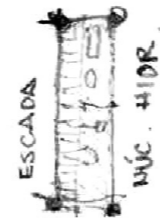
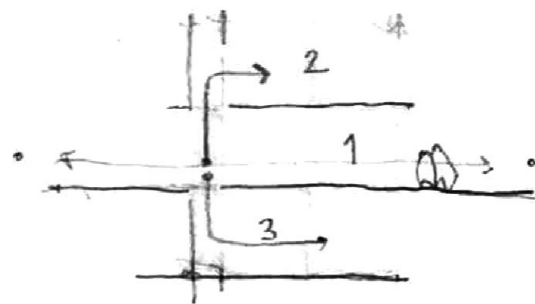
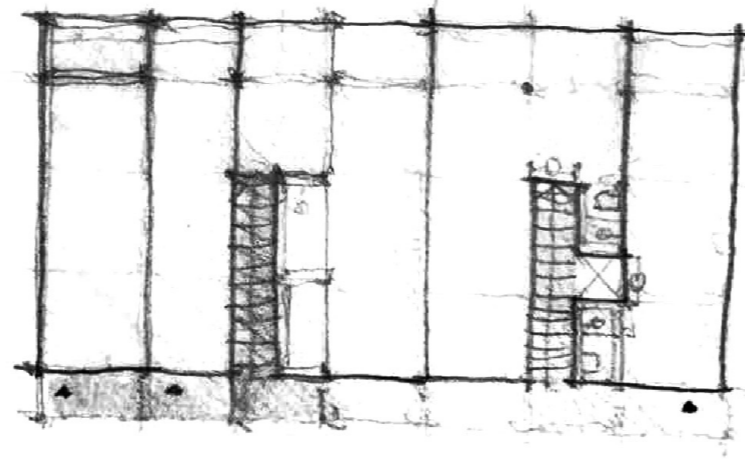
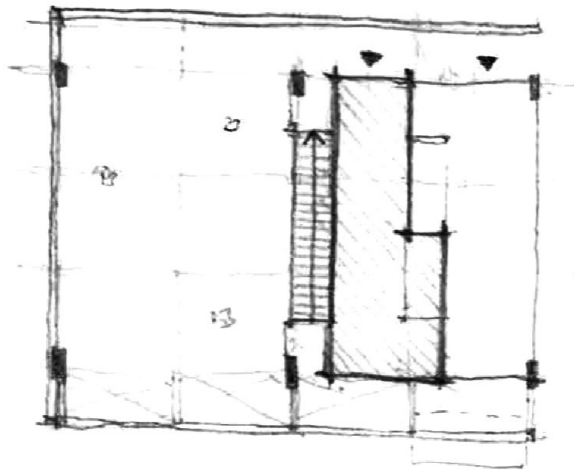
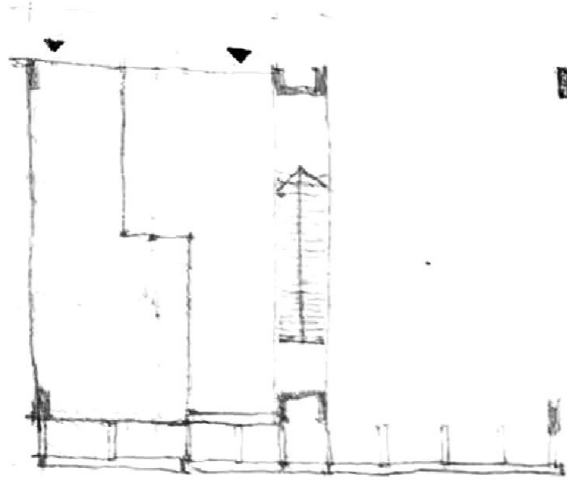
este caderno se trata de uma compilação dos desenhos elaborados no período compreendido entre agosto e dezembro de 2023. os croquis foram organizados em sequência cronológica, no intuito de transparecer o processo projetual. seu formato físico é em papel vegetal tamanho A3. os desenhos foram feitos com nanquim e grafite.



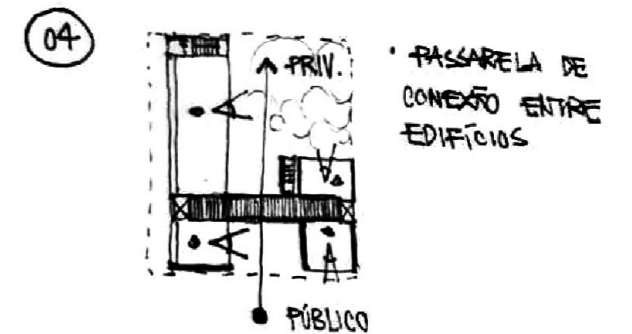
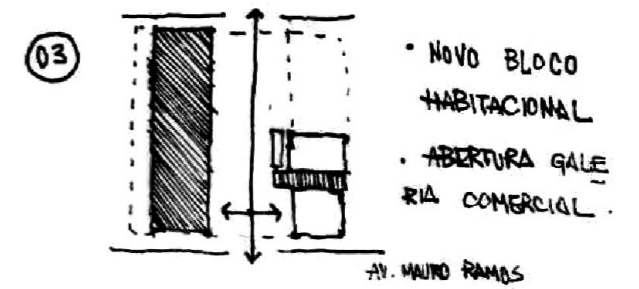
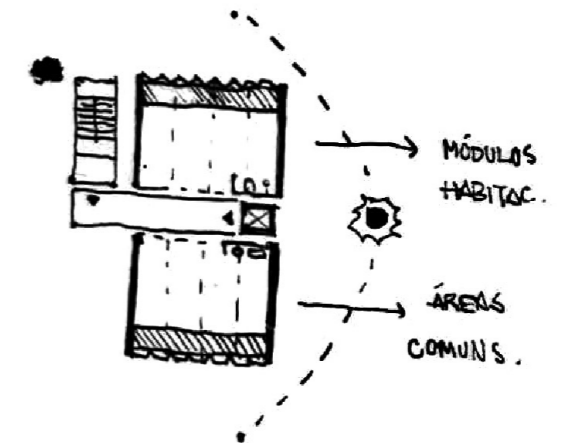
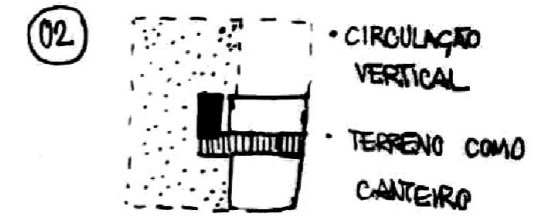
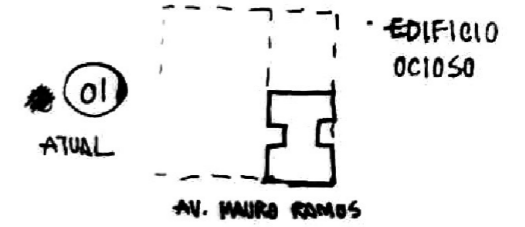
Handwritten notes or labels on the right side of the page, including some illegible scribbles and what appears to be a signature or name at the bottom.



IBAMA COMO COOPERATIVA DE HABITAÇ.

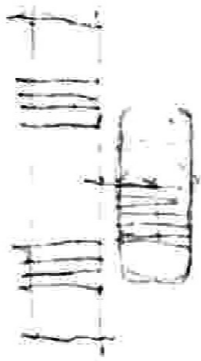
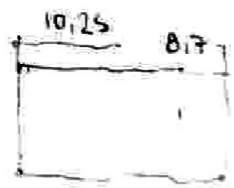


EM ETAPAS

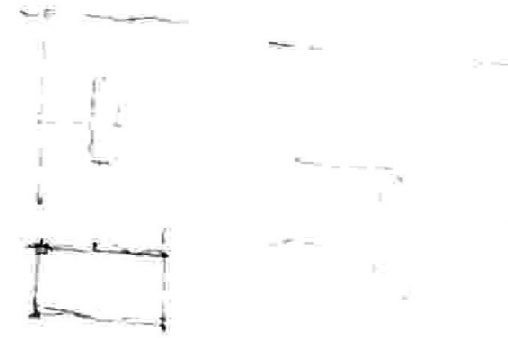


IBAMA

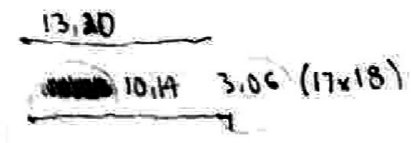
3,0
8,7 3,10
4,6 4,10
1,0 3,60



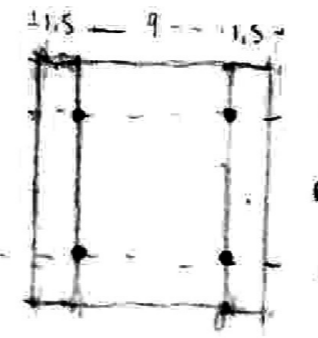
TODAS AS UNIDADES COM VENTILAÇÃO CRUZADA?



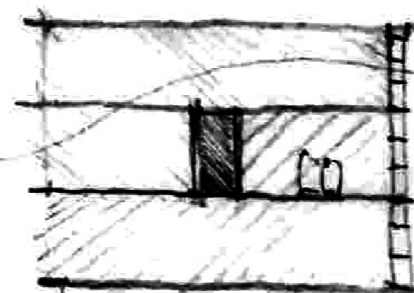
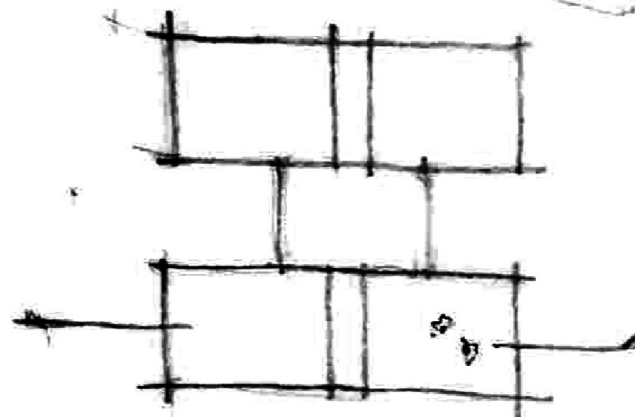
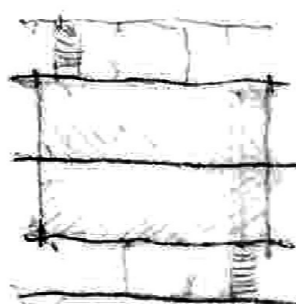
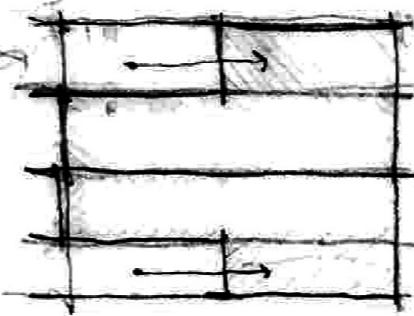
11,8
8,7 3,10



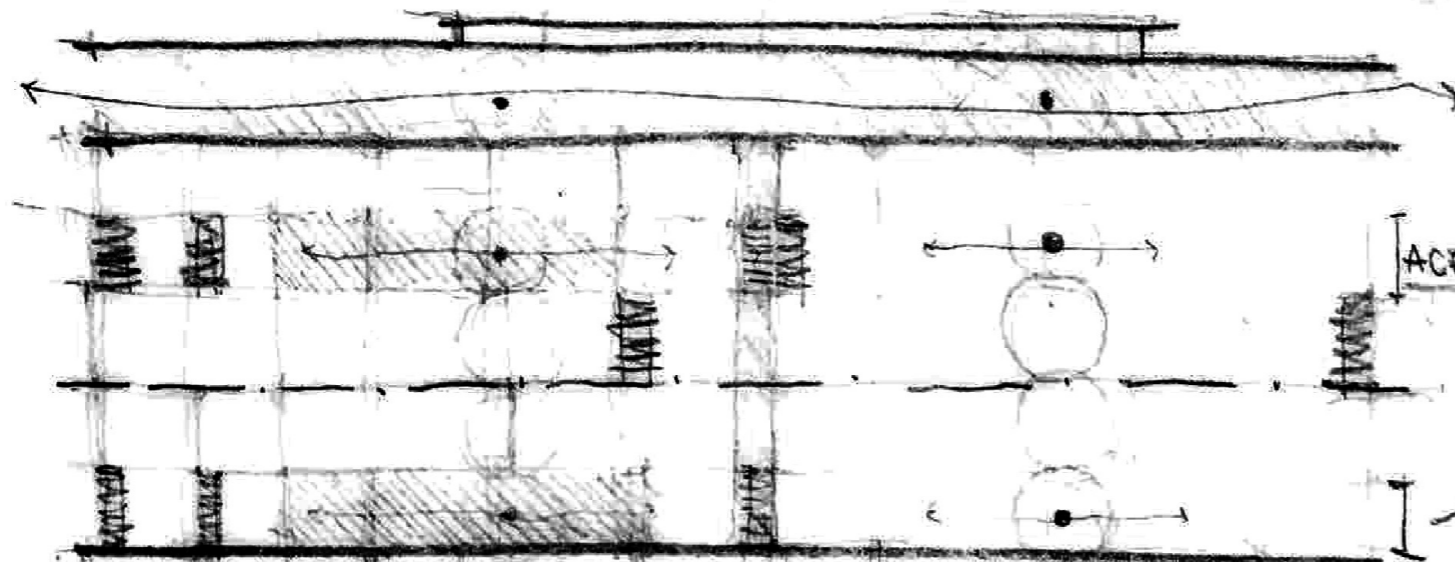
8x18 = 144



6

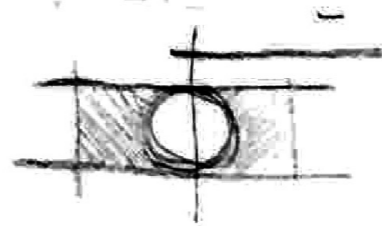


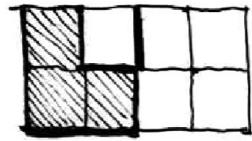
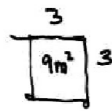
MARSELMA



ACESSOS + UNID PCD

ELEVADOR

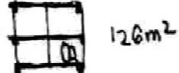




31.5m²



63m²



126m²

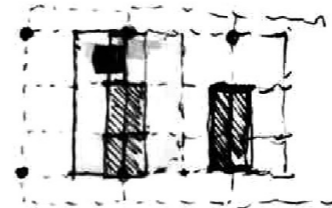


63m²



94m²

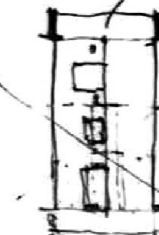
+



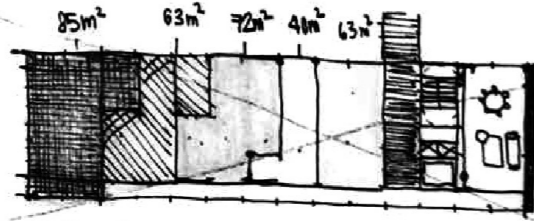
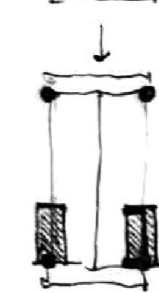
COOPERATIVA DE HABITAÇÃO



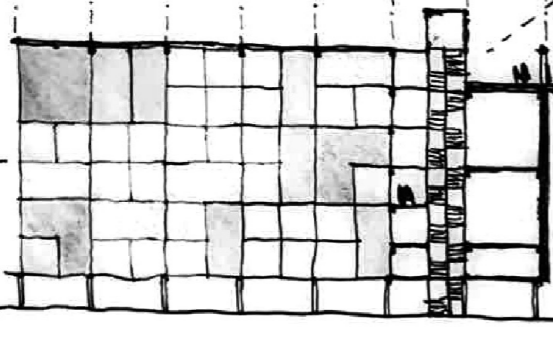
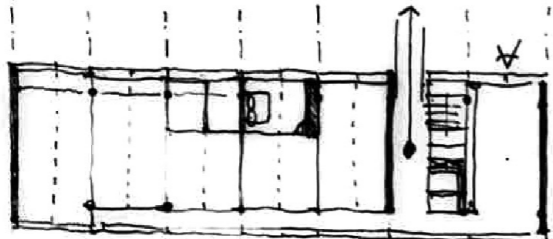
→ PAREDE "LIVRE"



→ 2 UNIDADES
FORA DO VIRAR 1

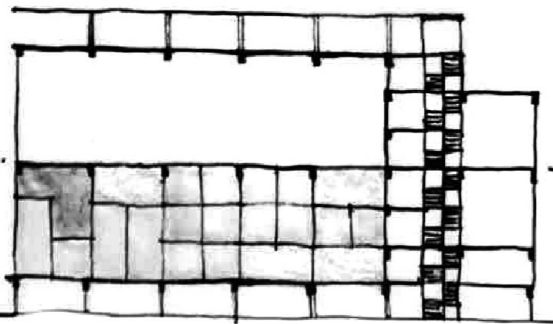


5x6 = 30 UNID.

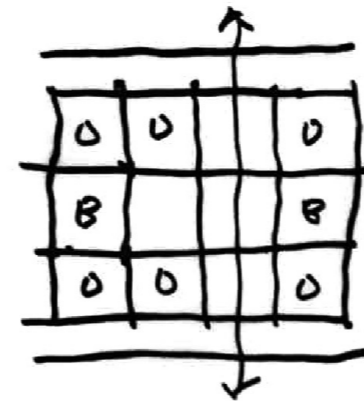
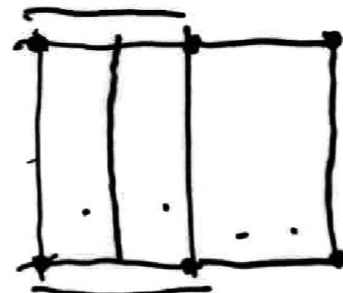
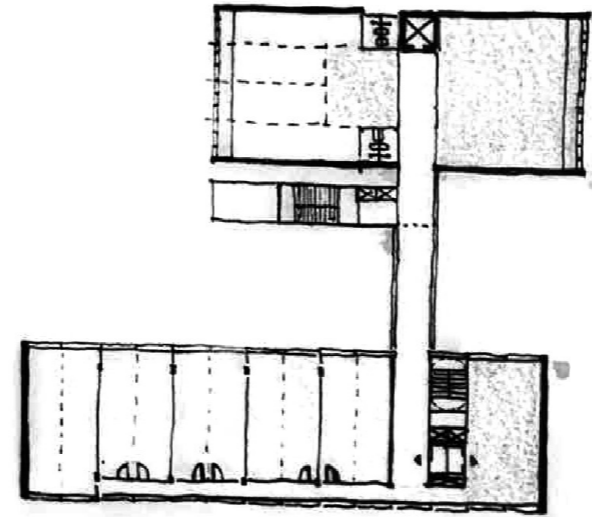
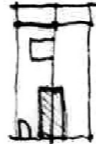


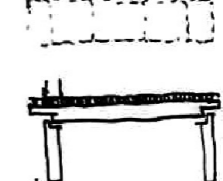
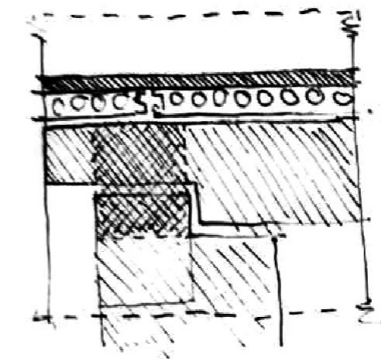
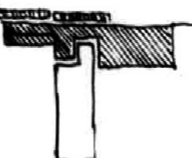
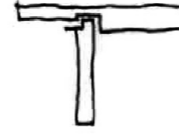
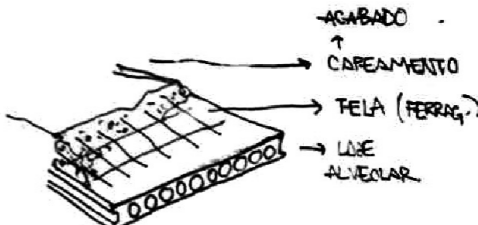
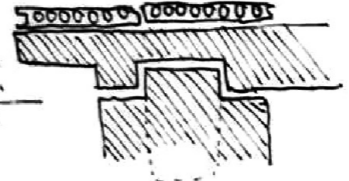
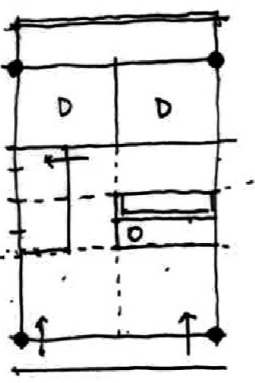
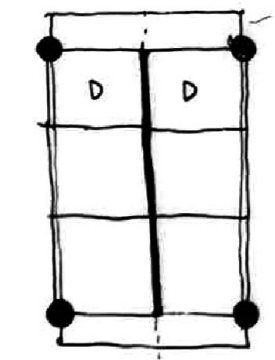
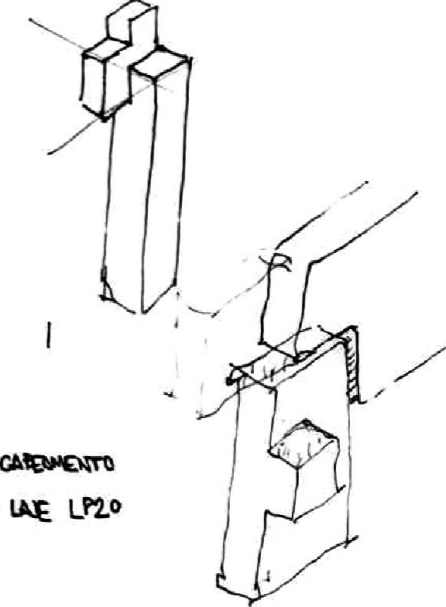
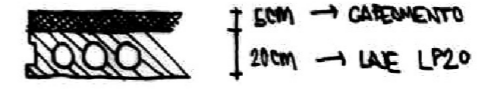
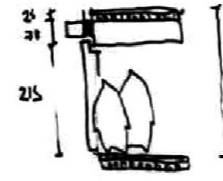
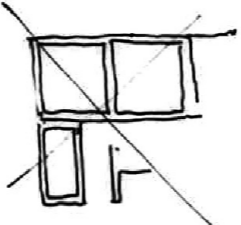
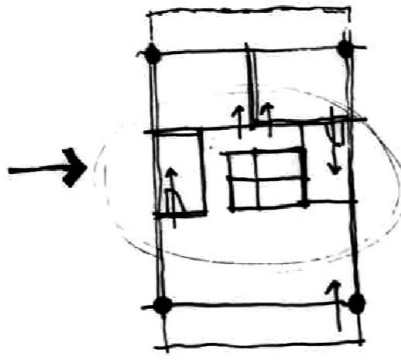
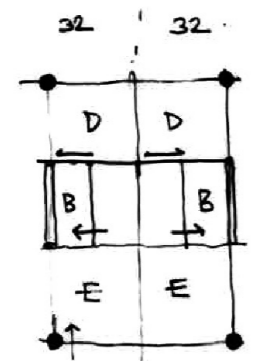
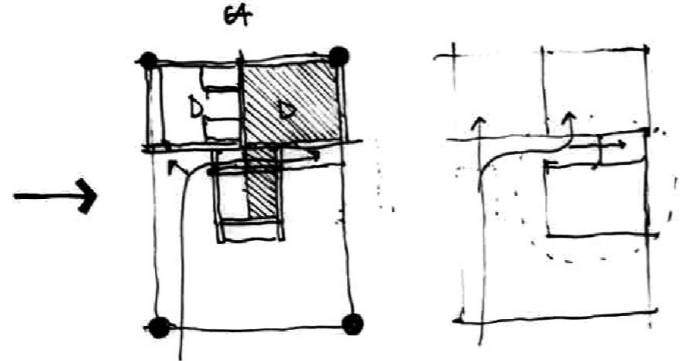
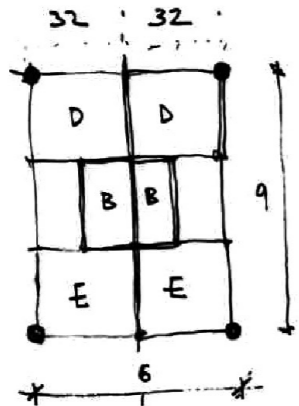
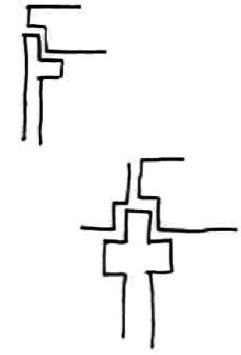
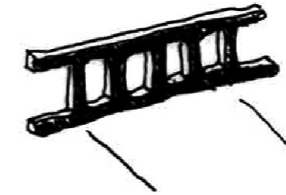
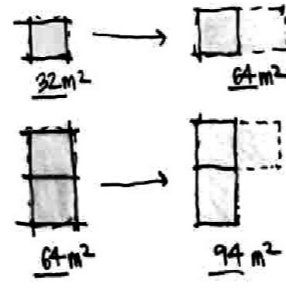
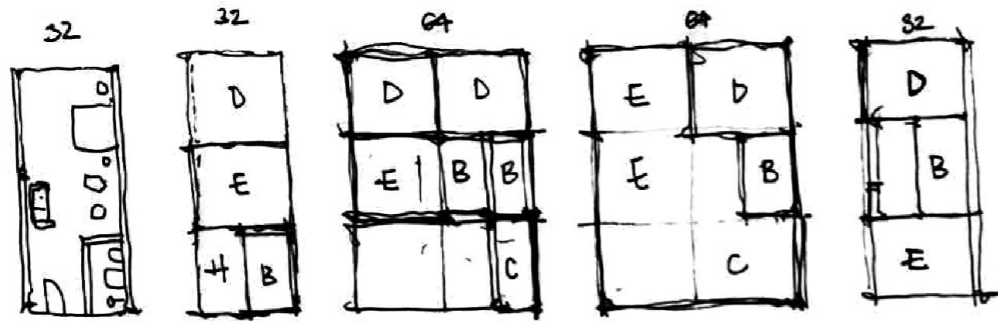
30 UNID - 32m²
 06 UNID - 63m²V
 14 UNID - 63m²H
 02 UNID - 94m²
 01 UNID - 126m²

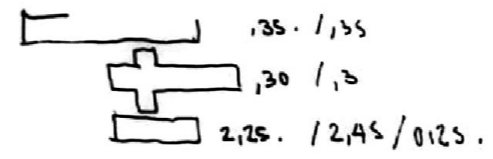
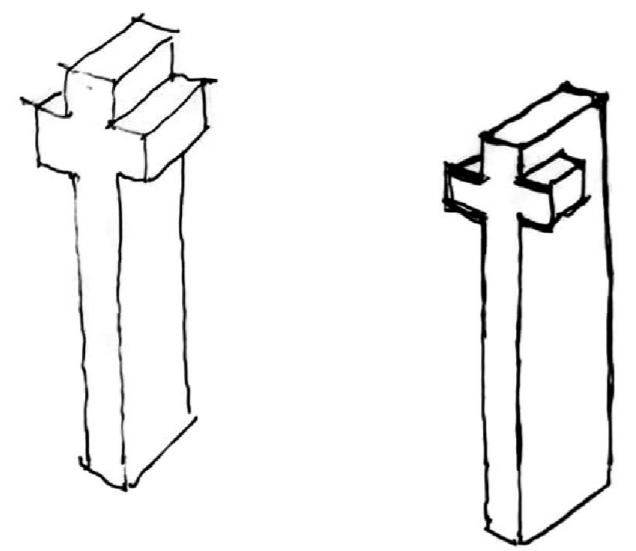
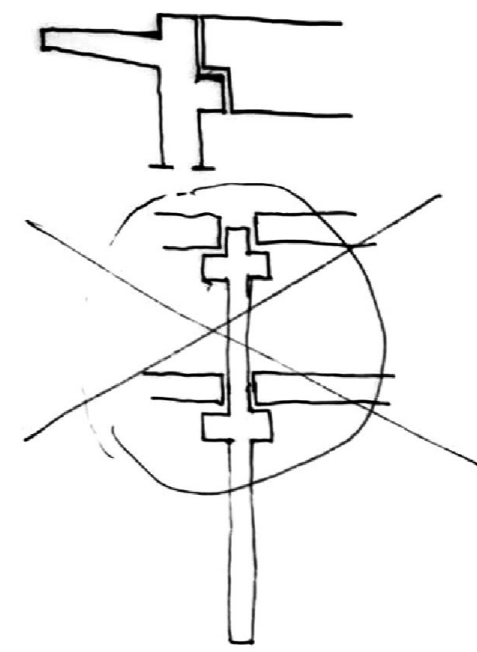
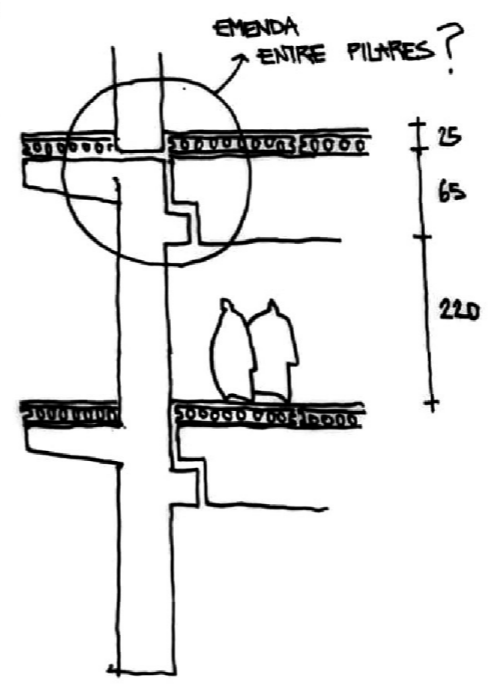
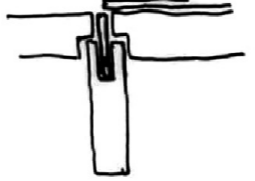
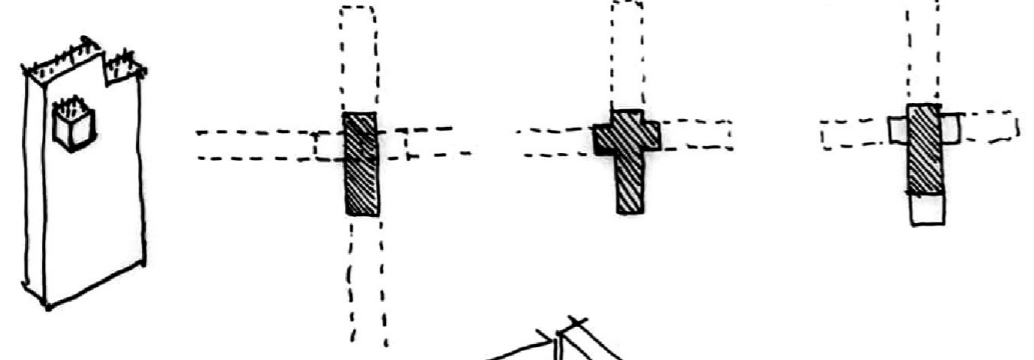
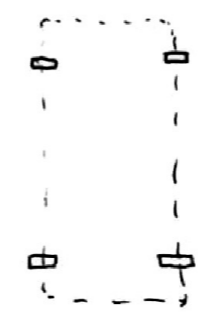
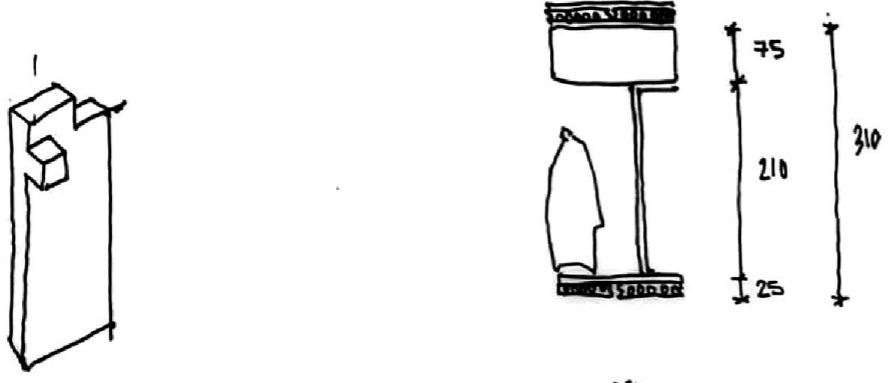
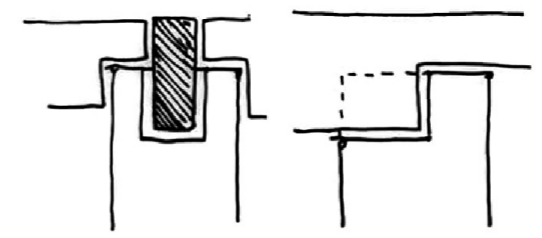
43 UNID.



42 UNIDADES.





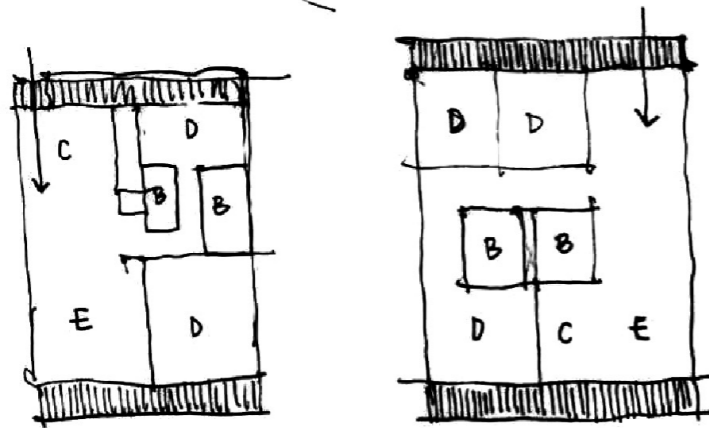


* ARQUIVOS (PLN)
 (HOSPEDEIRO)
 TCC - PLN - PROJETO - COMPLETO
 " " " - BLOCO A
 " " " - BLOCO B

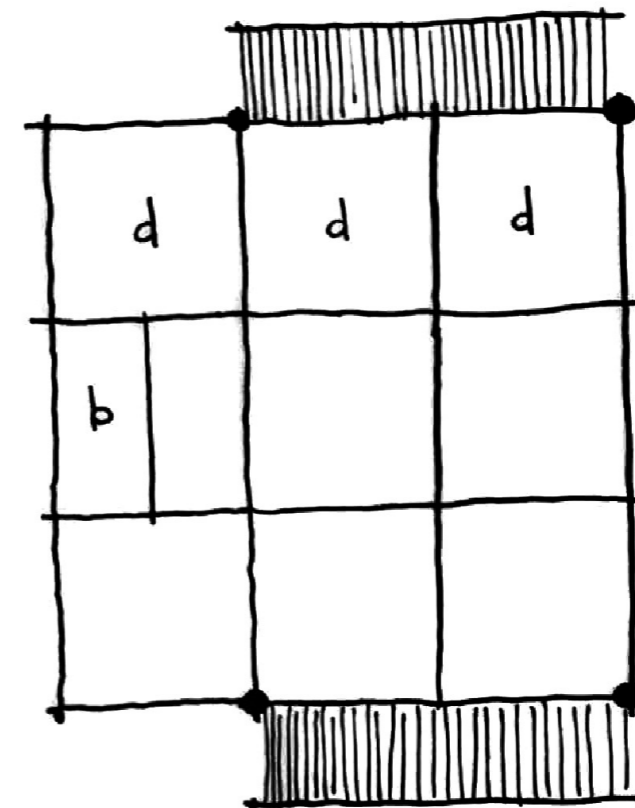
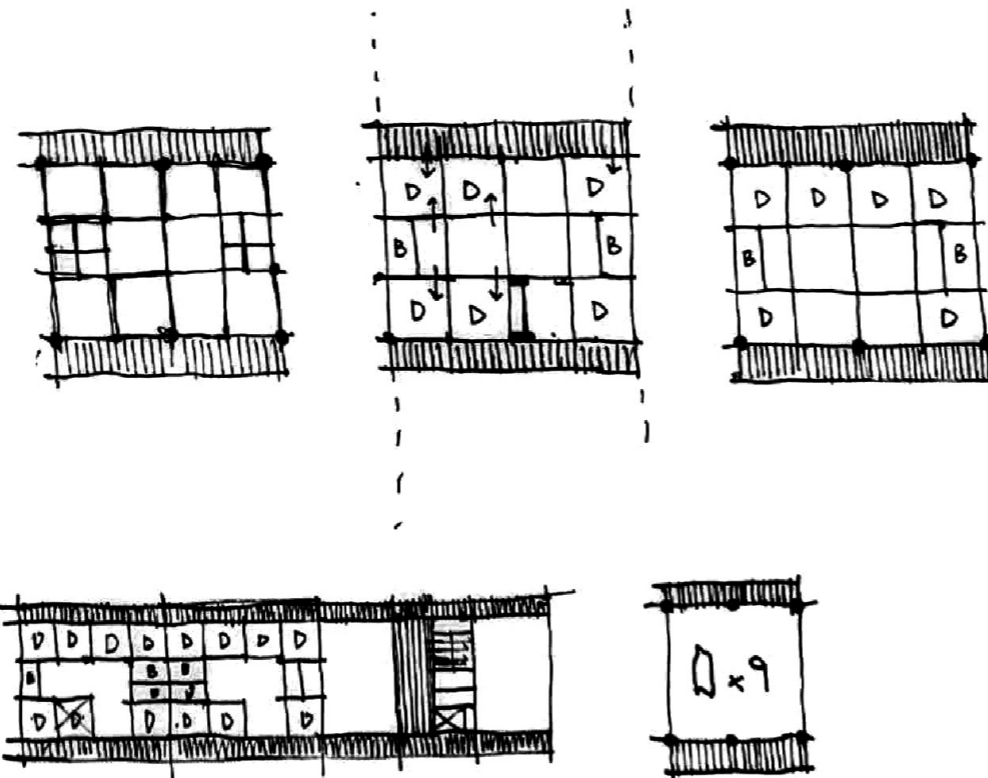
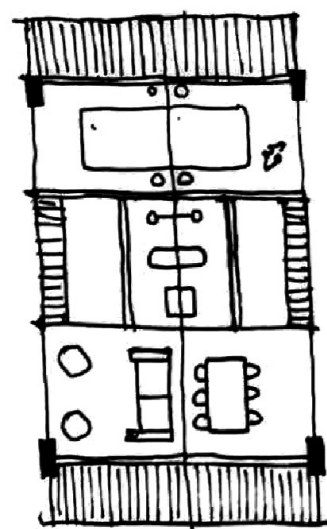
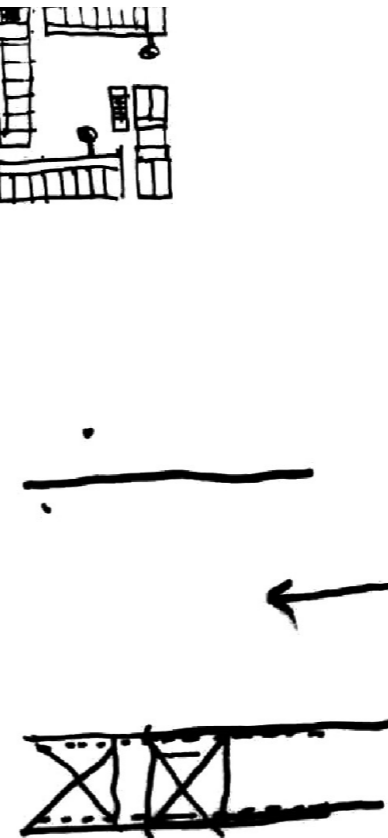
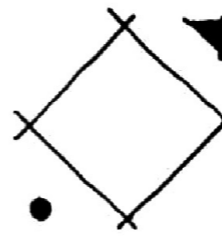
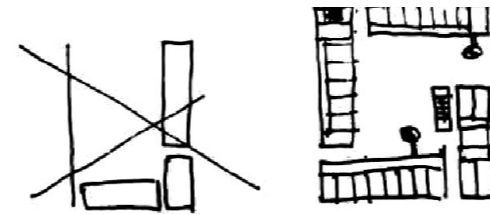
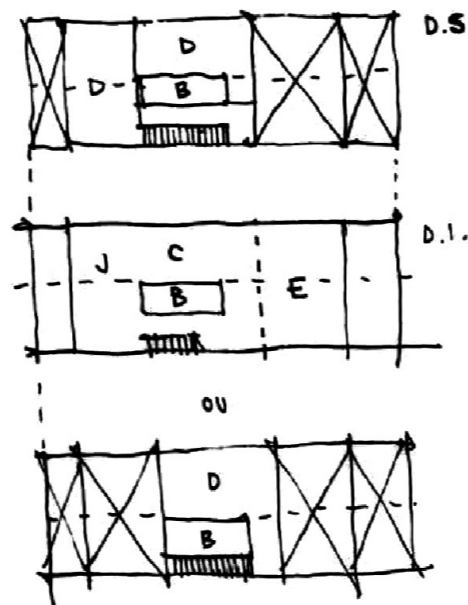
BRUTHER - 60 SOCIAL DWELLING
BORDEAUX.

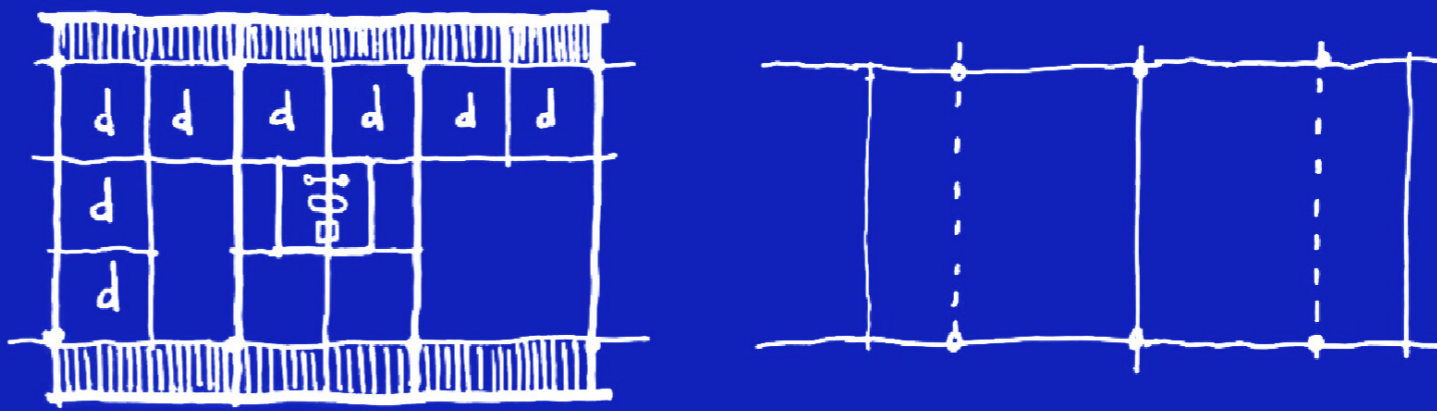
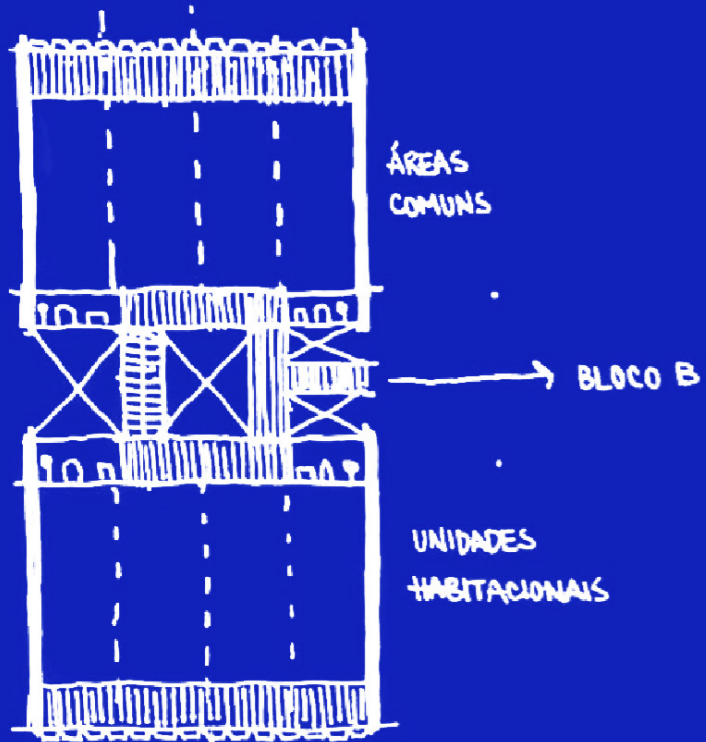
- Vazio no tempo - (E)
- Duplica a retícula estacional. (+4m seção transv.)
- Novo núcleo de circ. vertical
- Terrço acessível: "insalváveis 7/0 ócio"
- Plataformas elevadas.
- Contexto de novo edifício.

- ~~ORIGINAL -> 3 dormitórios~~
- ~~NOVO BLOCO -> DUPLEX~~



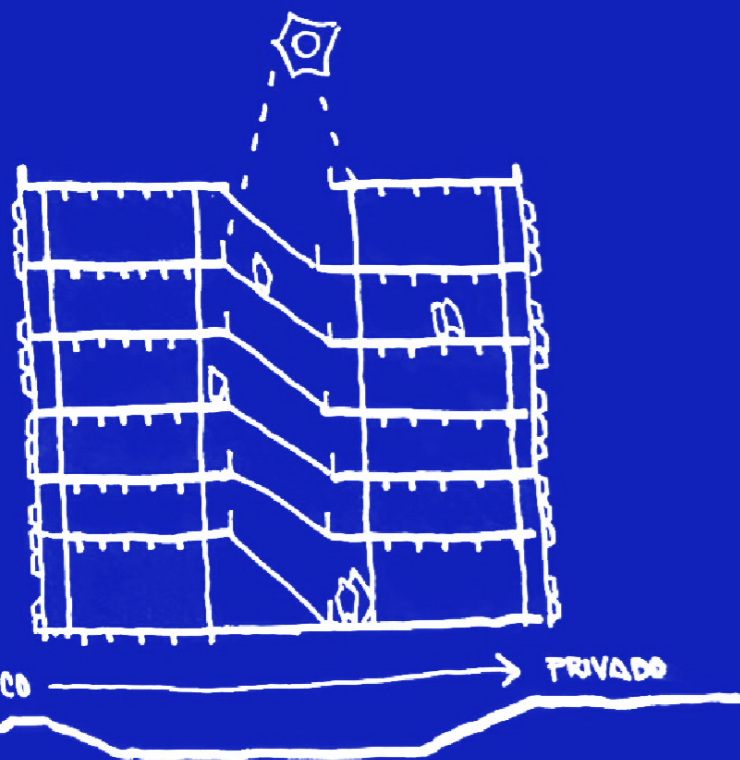
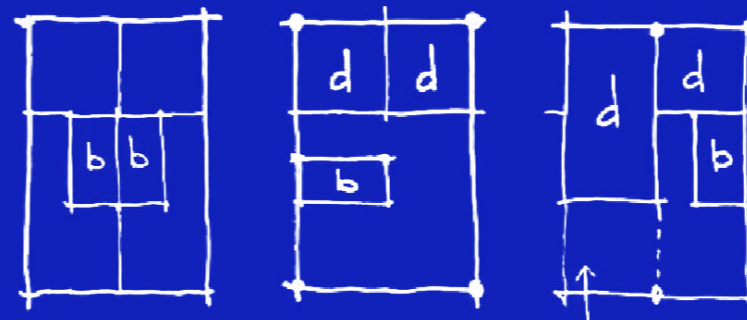
SUPER L
160 VIVENDAS SOCIAIS



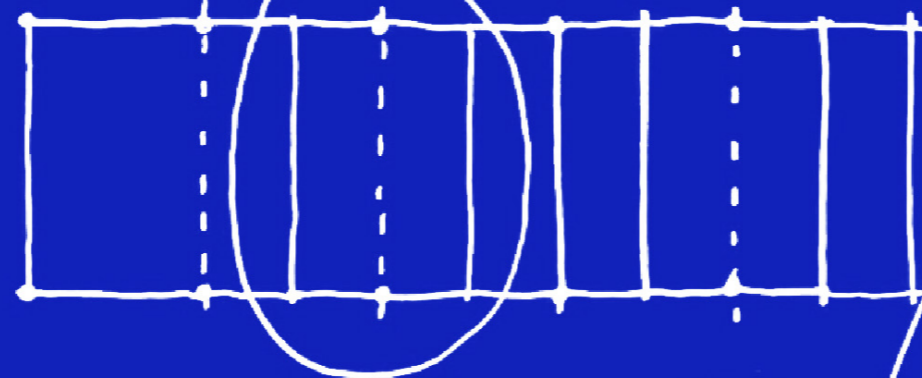


COOPERATIVA DE HABITAÇÃO

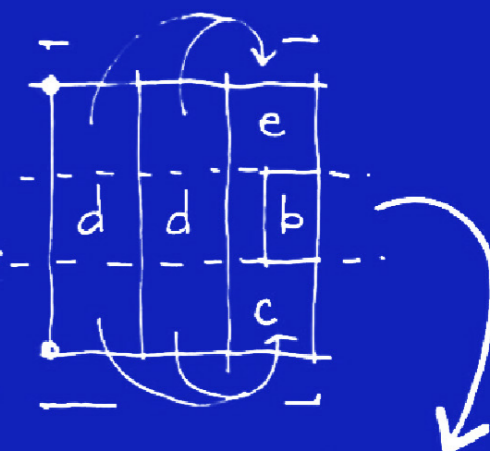
- + PRIVADO DORMIR (d)
- BANHO (b)
- ESTAR (e)
- + PÚBLICO COMER (c)



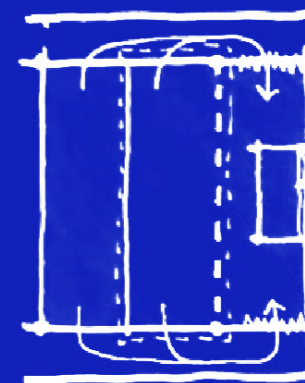
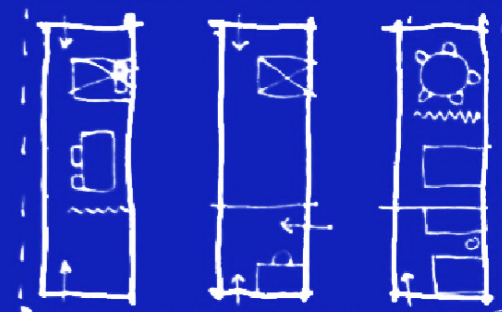
MÓDULO 02? → DUPLEX



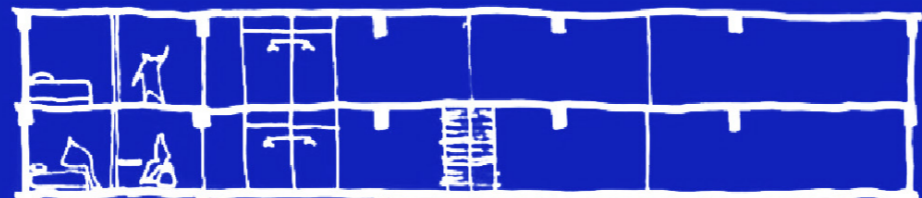
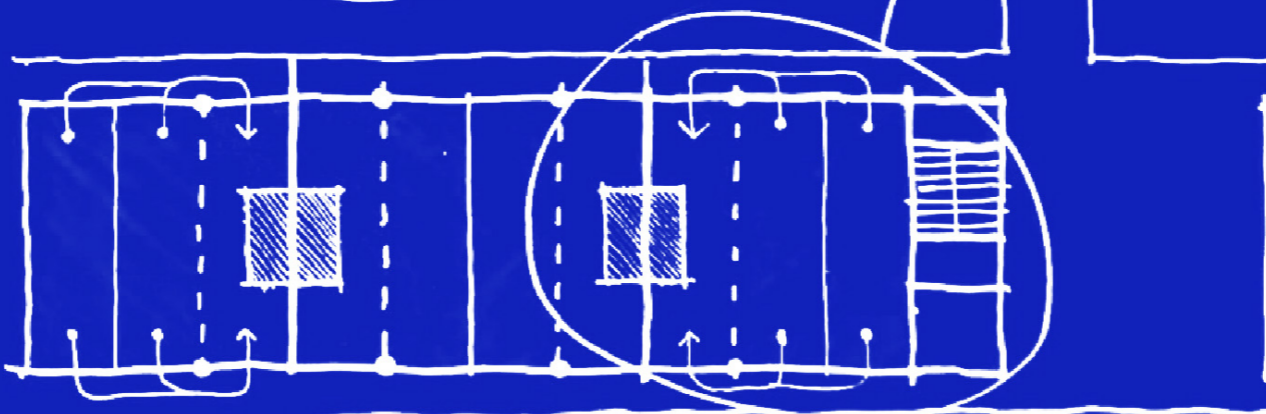
MÓDULO 01



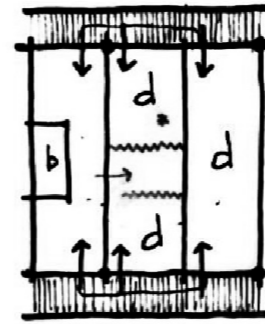
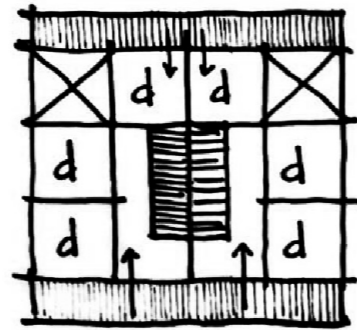
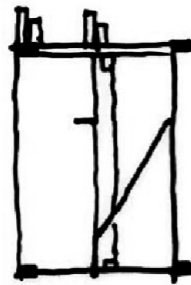
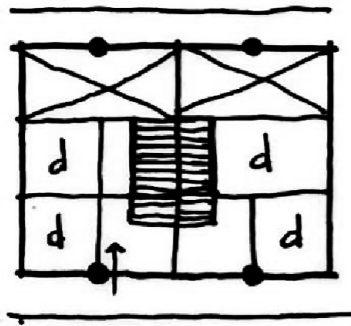
UNIDADE FLEXÍVEL



CONCENTRAÇÃO DE ÁREA COMUM
 ↓
 1-ÁREA COMUM
 ↓
 2 UNIDADES.



MÓDULO DUPLEX

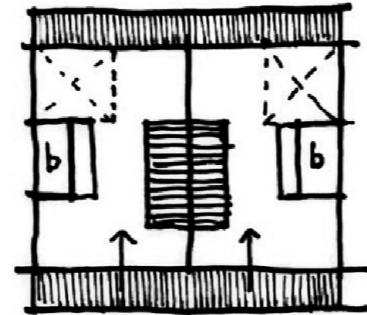
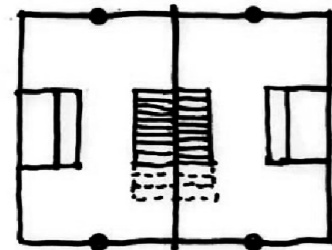


• UNIDADE FLEXÍVEL

19/09

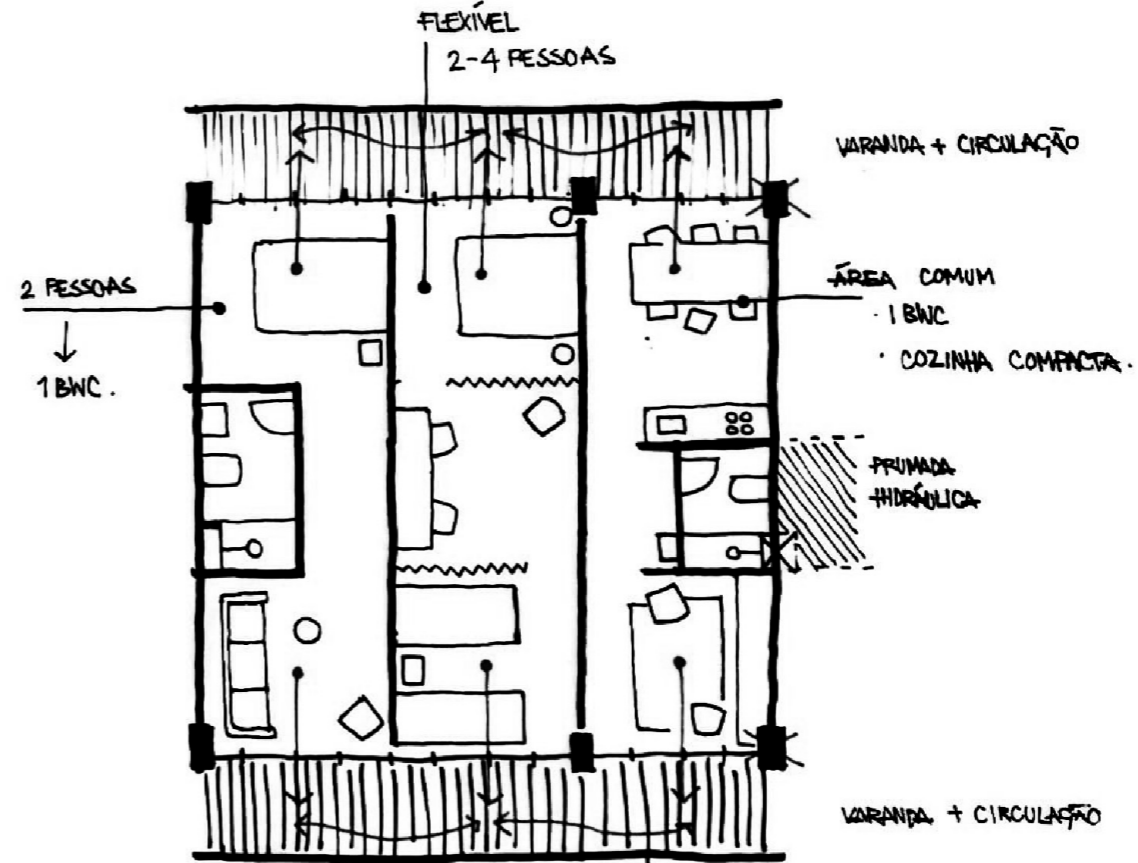
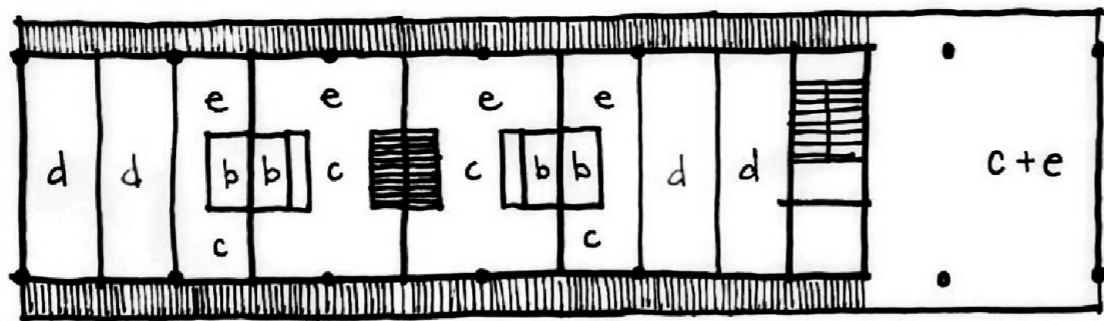
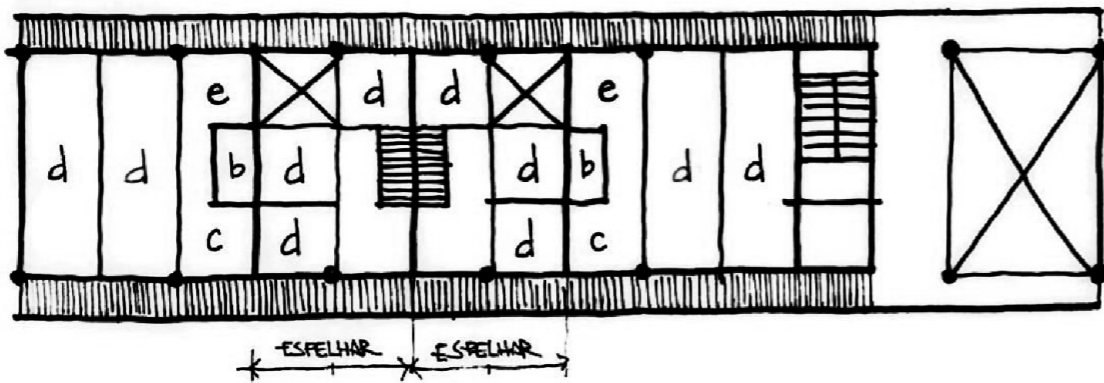
FINALIZAR PLANTAS BLOCO B

- MÓDULO 01
- MÓDULO 02 (DUPLEX)
- ÁREAS COMUNS



+

MÓDULO 01 MÓDULO 02 (DUPLEX) MÓDULO 01



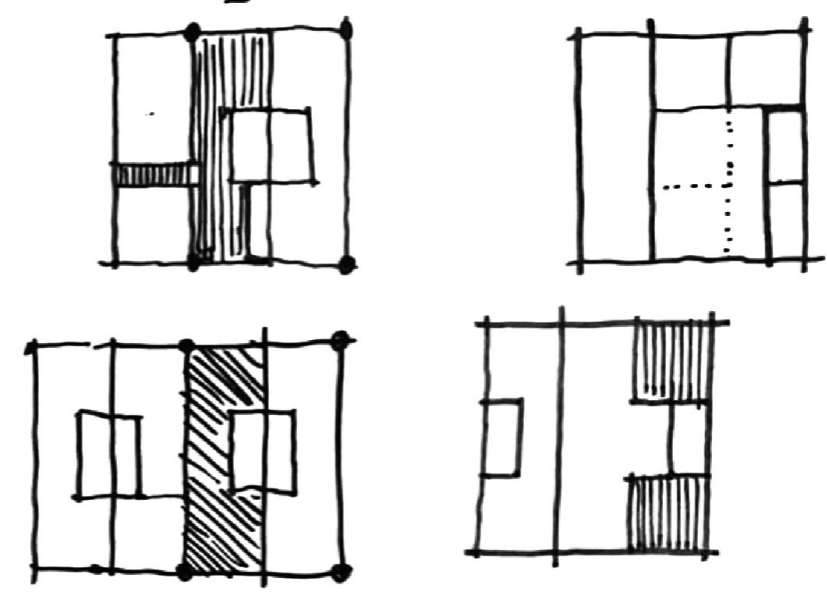
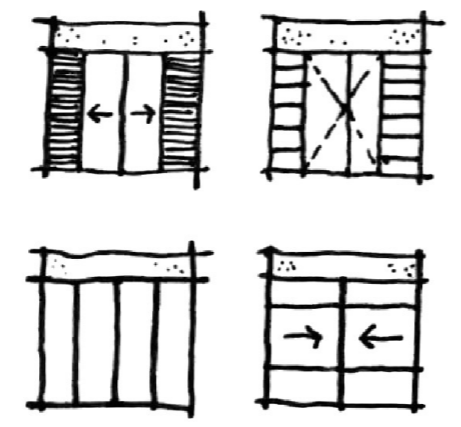
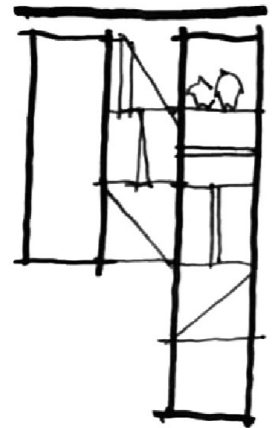
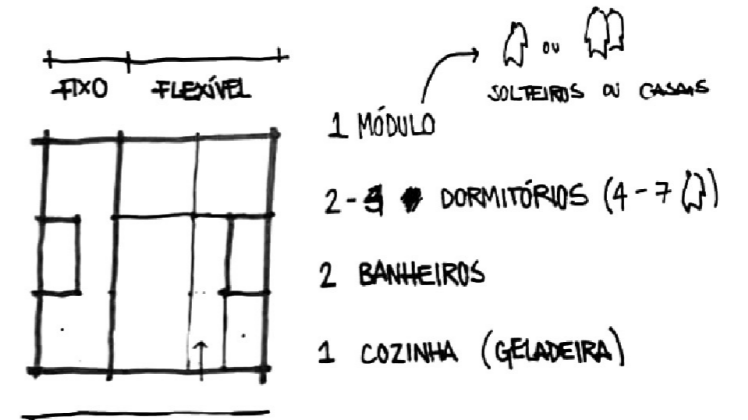
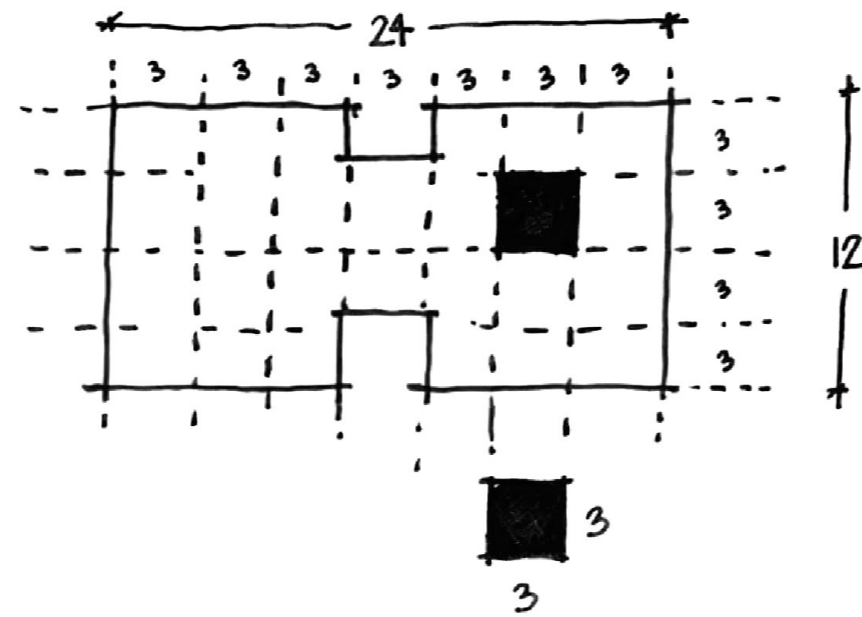
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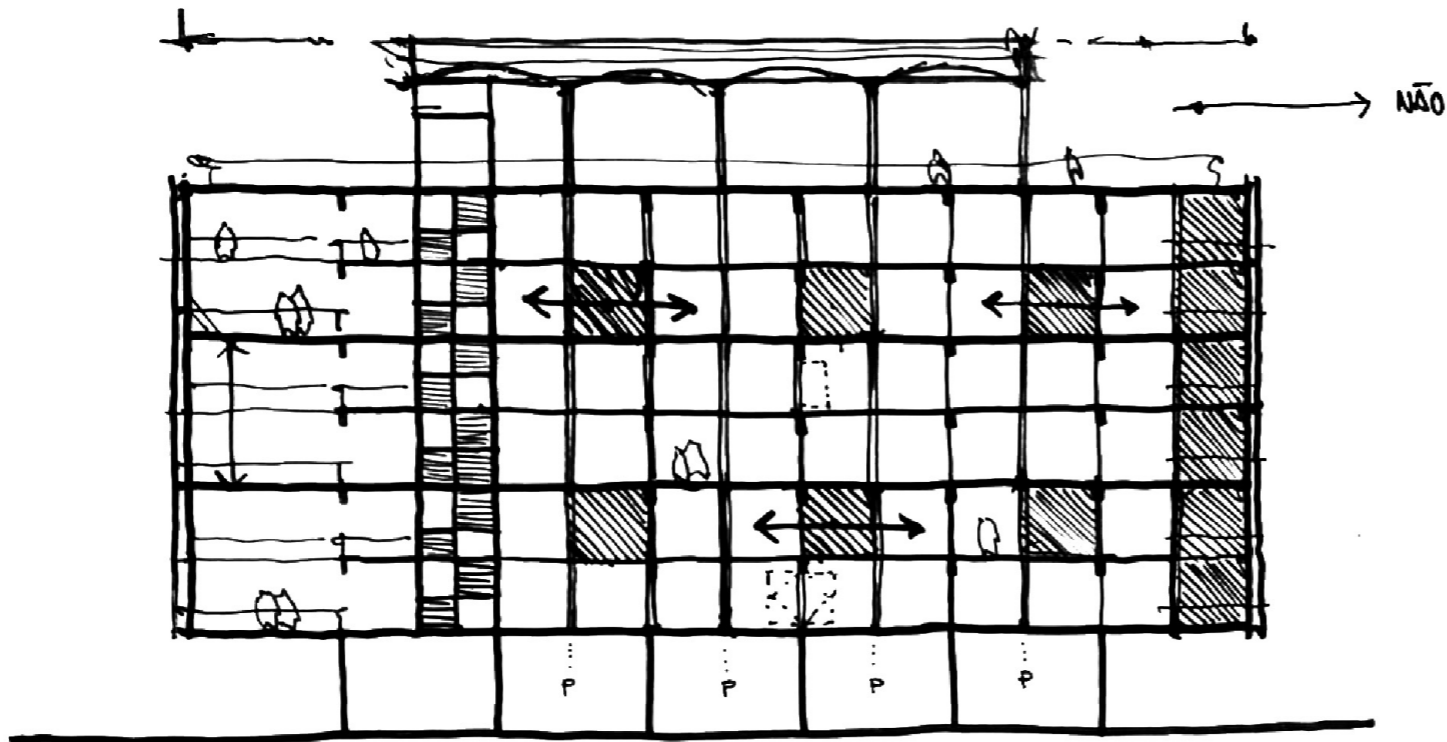


SEMINÁRIO INTEGRADO 25/09/23

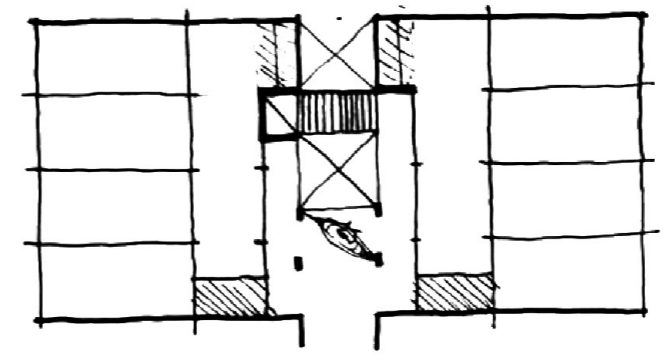
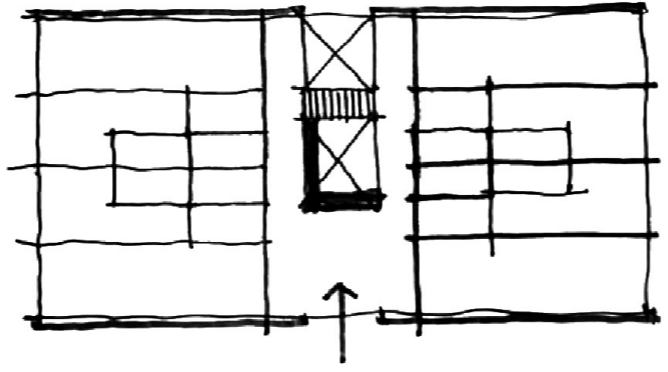
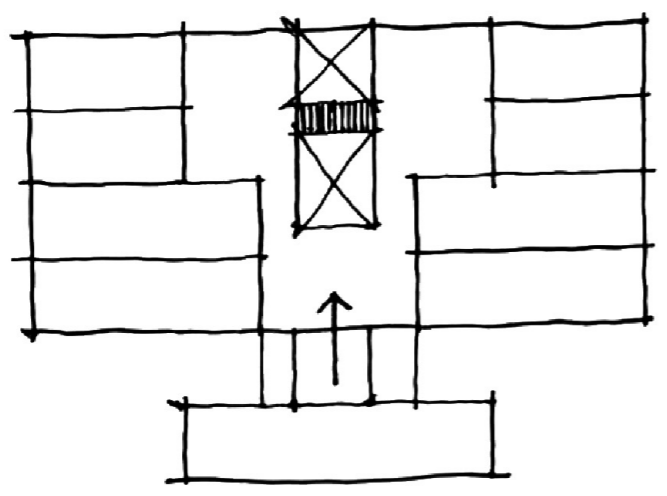
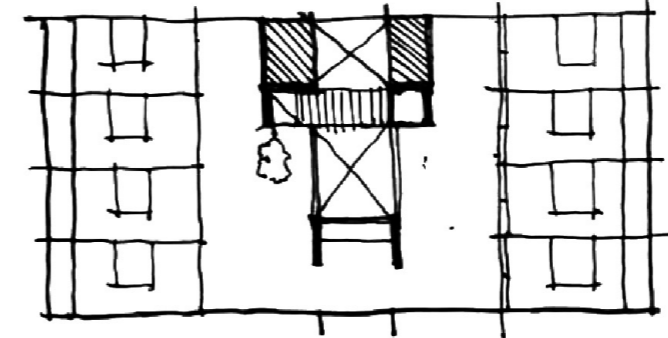
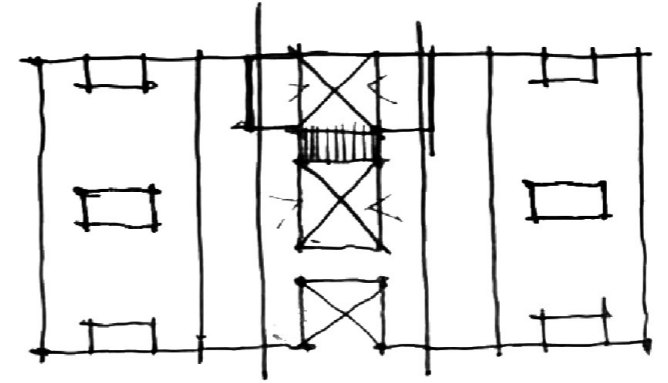
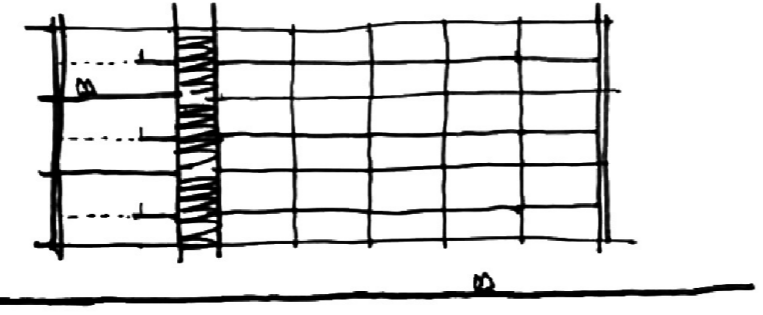
- EDIFÍCIO PRÉ-EXISTENTE ①
- MÓDULO 3X3 ②
- PROJETO ③

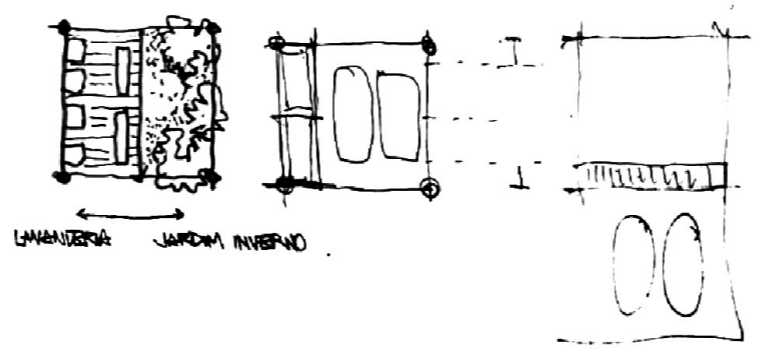
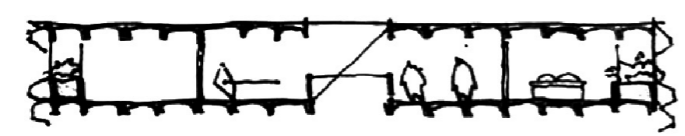
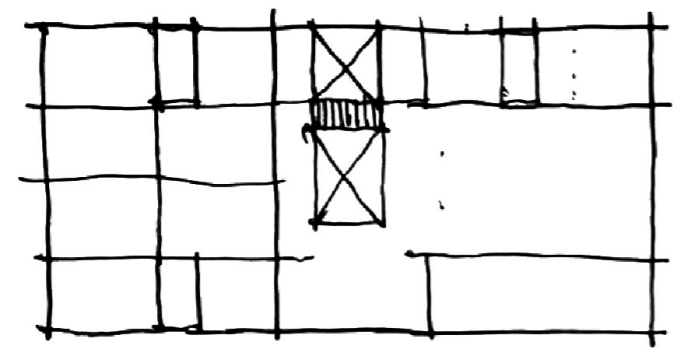
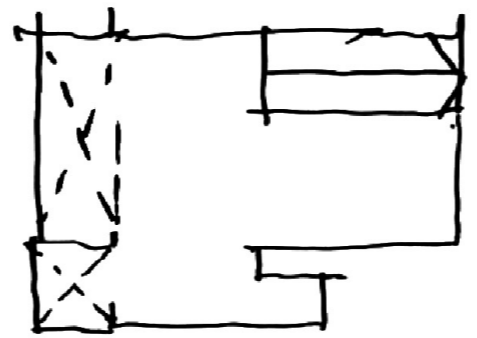
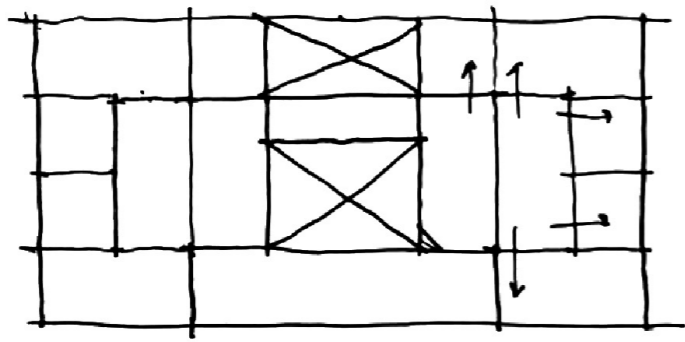
- ① - EDIFÍCIO DO IBAMA.
- INTERVENÇÃO (DIRETRIZES)
- ② - MÓDULO ESTRUTURAL
- MÓDULO HABITACIONAL
- POSSIBILIDADE DE REPRODUÇÃO
- ③ - ANÁLISE LOCAL
- IMPLANTAÇÃO
- PLANTA TIPO
- ESTRUTURA



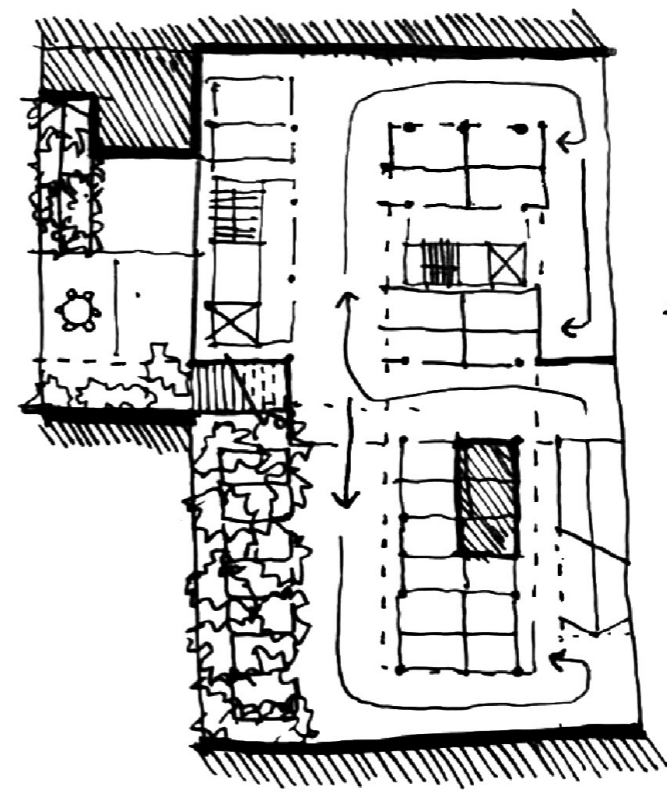
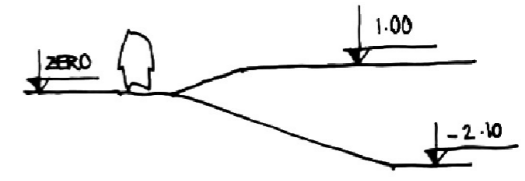


- ESTRUTURAS
- METÁLICA : ARESTA
 - CONCRETO : SUPERFÍCIE

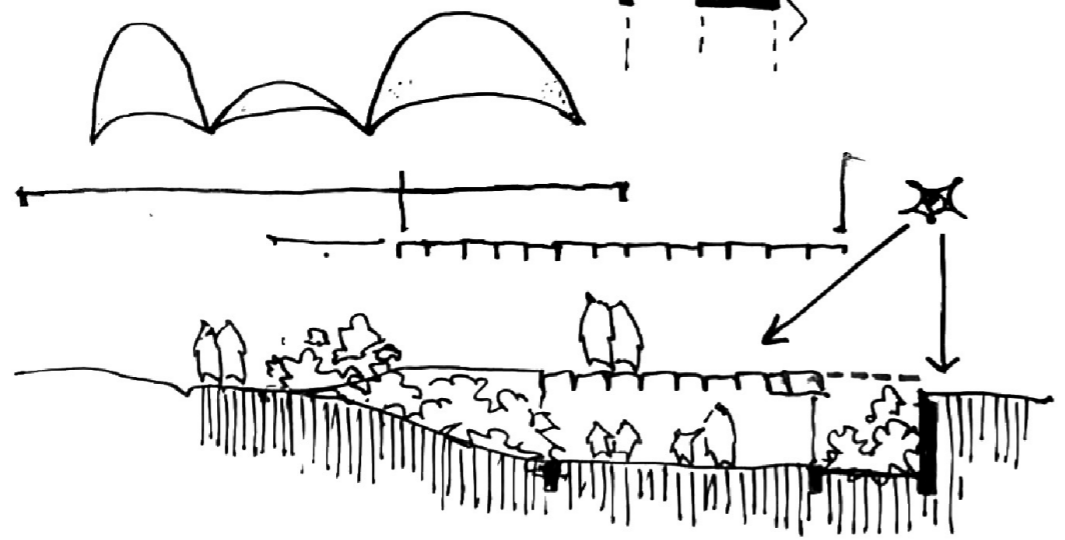
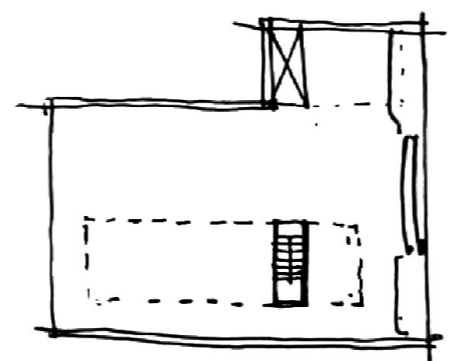
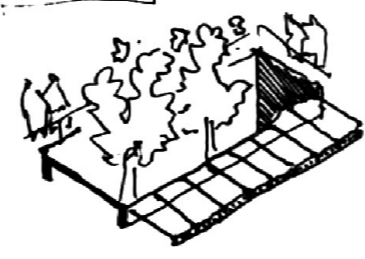
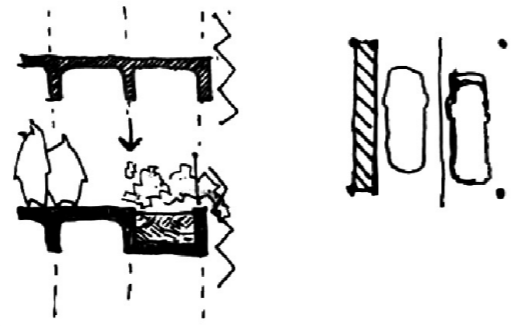




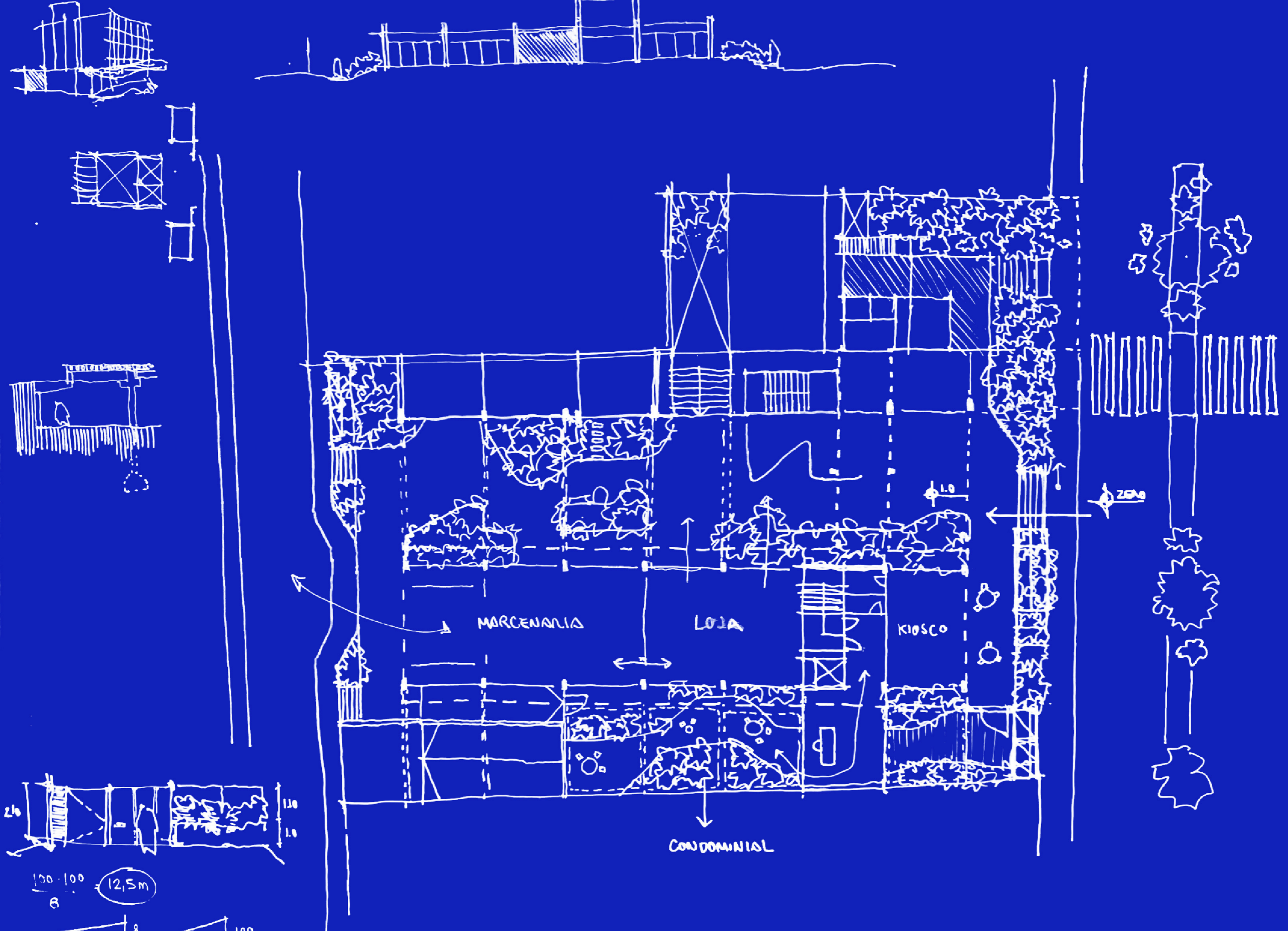
ATÉ 60 VAGAS → 2,5M
 CARRO E DESCARCA.
 PED.
 VAGAS PRIVATIVAS (NÃO SÓO DONAS DTS VAGAS)
 PERCENTUAL DE VAGAS P/ ALUGUEL? → SEPARAR FLUXOS.



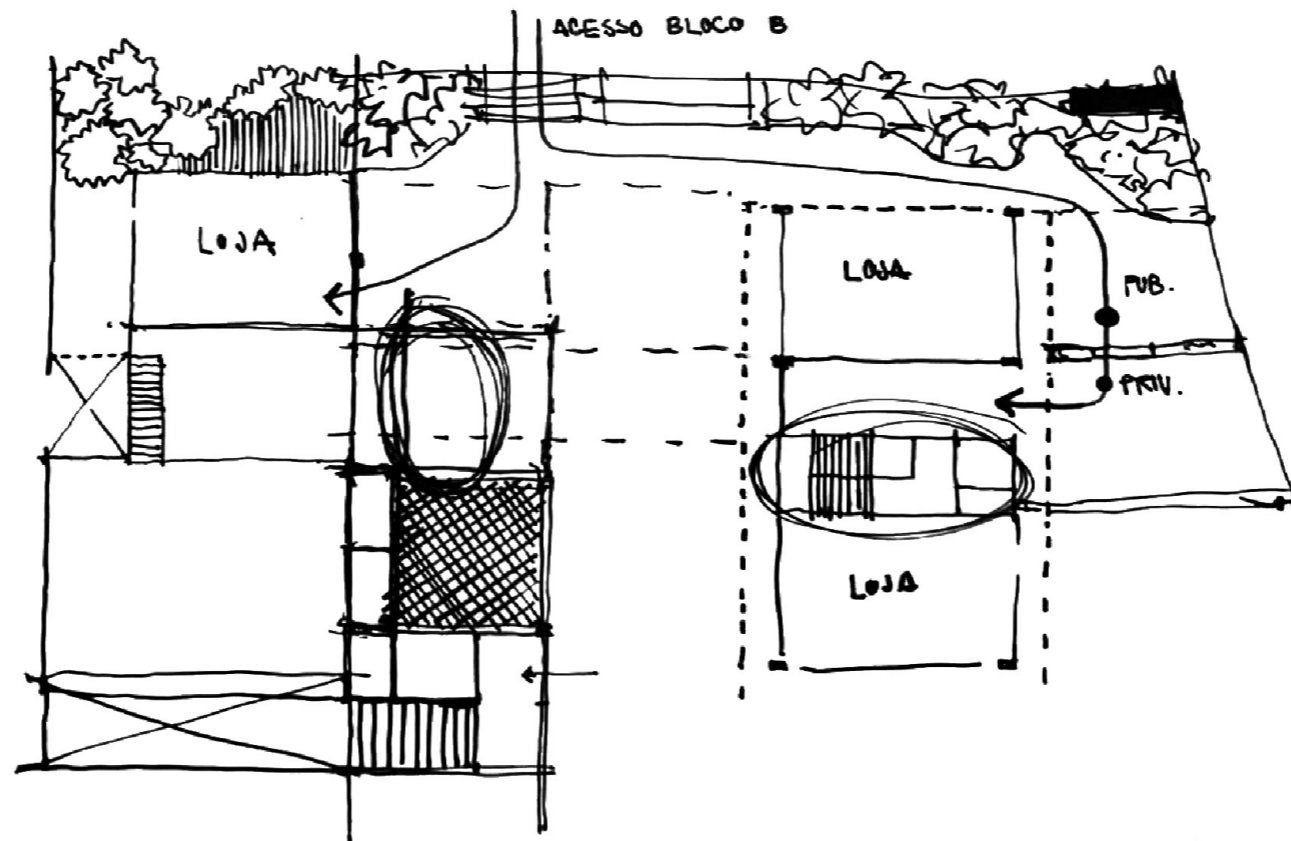
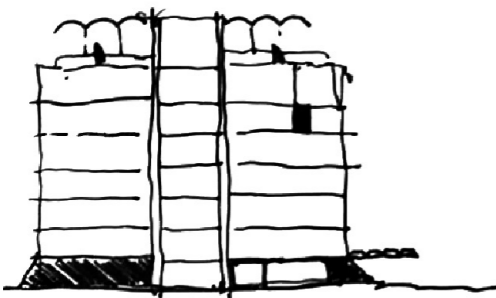
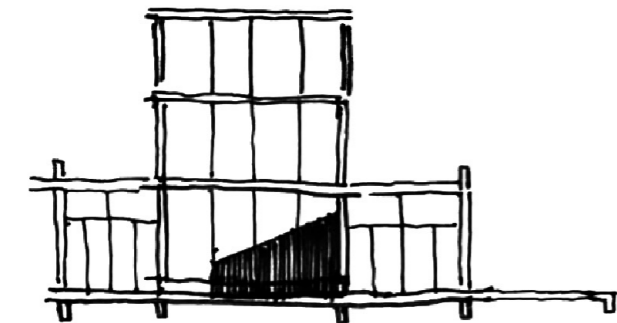
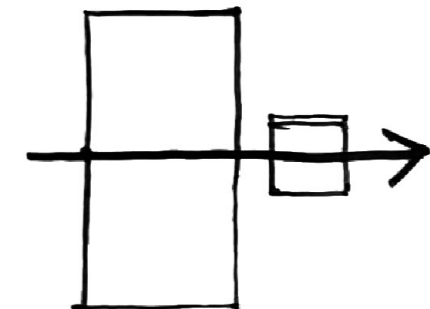
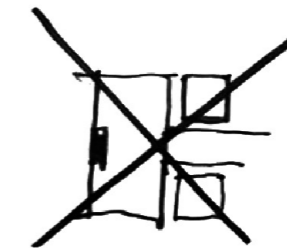
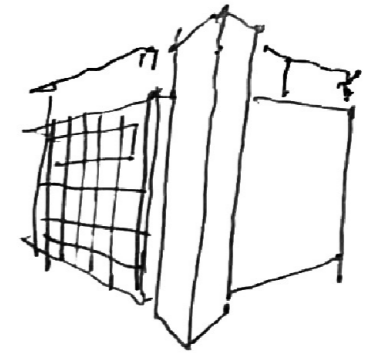
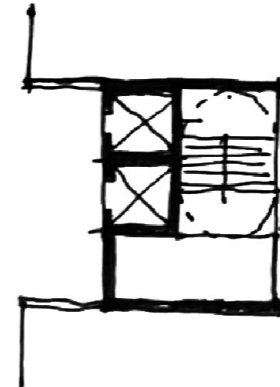
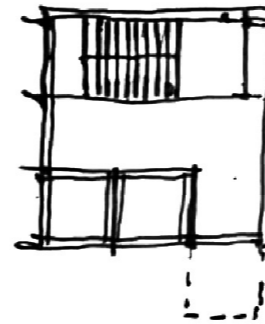
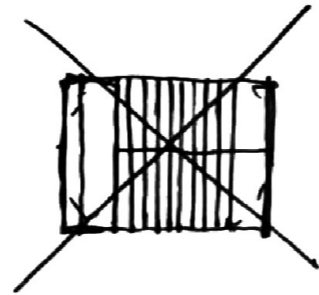
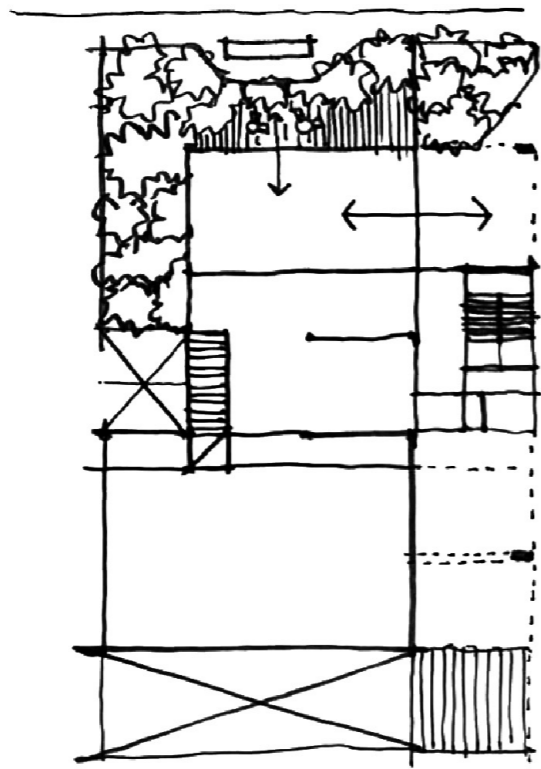
VAGAS PRIVATIVAS
 VAGAS ALUGUEL

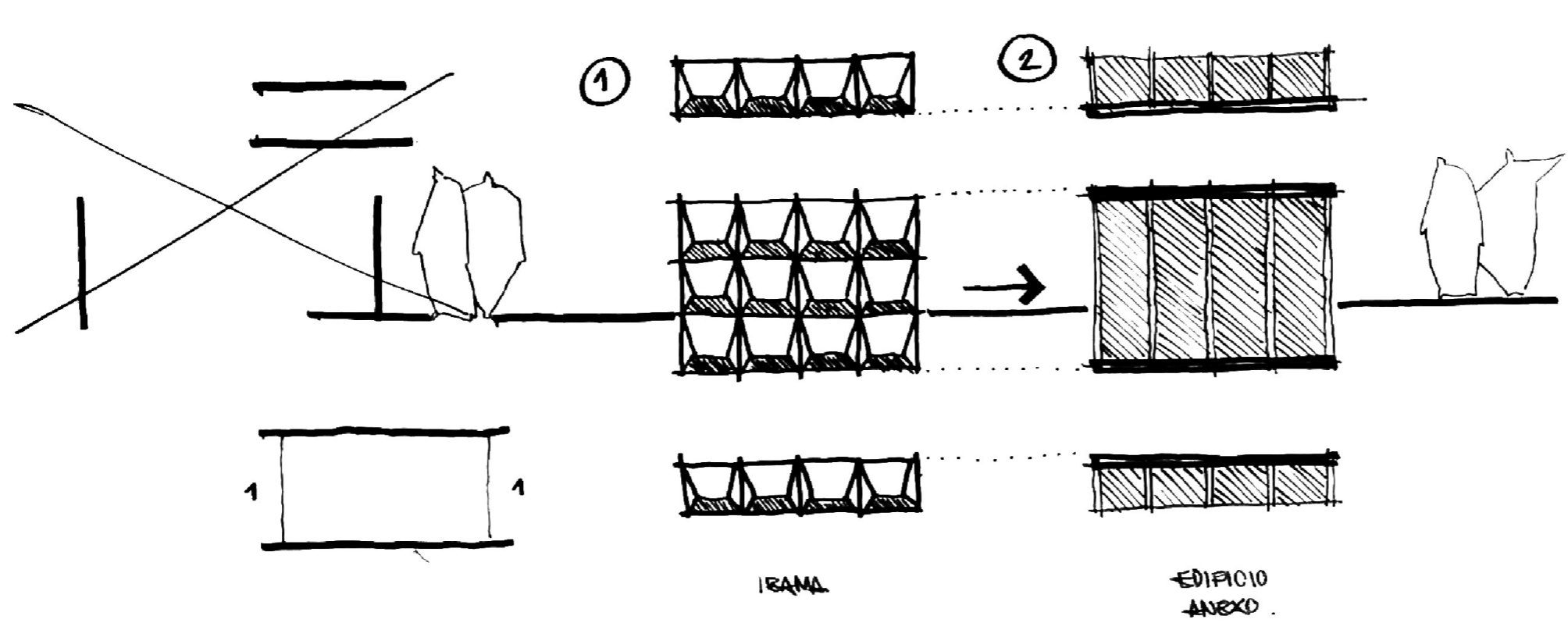


$\frac{31000}{2\phi} = 15500\text{cm}$
 $\frac{21000}{2\phi} = 10,5\text{m}$

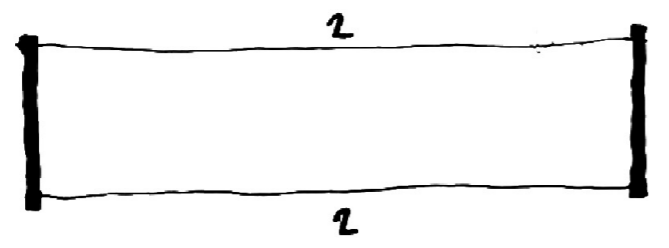


5% → S/ GUARDA CORPO 100-100 ± 20m

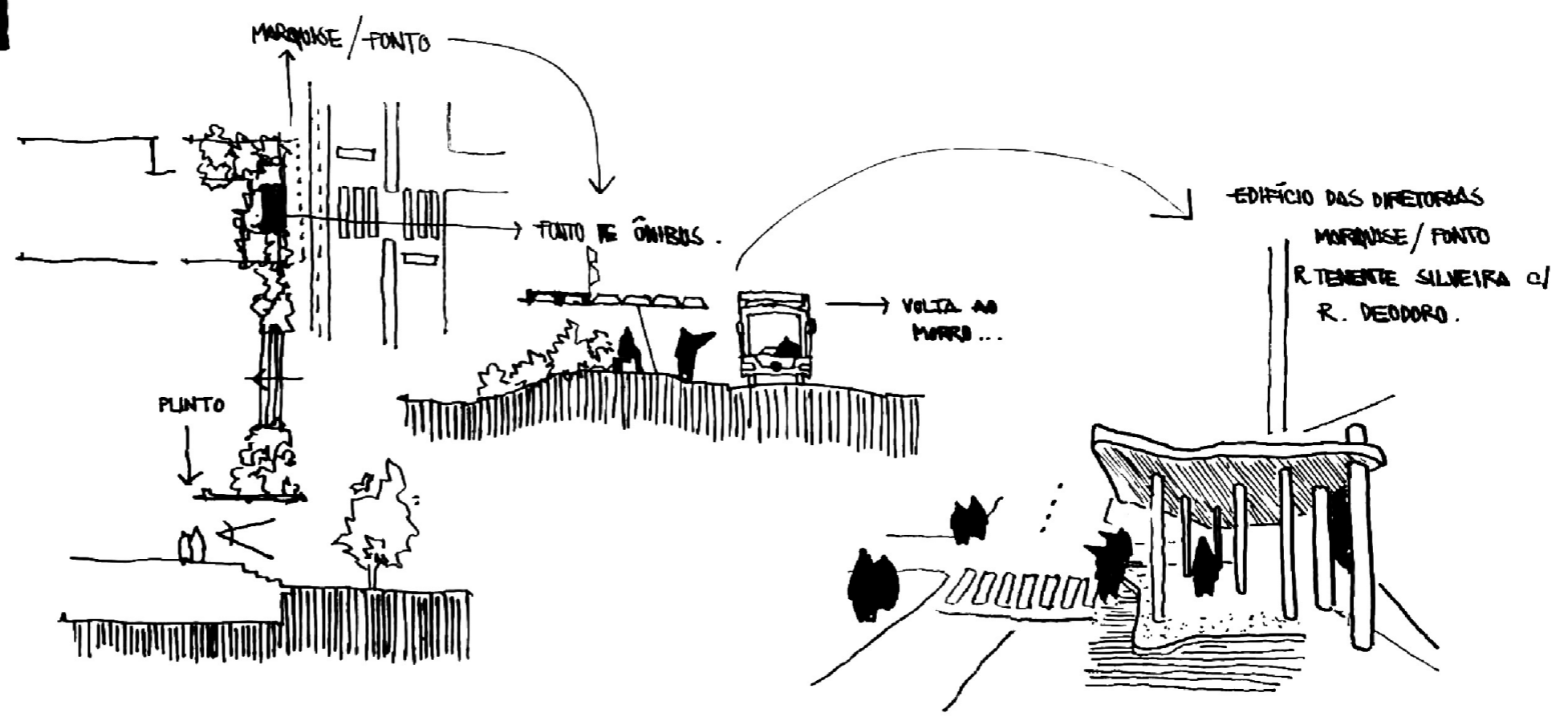


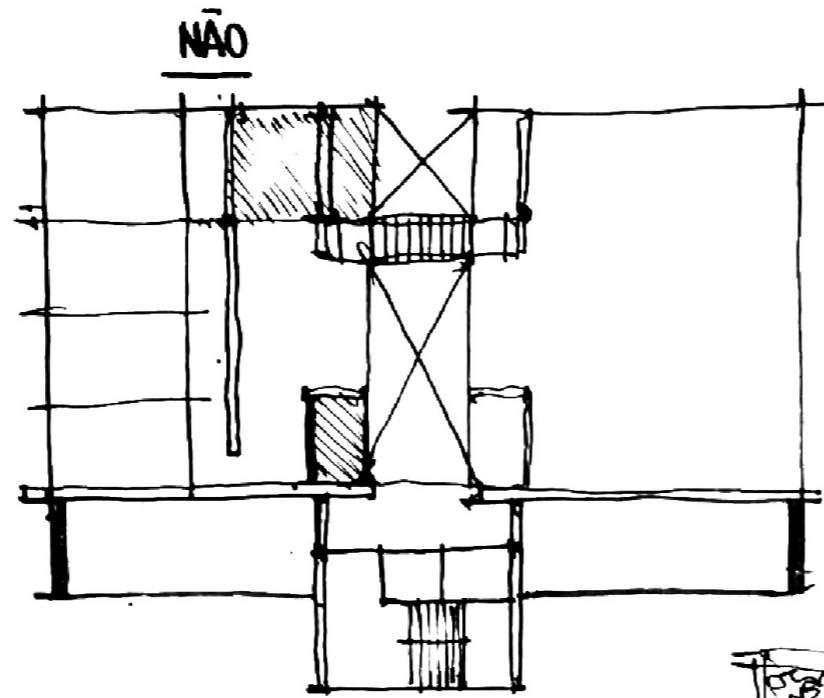
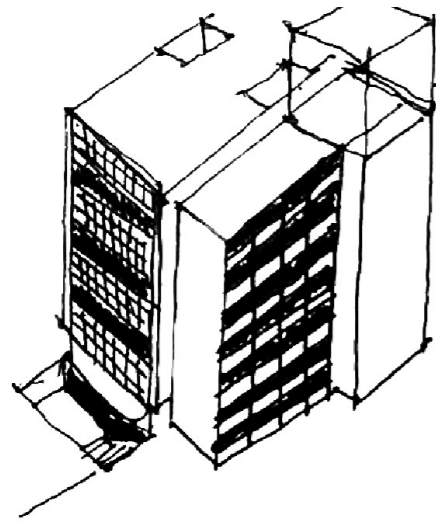


[ASSESSORAMENTO]
 PROF. MIGUEL . 04/10
 ARQ - UFSC



- DOIS DE OUTUBRO
- MODELAGEM : RUAS ; LOTES ; CALÇADAS
- SUBSOLO .

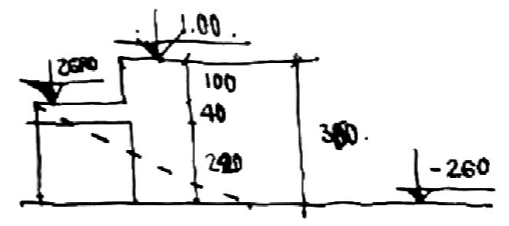
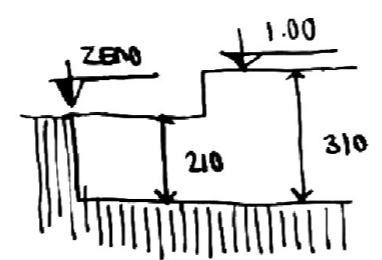
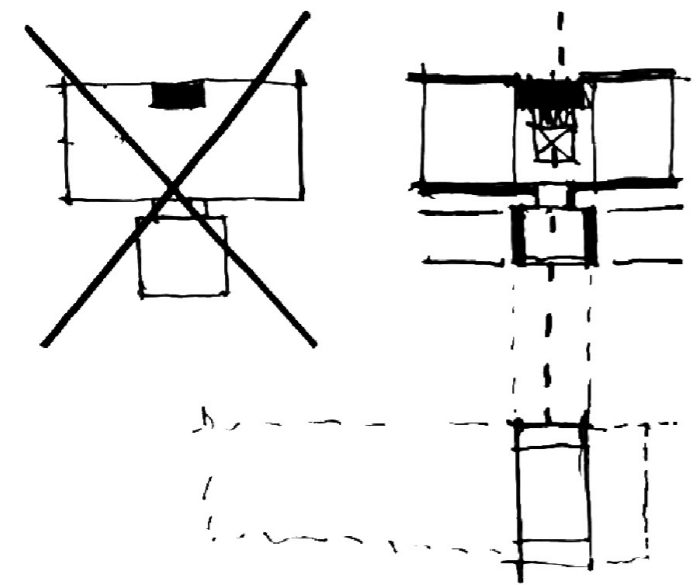
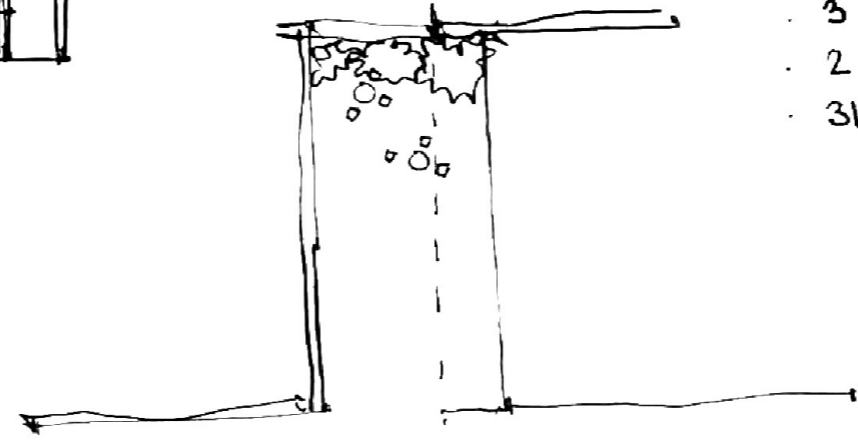
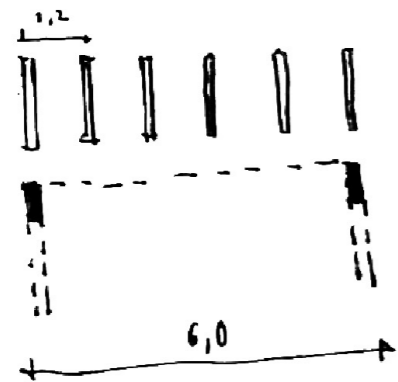




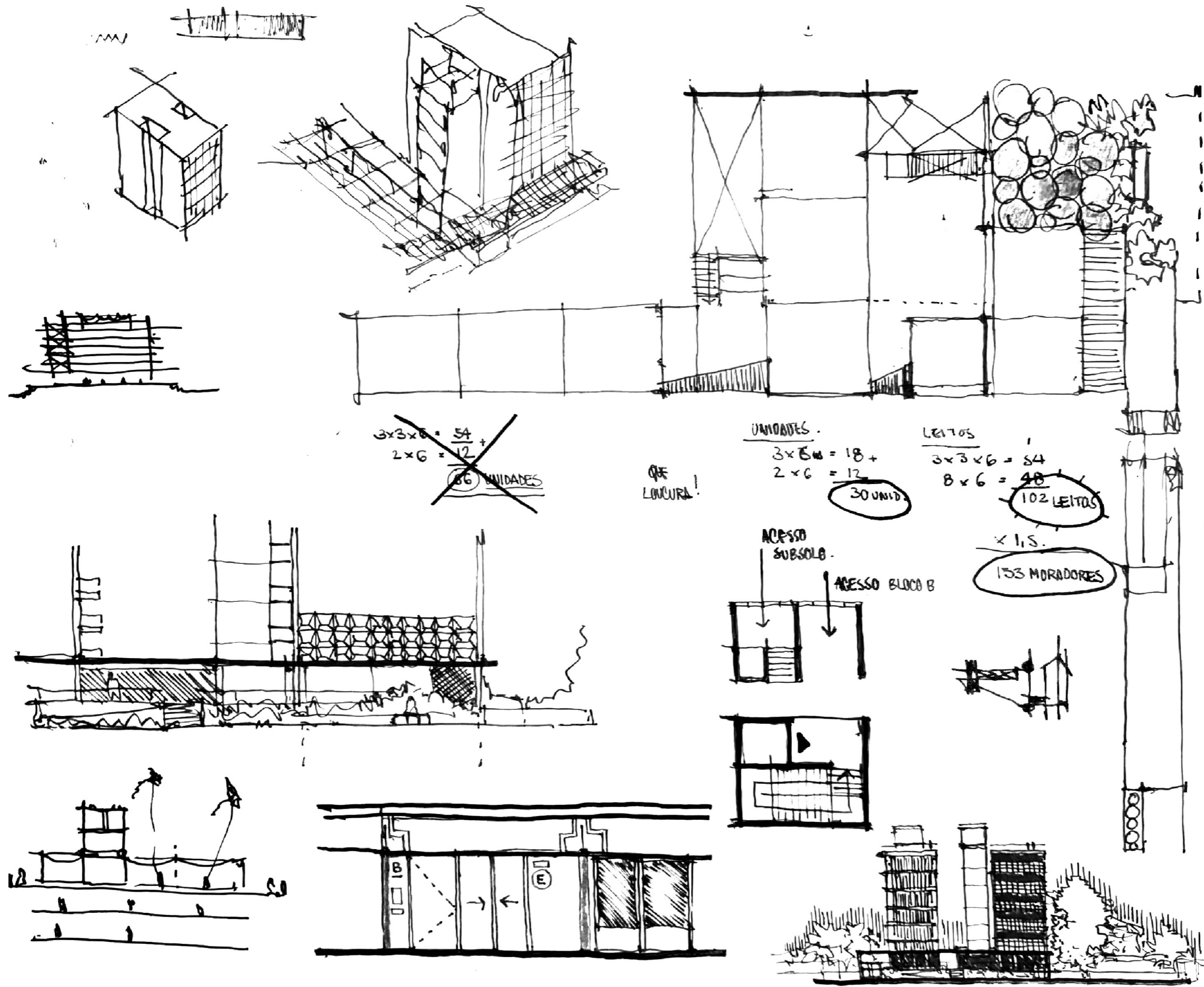
- VAGAS AUTOMÓVEIS
- RESIDENCIAL → 5/ MÍN. POR UNIDADE.
 - VISITANTES → 5% VAGAS PRIVAT.
 - COMERCIAL → 1 VAGA/100M² → 500M²
 - CRECHE → 3 VAGAS (EMBARQUE/DESEMBARQUE)
- BICICLETAS
- 1 POR UNID.
 - 5%
 - 1 POR 100 M² = 5.
 - 1 POR 100 M² = 200M²

~~VAGAS COMÉRCIO~~
~~3 CRECHE (EMBARQUE/DESEMB.)~~

- VAGAS TOTAIS = 41 VAGAS
- 5 COMÉRCIO (c)
 - 3 CRECHE (c)
 - 2 VISITANTES (c)
 - 31 RESIDENCIAIS (c) → FLEXÍVEL
- } FIXO



$$\frac{260 \cdot 100}{20} = 1300 \text{ m}$$
~~$$\frac{360 \cdot 100}{20} = 1800 \text{ m}$$~~



~~3x3x6 = 54
2x6 = 12
66 UNIDADES~~

QUE LOUCA!

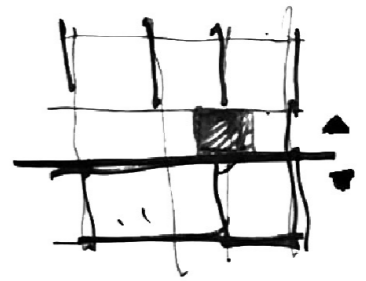
UNIDADES.
3x6 = 18 +
2x6 = 12
30 UNID.

LEITOS
3x3x6 = 54
8x6 = 48
102 LEITOS

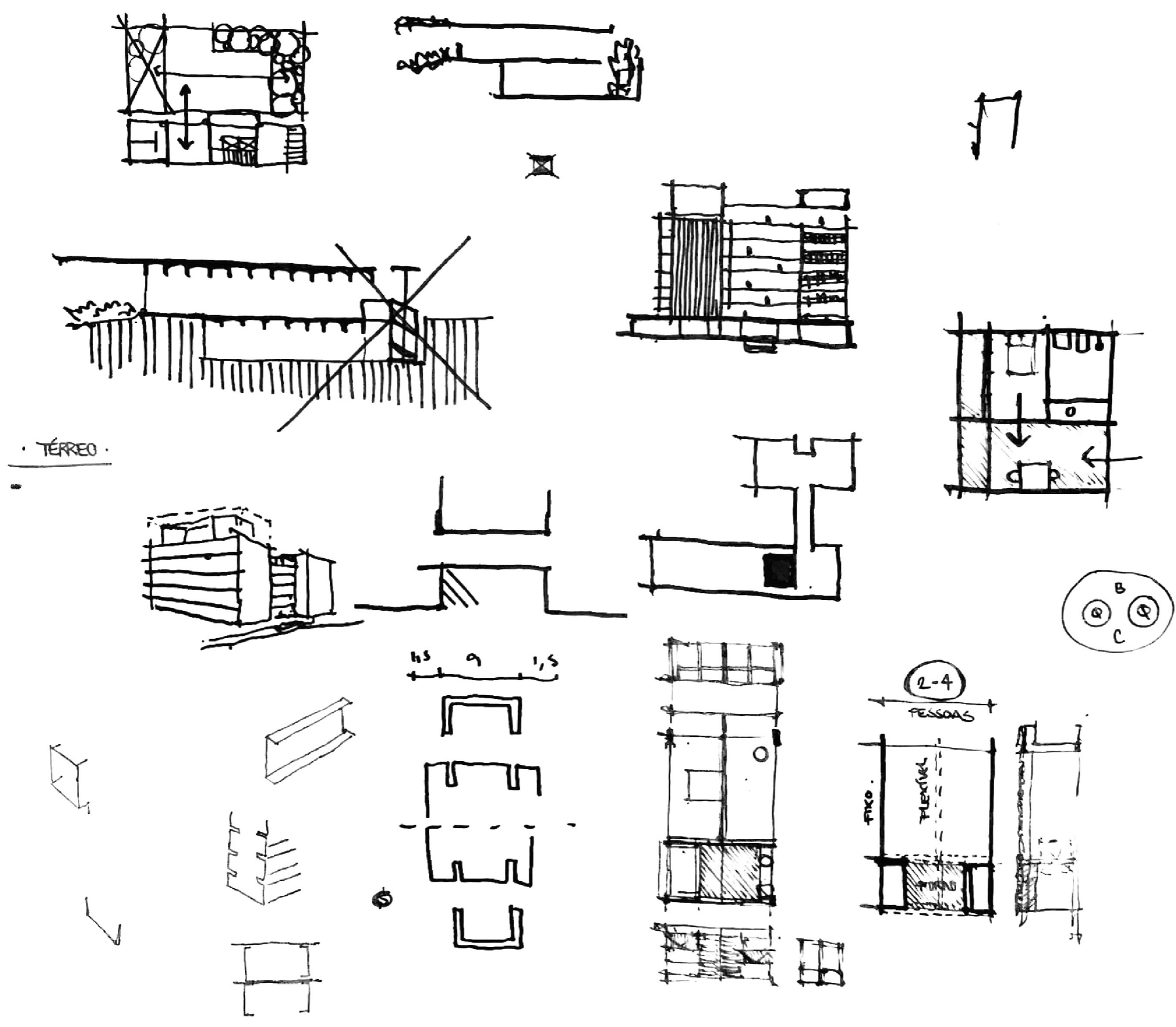
x 1,5.
153 MORADORES

ACESSO SUBSOLO.
ACESSO BLOCO B

- TÊNIS
- ACESSO BLOCO A
- ACESSO " B
- " SUBSOLO
- " CRECHE.
- MARCENARIA.
- CAFÉ
- COMÉRCIO
- BIBLIOTECA / SALA ESTUDOS.
- D.T.L. → CÁLCULO
- CASA DE GÁS.
- BICICLETÁRIO
- EMBARQUE / DES.
- RAMPAS + ESCADA.
- 100 VAGAS → ENTRE S.S. E T.



- 30 PTS
- ABC (F) +3
 - FONTE PRETA (F)
 - CRB +3
 - SAMPAIO (F)
 - ITUANO +1

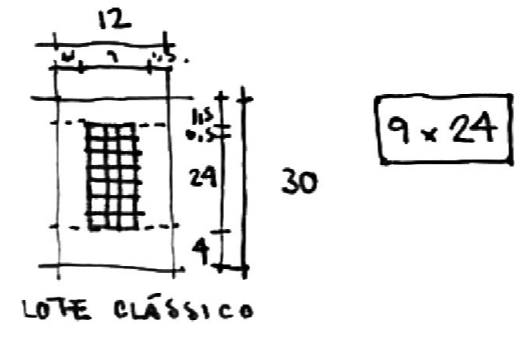


· TÉRREO ·

~~UNIDADES PARQUEIS~~ OK
~~LAJE A CONSTRUIR~~ OK

- 10 MIN
1. PRÉ-EXISTÊNCIA.
 - EDIFÍCIOS ABANDONADOS / SUBUTILIZADOS
 - REFERÊNCIAS GLOBAIS.
 - EXEMPLOS LOCAIS.
 - x - EXPLICAR MOTIVAÇÕES + HABITAÇÃO
 - x - LOCALIZAÇÃO.
 - x - APRESENTAR PROJETO EXISTENTE.
 2. MODULAÇÃO
 - PRODUÇÃO RACIONALISTA DA DÉC. 70
 - REPRODUÇÃO EM MASSA
 - POTENCIAL DA PRÉ-FABRICAÇÃO EXPLORADO EM OUTROS SETORES (INSTITUC.; COMERCIAL)
 - PARTIDO DO MÓDULO (IBAMA)
 - A SOLUÇÃO ESTRUTURAL.
 - O MÓDULO HABITADO.
 - REPRODUÇÃO EM OUTRAS ESCALAS
 - RACIONALIZAÇÃO DO CONTEÚDO.
 - COLOCAÇÃO DAS PEÇAS EM UM PLANO.

TRANSIÇÃO → IBAMA COMO ESTUDO DE CASO DE UM SISTEMA A SER PRODUZIDO EM LARGA ESCALA.

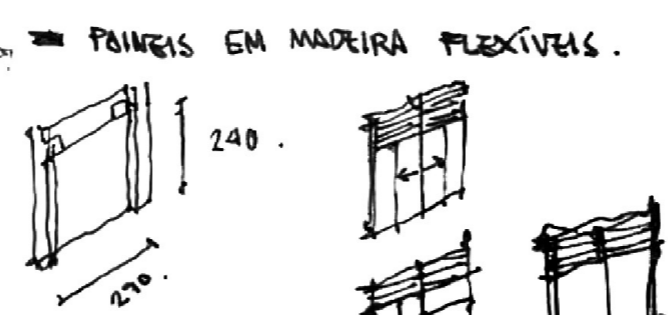
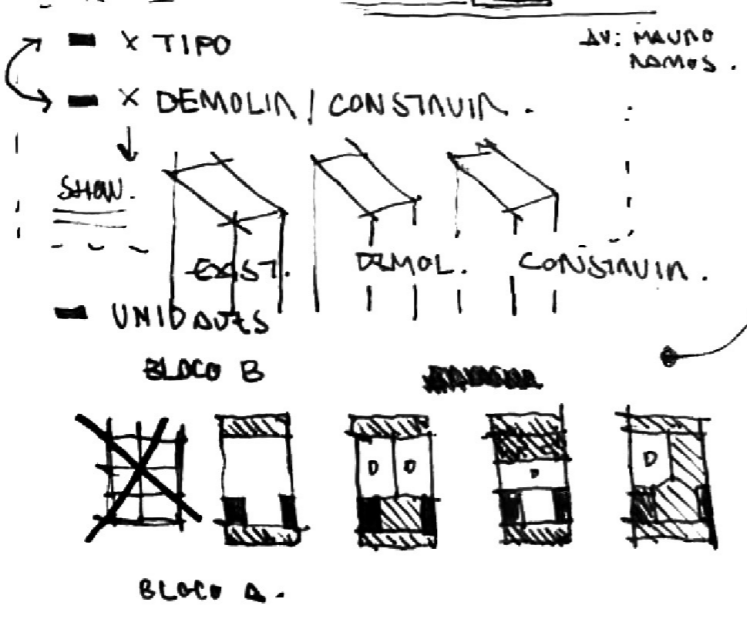


GEMINADAS; MCMV; UNIFAMILIARES... MULTIFAMILIARES.

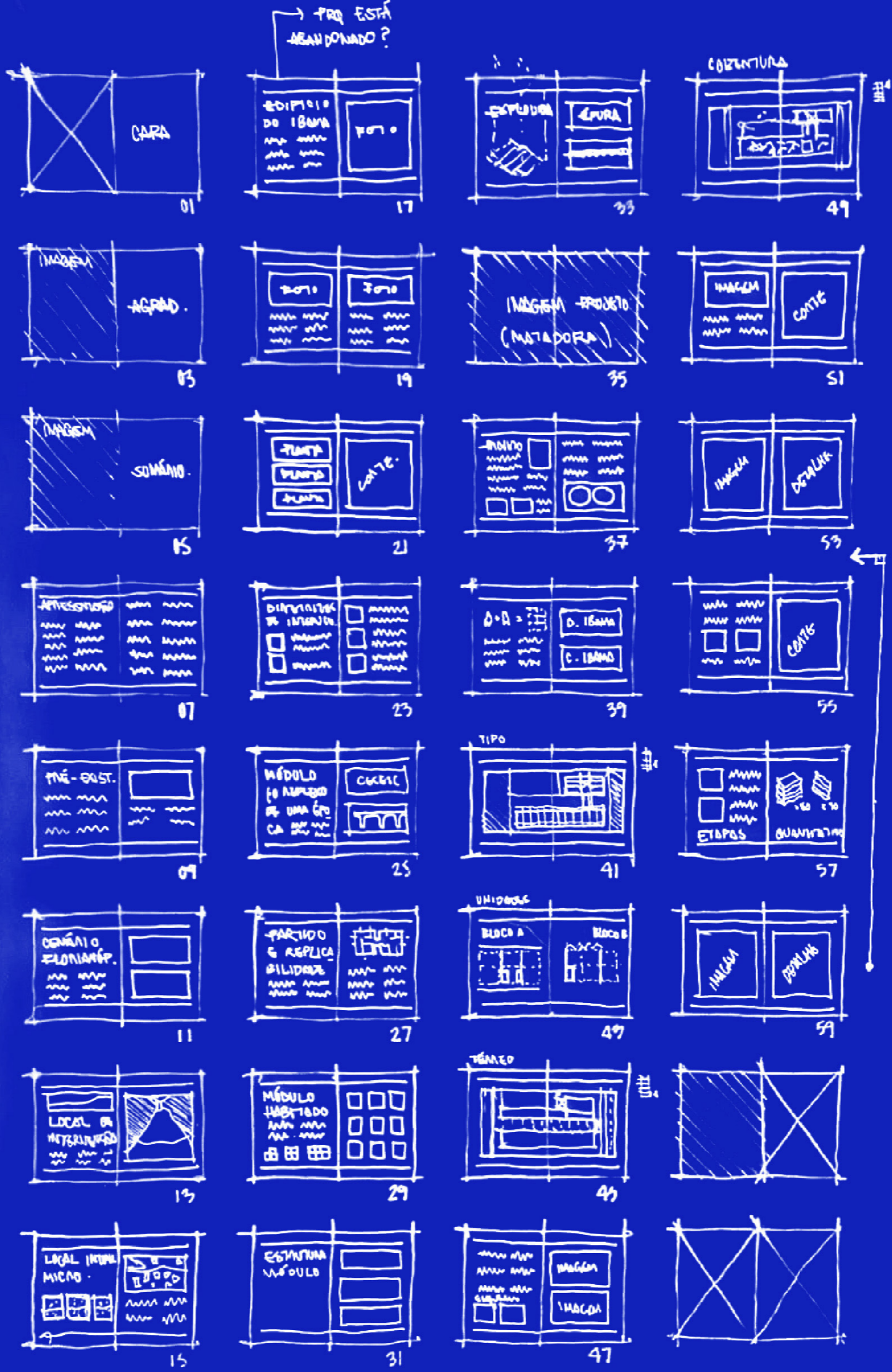
- 20 MIN
03. PROJETO.
 - x - COOPERATIVA HABITACIONAL → DADOS!!!!
 - x - ROTATIVIDADE → MÓDULOS FLEXÍVEIS.
 - ? - VENTILAÇÃO CRUZADA E ILUMINAÇÃO NATURAL.
 - x - IMPLANTAÇÃO.
 - G + PARTIDO.

→ Nº UNIDADES $(5 \times 6) + (4 \times 6) = 54$
 → Nº MORADORES = 2/4 P/ UND.
 → ÁREA CONSTRUIDA → EXISTENTE
 → ÁREA PRIVATIVA / COM. TOTAL
 → ÁREA COMUM
 → RELAÇÃO MORADOR / ÁREA PRIVATIVA.

- TÊNUEO.
 - PLANTA (ÁREAS)
 - ACESSOS
 - INTENÇÕES; CONTEÚDO
 - x - SUBSOLO.
 - ESTACIONAMENTO ROTATIVO.
 - CONTE + INTENÇÕES
 - PERSPECTIVA.
- BAIXA O PREÇO DO ALUGUEL.



DESENVOLVIDOS NA MARGEM PREVISTA NO TÊNUEO.

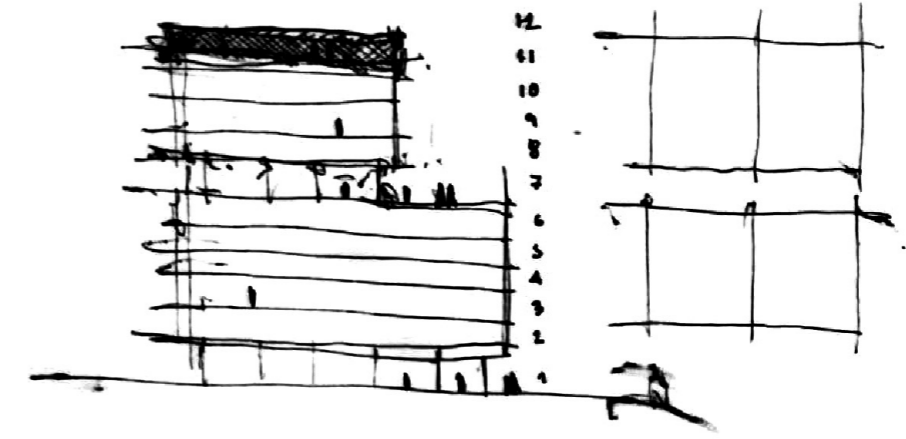
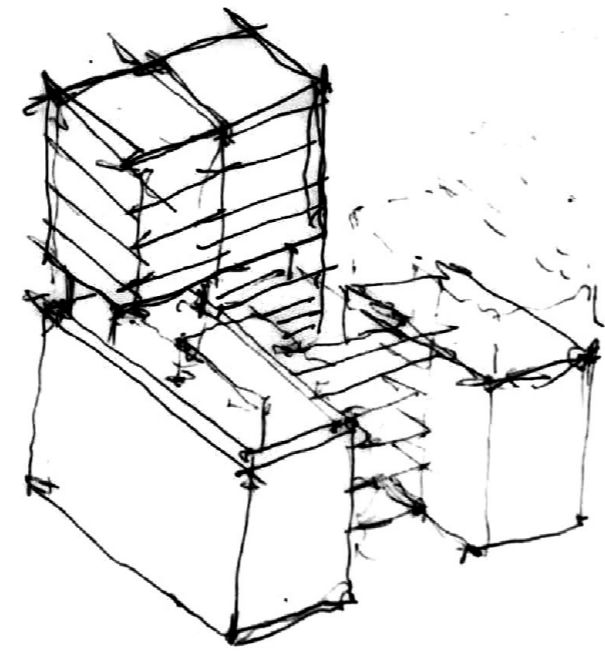
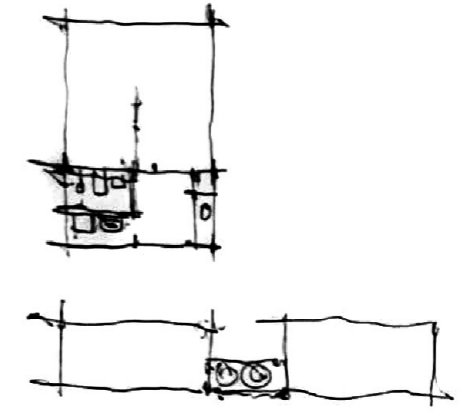
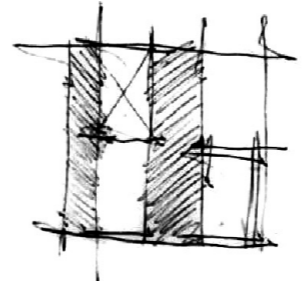
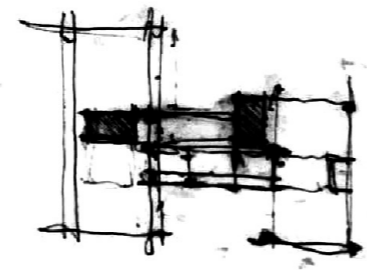
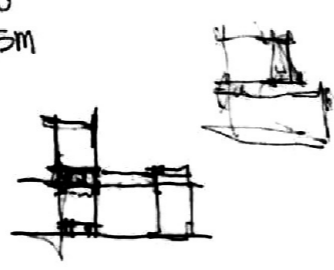
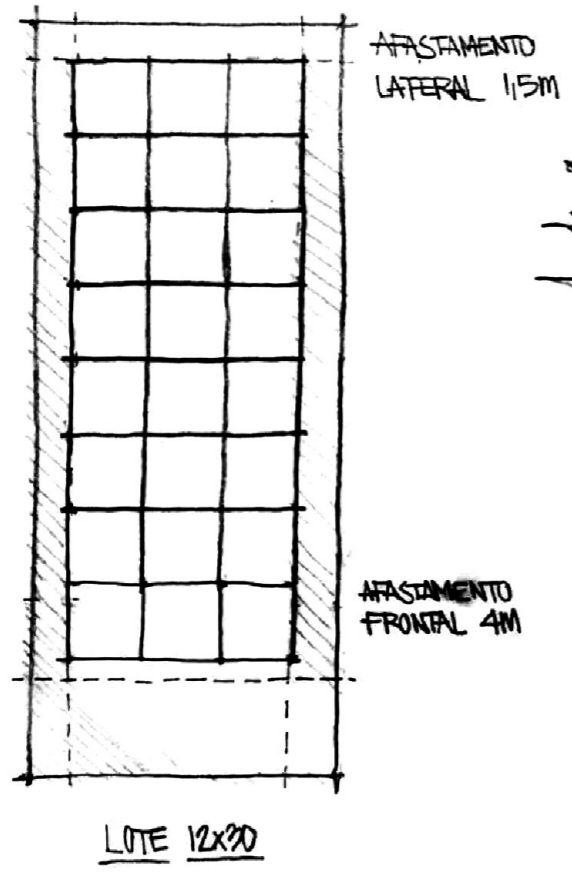
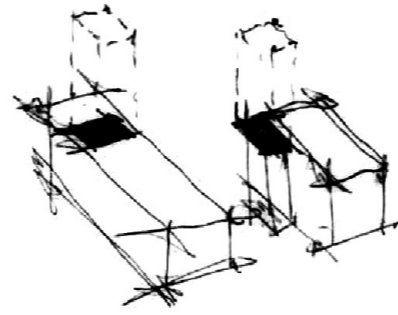
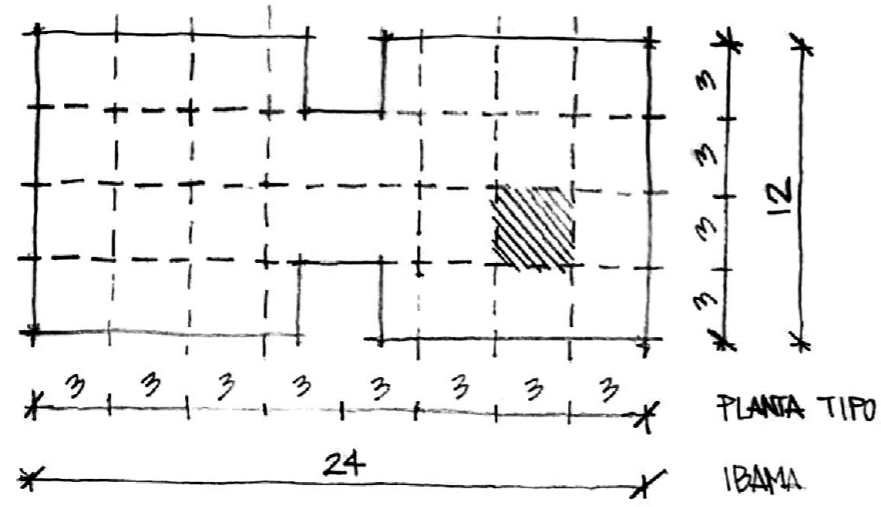
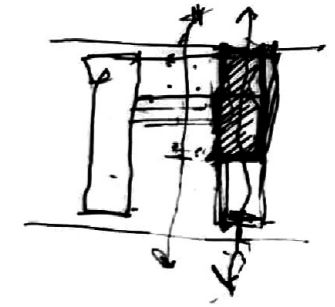


• BLOCO A → MCMV FAIXA ①

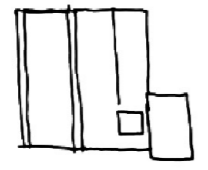
• BLOCO B → ALUGUEL SOCIAL

SEPARAR CIRCULÁRIO
VERTICAL ?

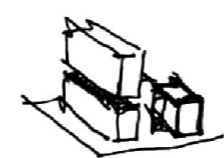
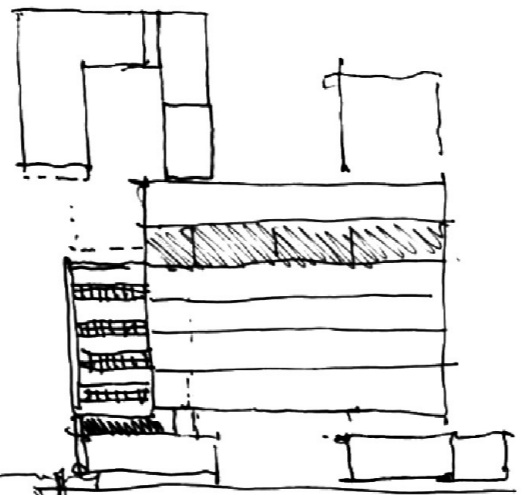
LA CONVENCIONADO
LAVANDERIAS



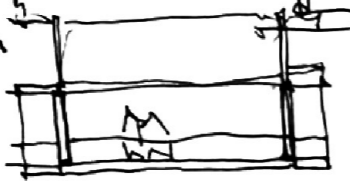
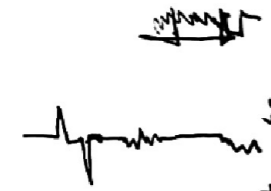
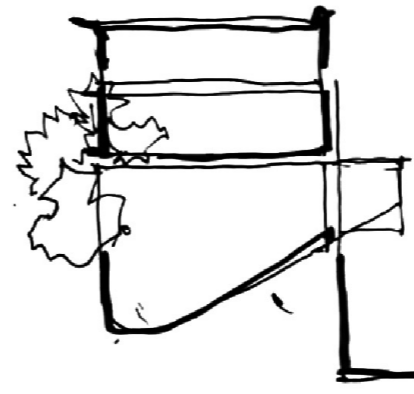
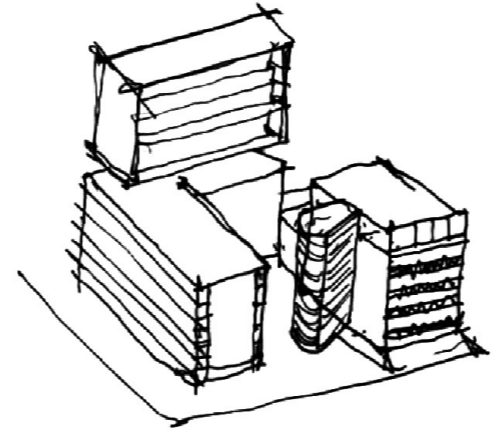
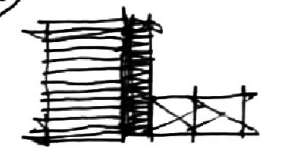
①



②

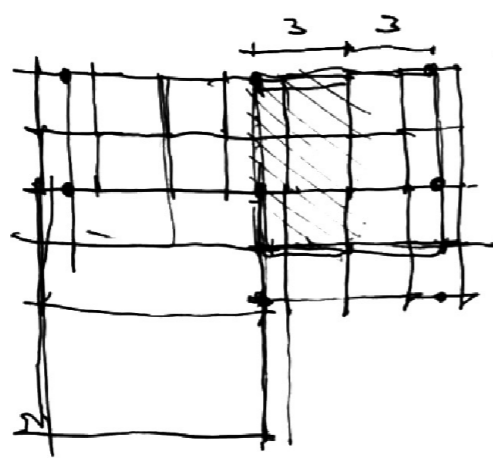


no

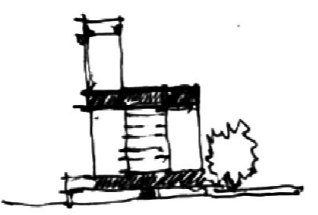
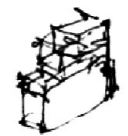
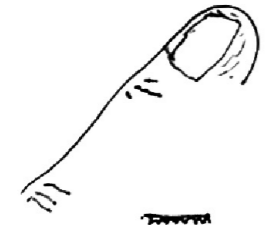
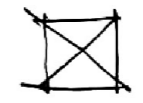
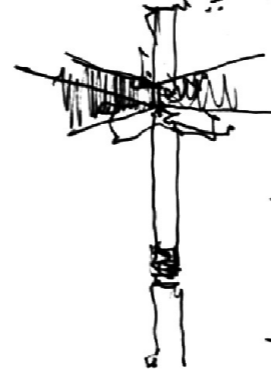
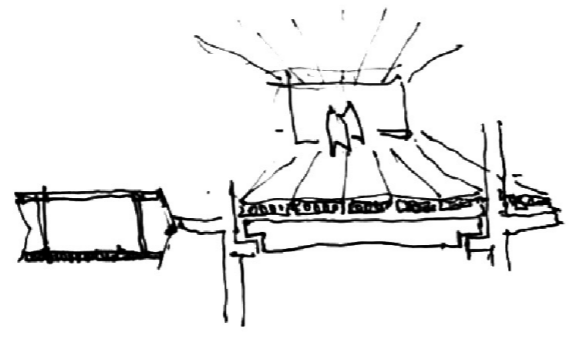
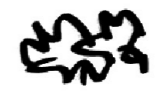
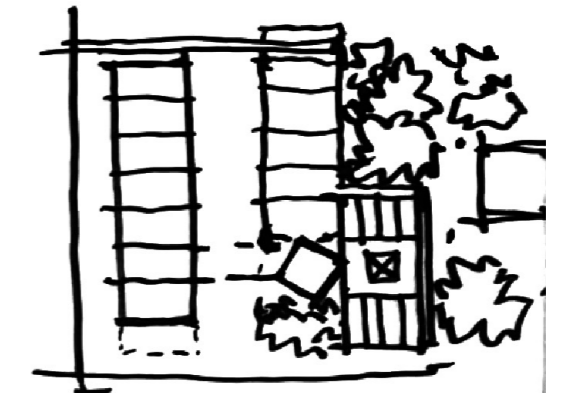
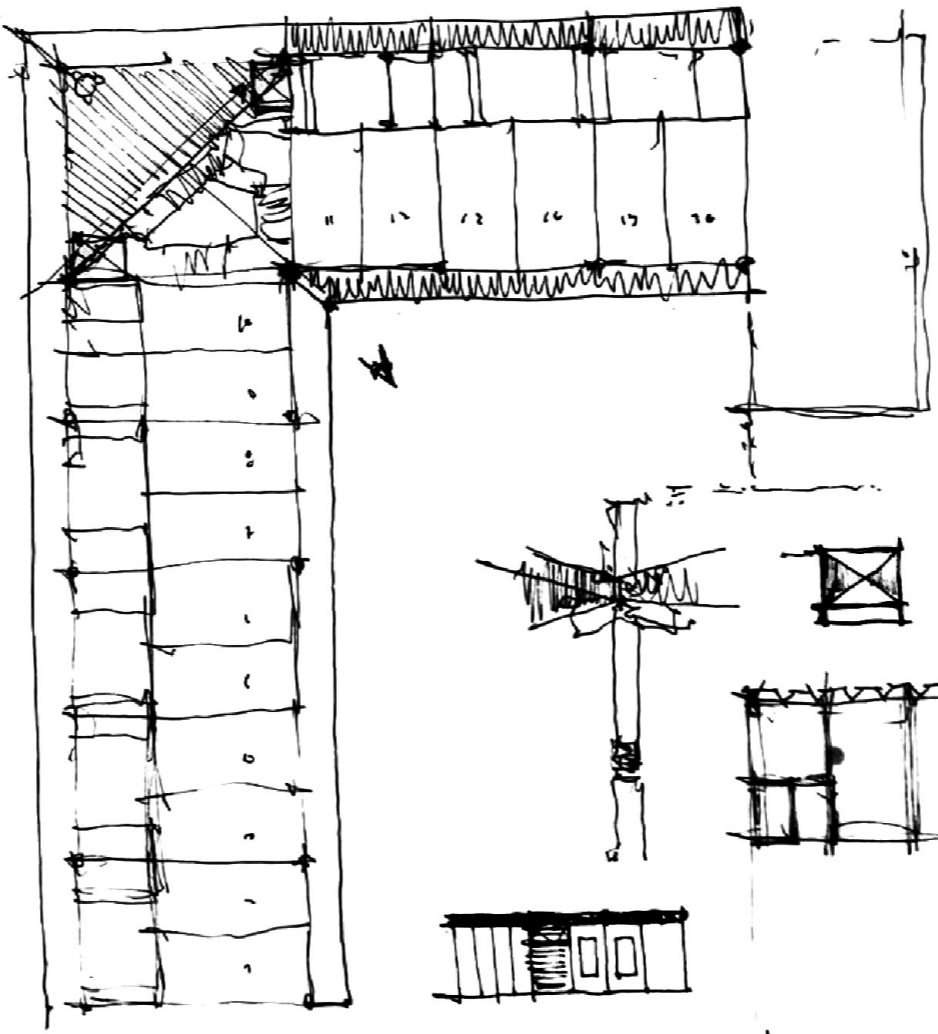


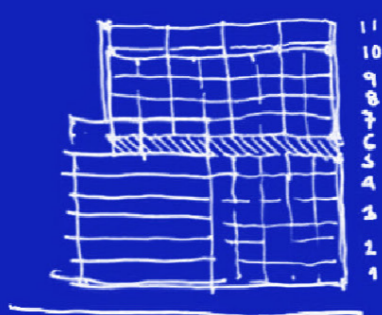
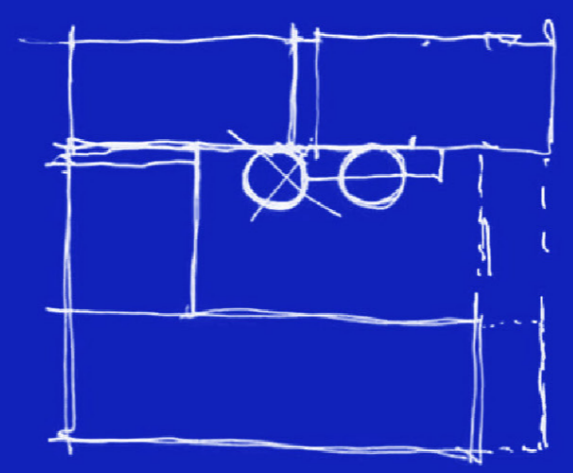
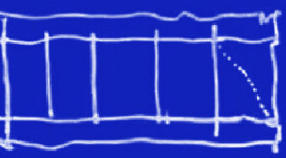
draga.....

16 LKATIS / ANJUN

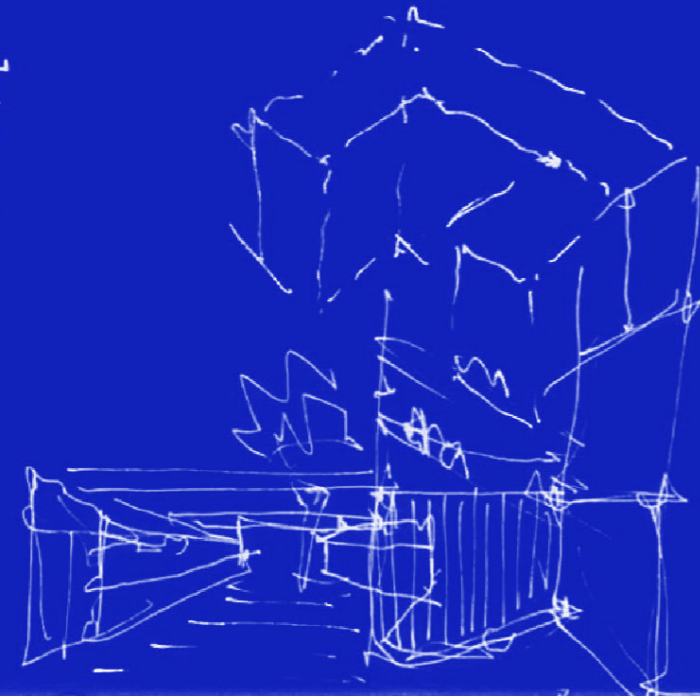
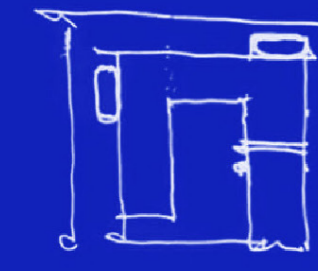
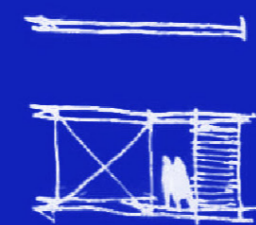
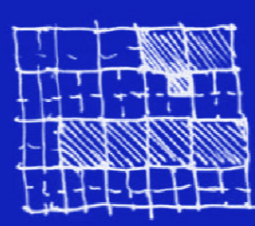
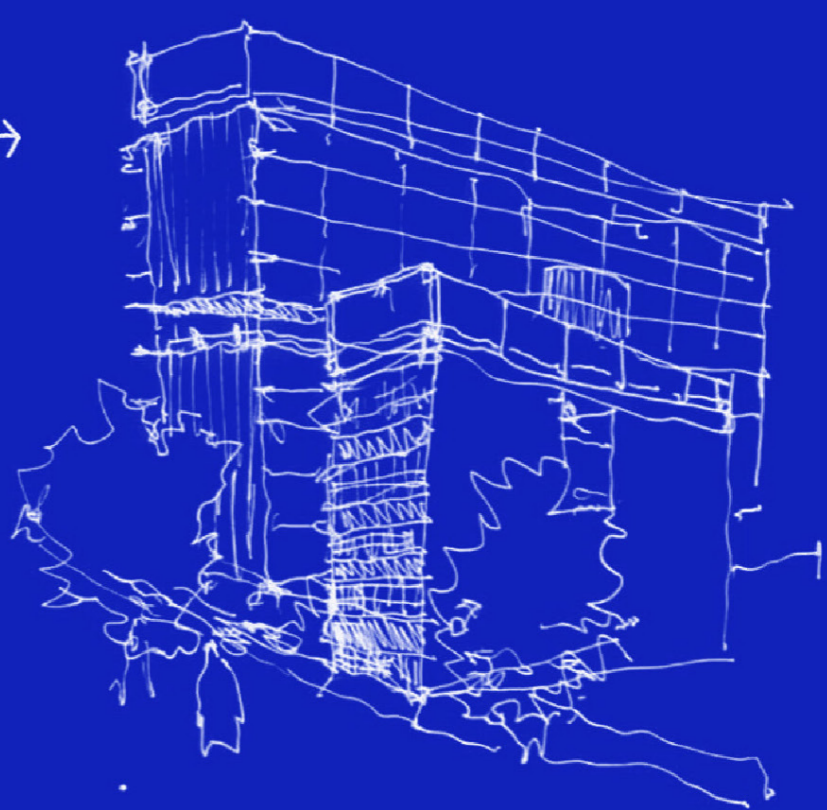
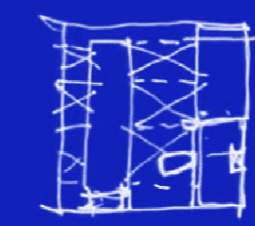
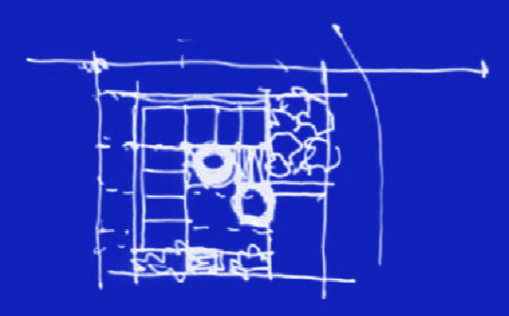
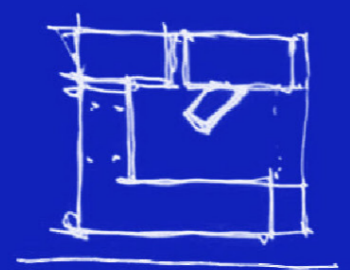
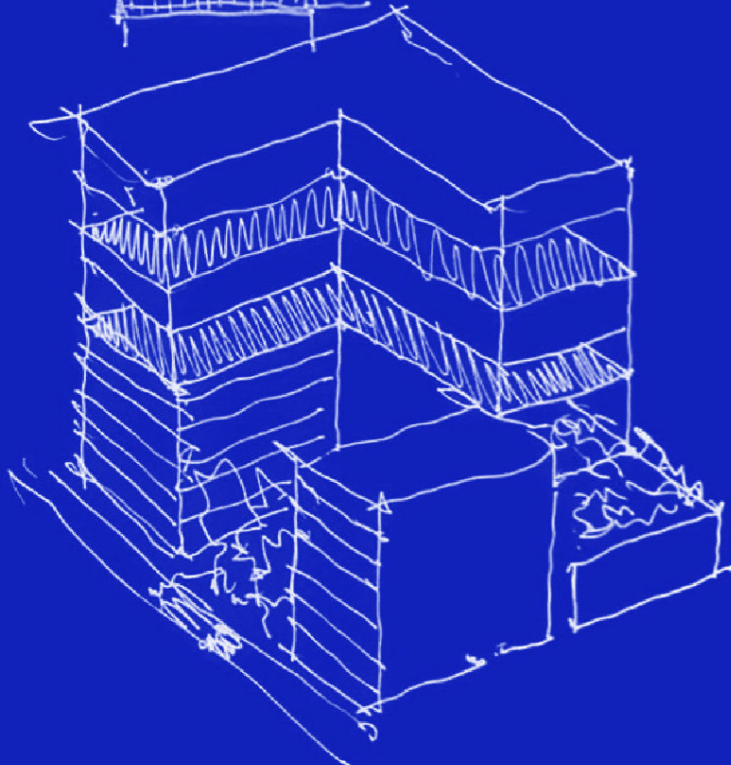
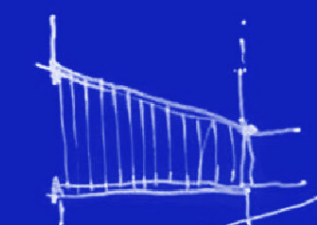
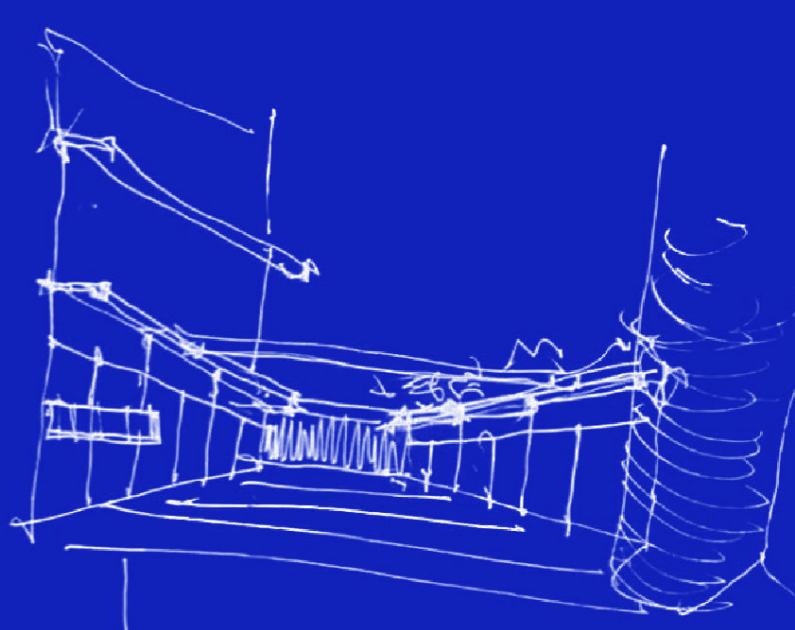


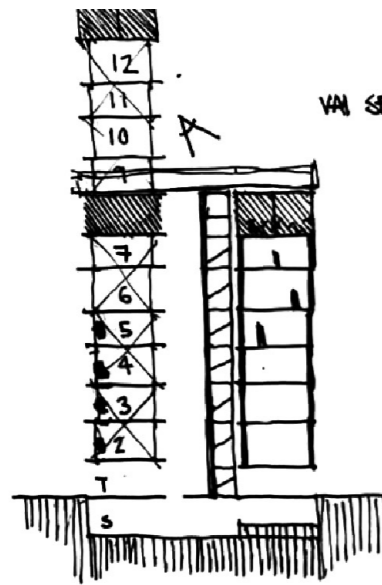
MOM
PADA
A





11 10 08 03 11 11 11





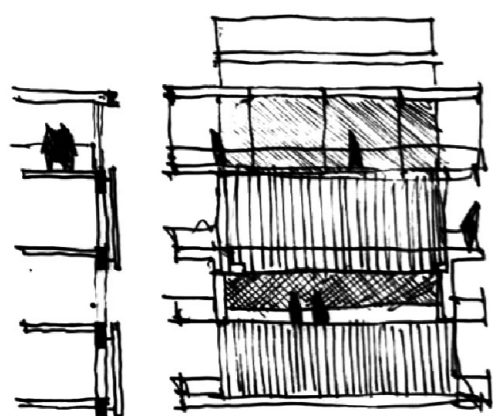
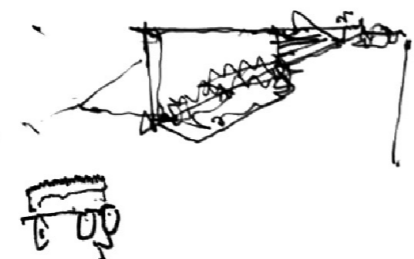
VAI SER ISSO...

FUNDAMENTOS

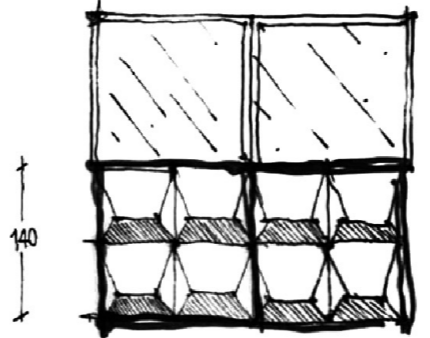
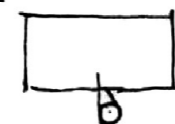
BLOCO B - N° PAV., CORONAMENTO, VAZIO

→ BLOCO A - CIRCULAÇÃO VERT., CORONAMENTO.

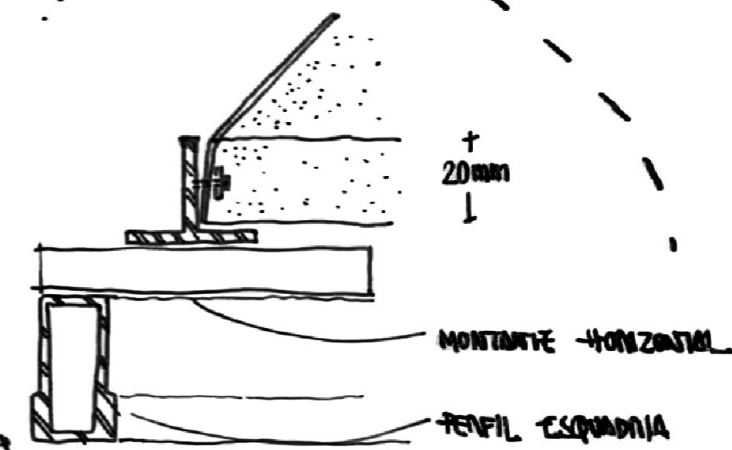
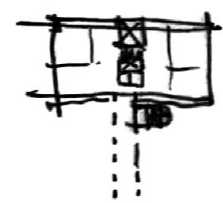
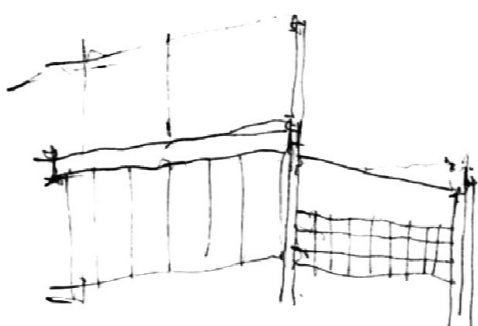
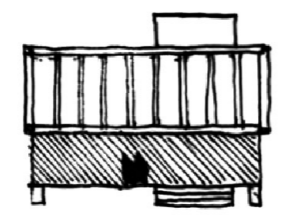
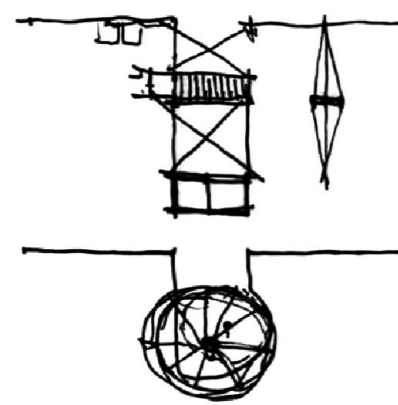
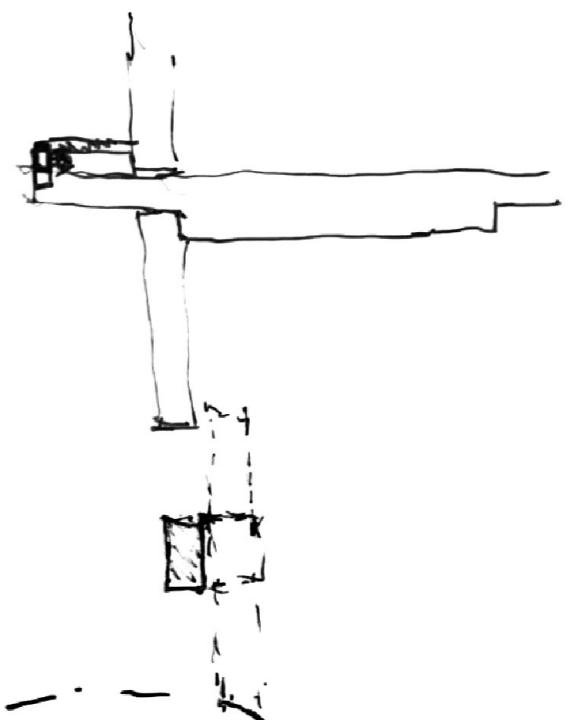
TÊNEDOS



NOVA 7A CNZ.



280

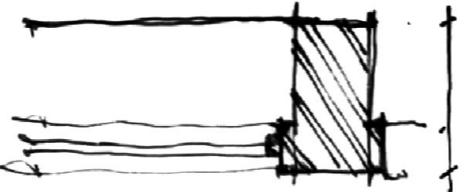
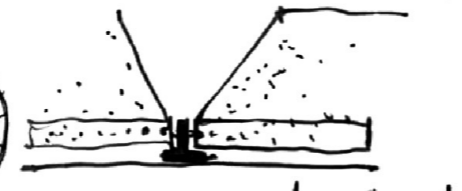
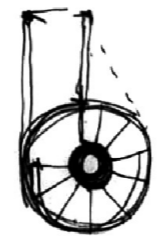
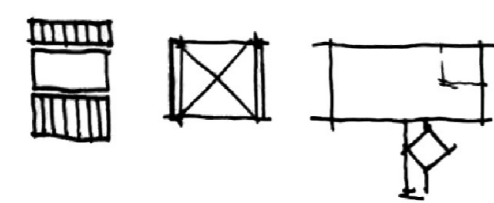


+ 20mm

MONTANTE HORIZONTAL

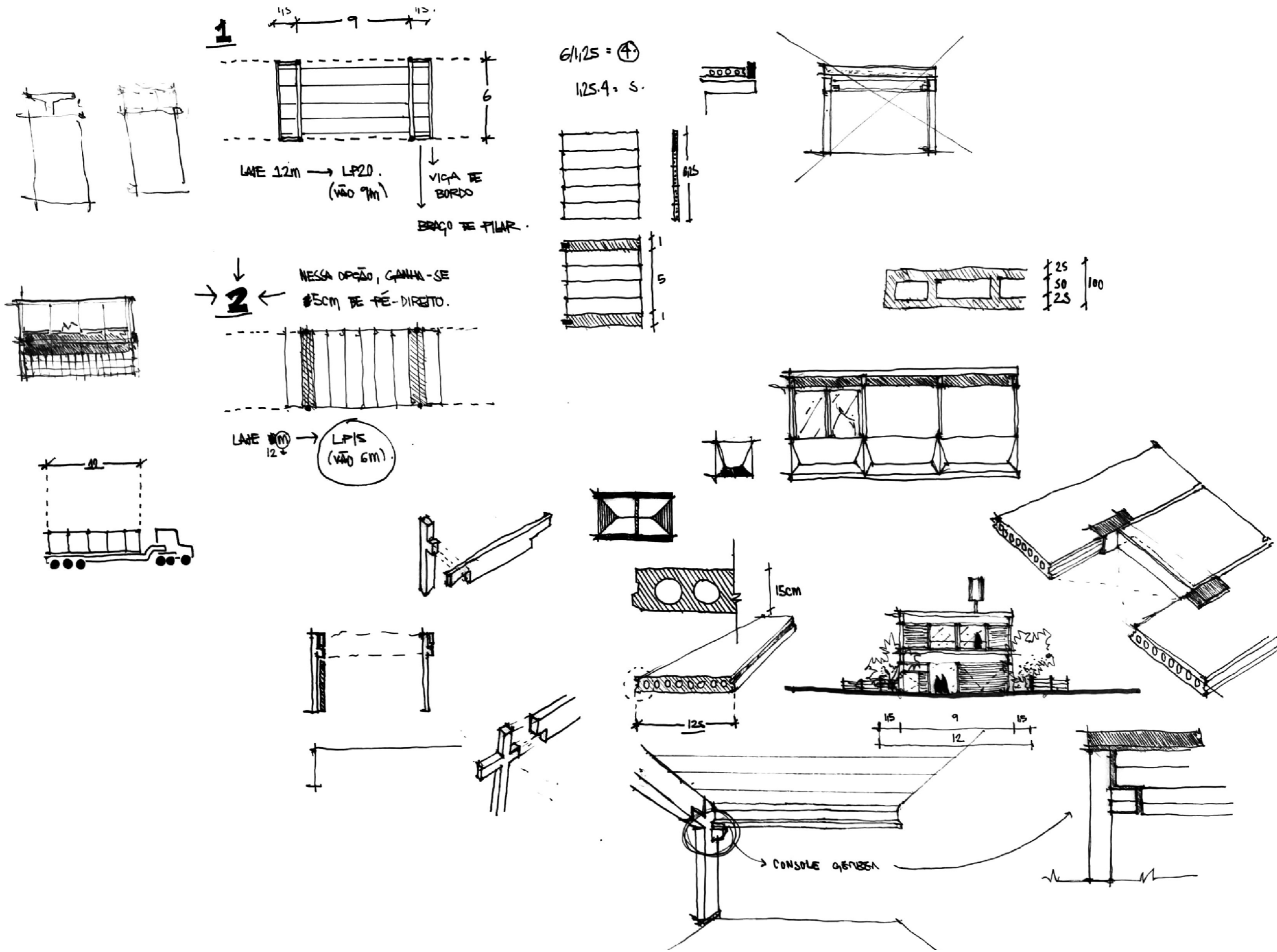
PERFIL ESQUADRIA

BRISE EXISTENTE



VEN PORME

BIQUEA



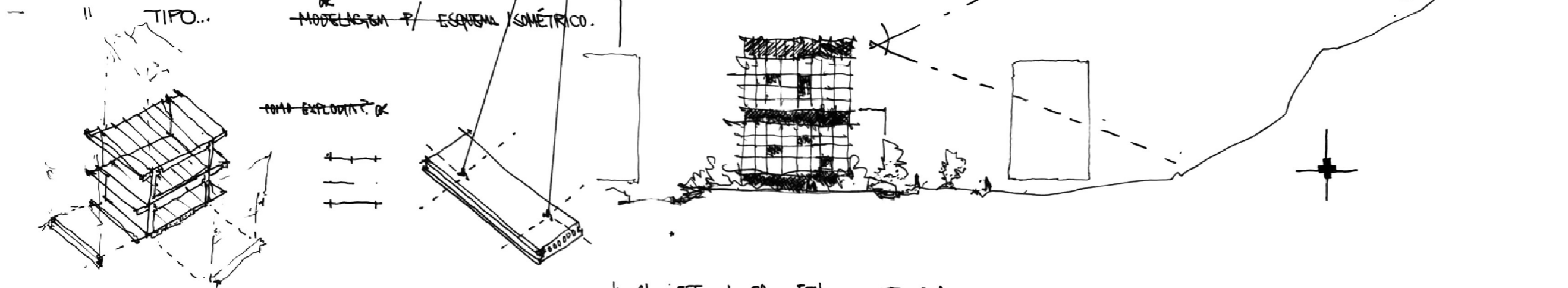
27/11

FINALIZAR ESTRUCTURA → MODELAGEM P/ MAQUO (A)

OK
MODELAGEM P/ ESCHEMA SIMÉTRICO.

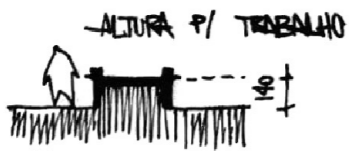
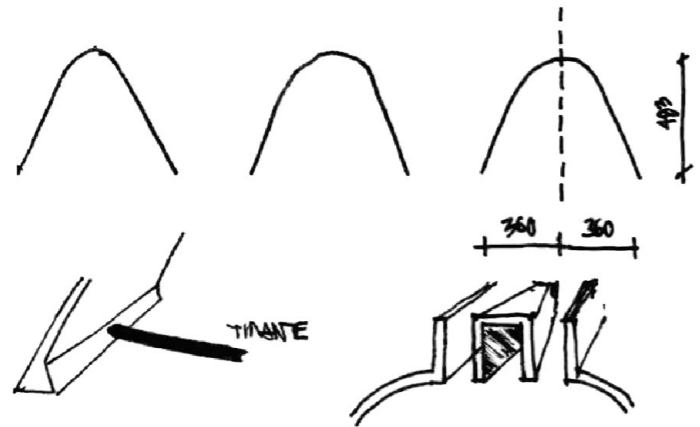
TIPO...

OK EXPLODIT. OK



$h > 21m$: EEE ; $h > 30m$: EEL → REF + DEA

ABÓBODA PARABÓLICA (LEFEVRE)



TIPO: ESCADA ENCLAUSTRADA OK

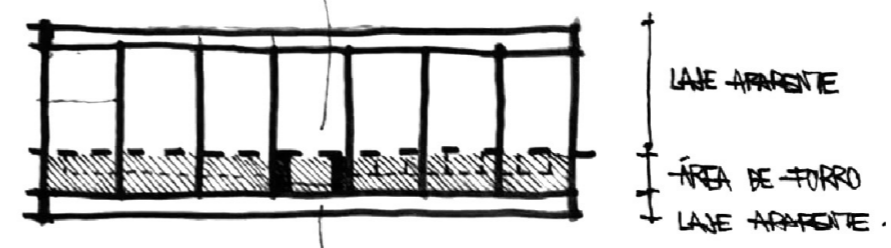
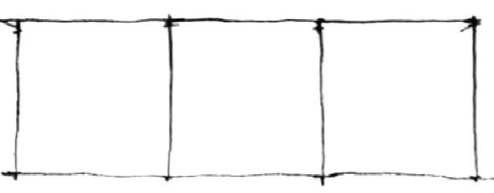
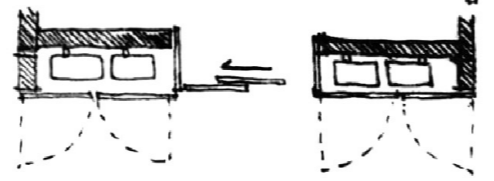
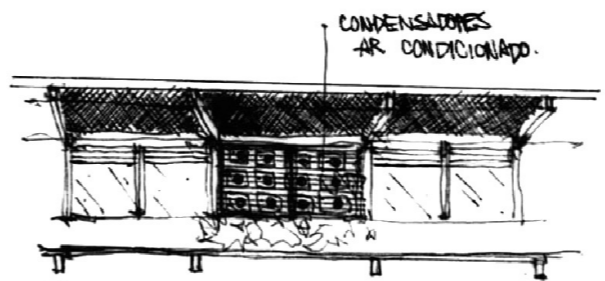
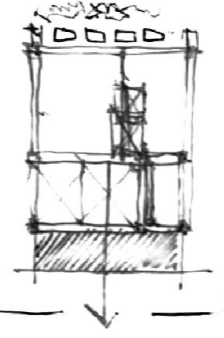
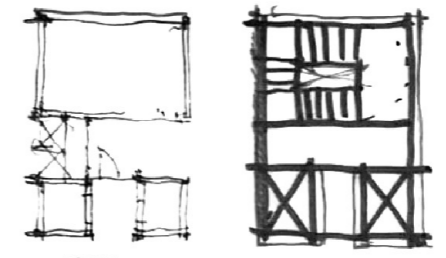
NOVA ESTRUCTURA (1 PUNTO) OK

LAVANDERIA ?

AR CONDICIONADO OK

ESQUADRIAS / FELE

BANHEIROS ?



CONDENSADORES AVAC (12 UNID)

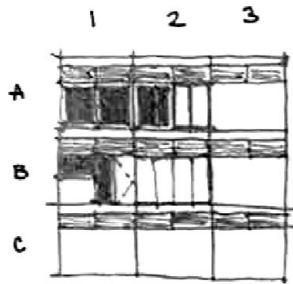
ESQUADRIAS

$h = 2,60 \rightarrow 2,10 + 0,50m$

BLOCO B = 2,60 \rightarrow CONSIDERAR **2,60**

BLOCO A = 2,56

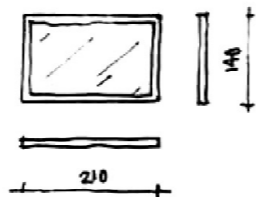
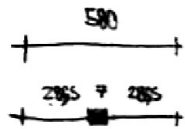
MÓDULOS QUE ENTREM NO ELEVADOR



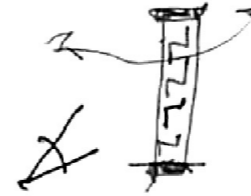
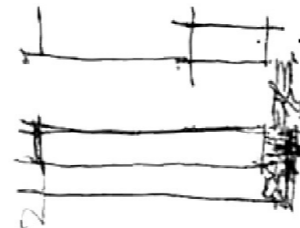
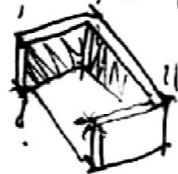
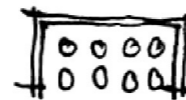
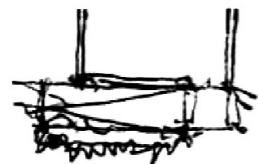
LARGURA 2,865m (IBAMA).

LARGURA 2,90m (BLOCO PREFAB).

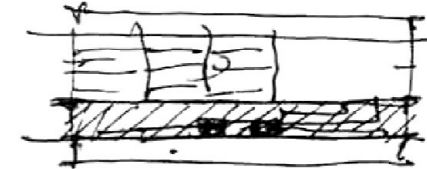
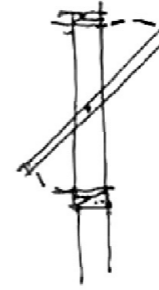
MAIOR PEÇA = 2,10 x 1,40



ESTE CADERNO
SERÁ PUBLICADO
NA BU-UFSC.
ISSO É UM
BASTER EGG

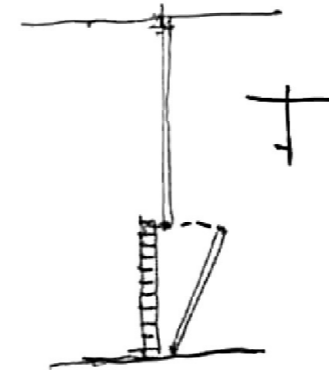
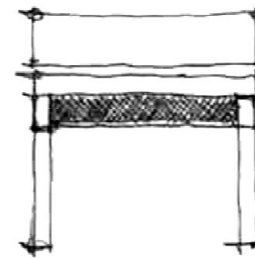


COMPENSADO NATAL

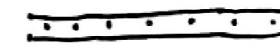


LISTA DE ESQUADRIAS

- 1A; 2A; 3A; 1B; 2B; 3B.....



4

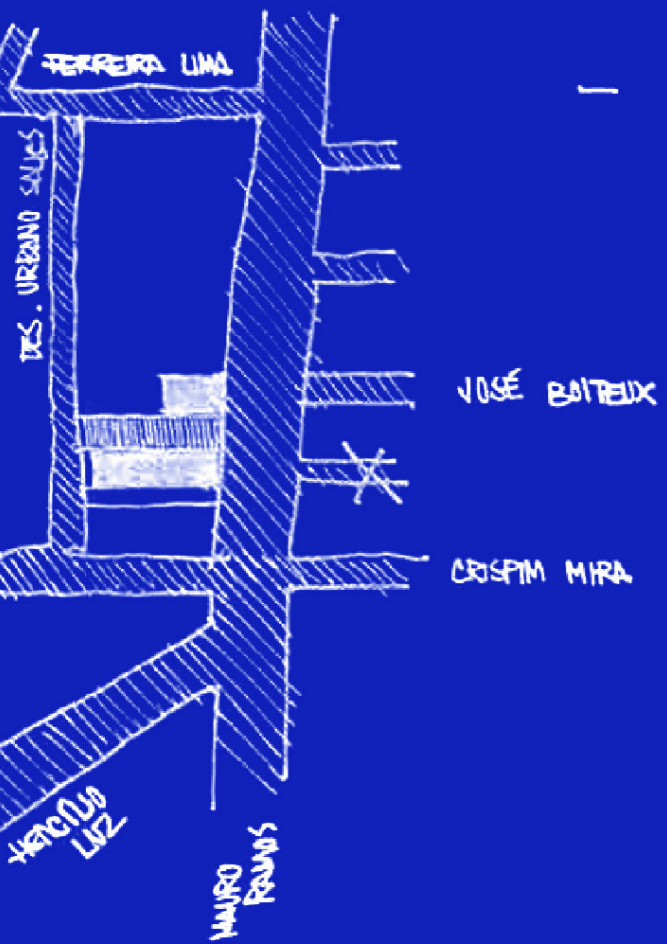
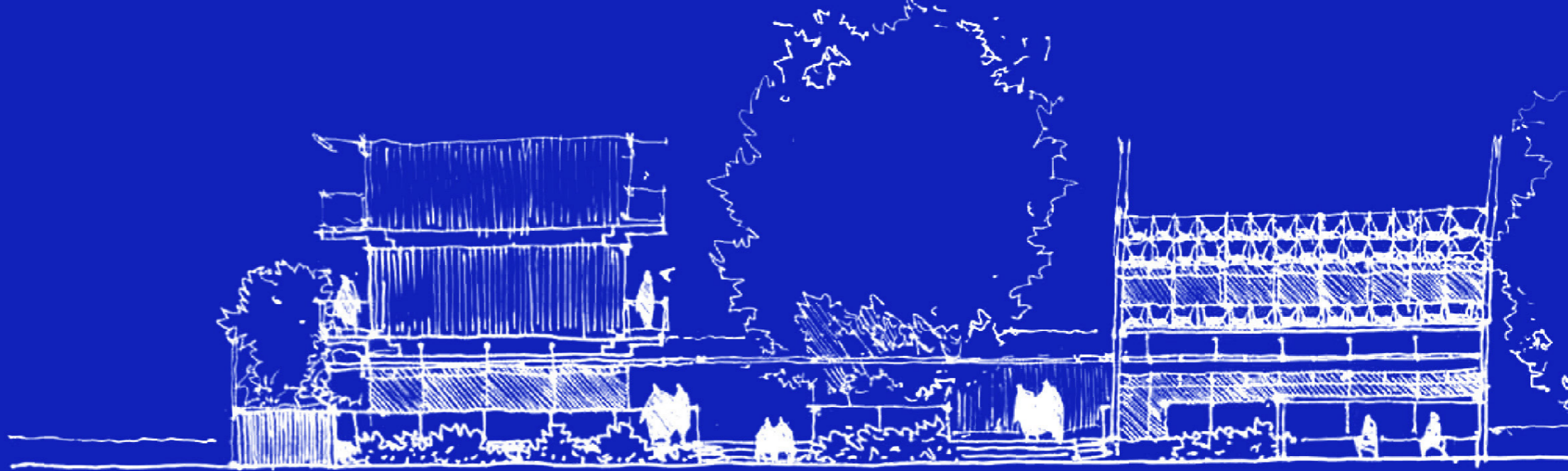
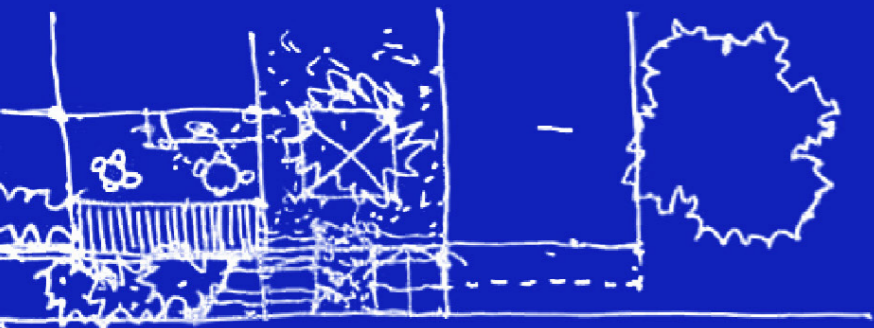


- PENSAGISMO.
- TEL. C/ MUA.
- ACESSOS
- RAMPAS
- LIXO
- GAS.

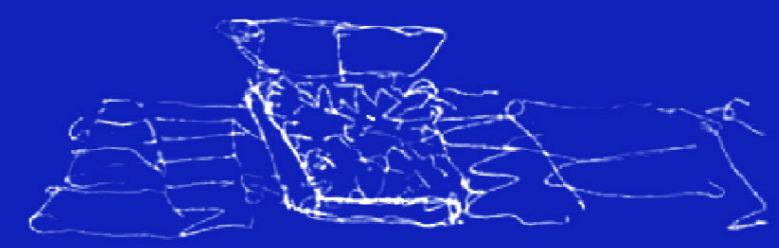
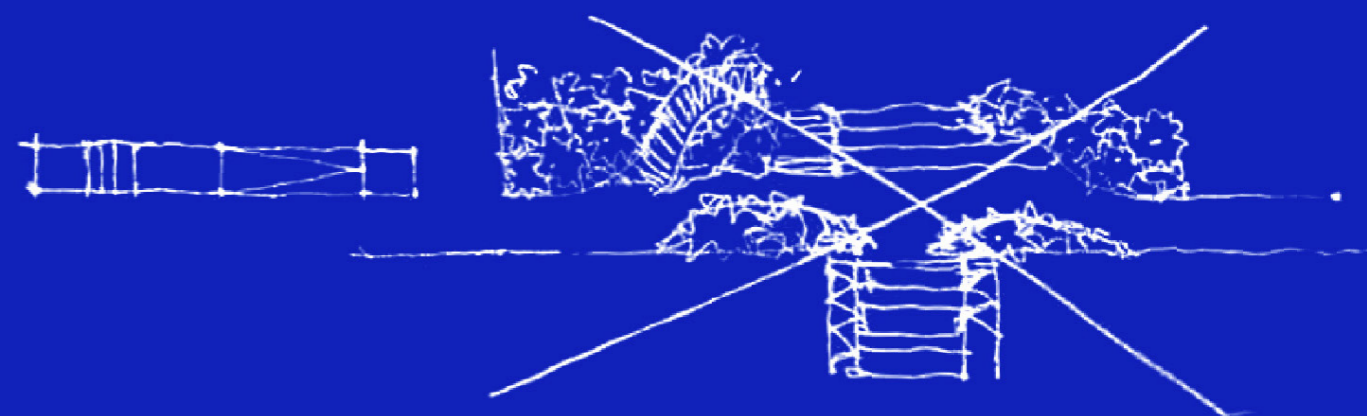
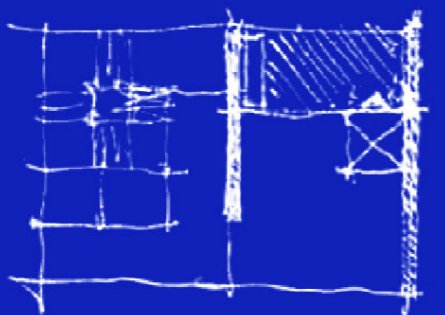
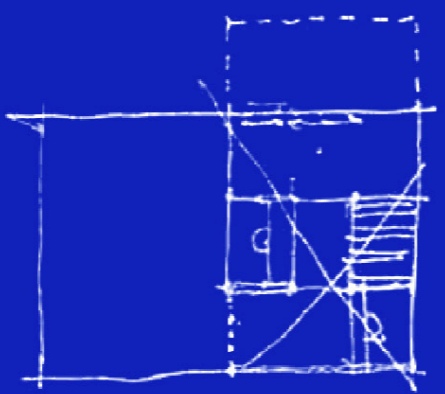
SUB - 02/12 - QUE BÉLO DA TRÁ RESOLVER TERREO...



ÁRVORES PLANTADAS NO SUBSOLO PERMITEM
UM FORTE MAIOR DE COFA = + SOMBRA



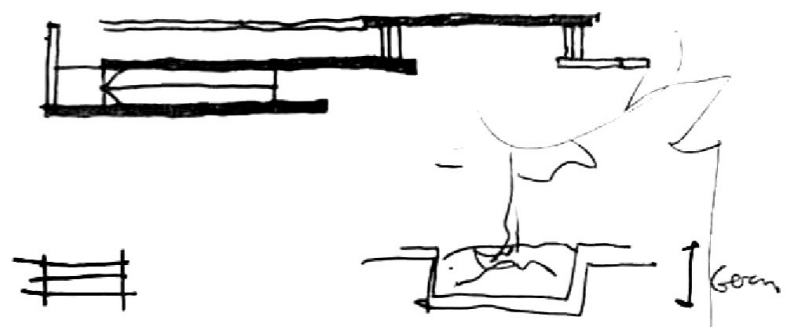
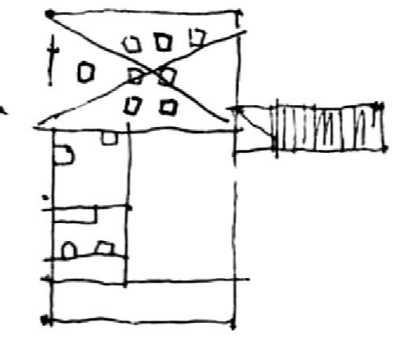
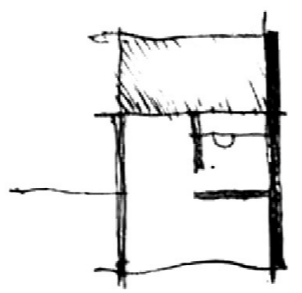
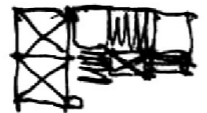
- PASSAR BRISAS DO ARQUIVO
- ACESSO + O BLOCO A
- ACESSO BLOCO B + SUBSOLO
- ACESSO / CALÇADA MAURO RAMOS
- ACESSO URB. SALLES
- LIXO E GÁS
- MANIQUE



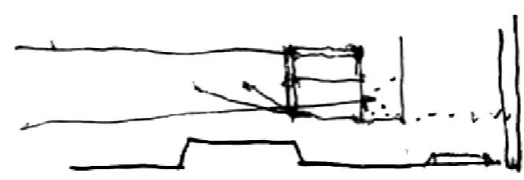
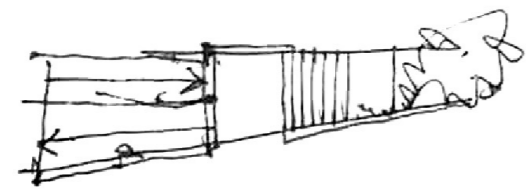
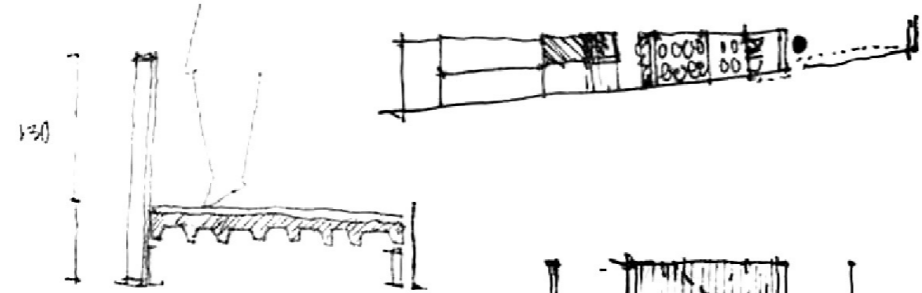
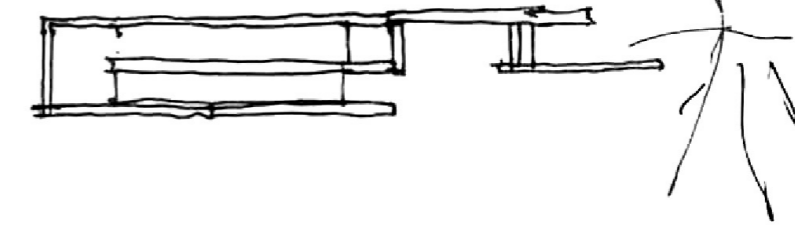
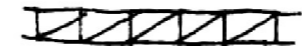
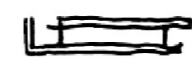
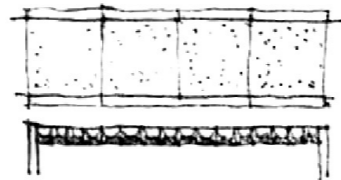
TEMPO

ITENS FALTANTES:

- ~~ACESSO IBAMA~~ OK.
- ~~LAYOUT IBAMA~~ OK.
- ~~D.P. LIXO (A,B,LOJAS)~~ OK.
- ~~PISCICULTIVO MAURO ENRIQUES~~ OK.
- BANHEIROS GALERIA.
- VAZIO ARvore... → PAU FERRO
SIBIPIRUNA
JACARANDA
- * FALAR MAIS DAS CARACTERÍSTICAS DO QUE ESPECIFICAR EM SI



JACARANDA

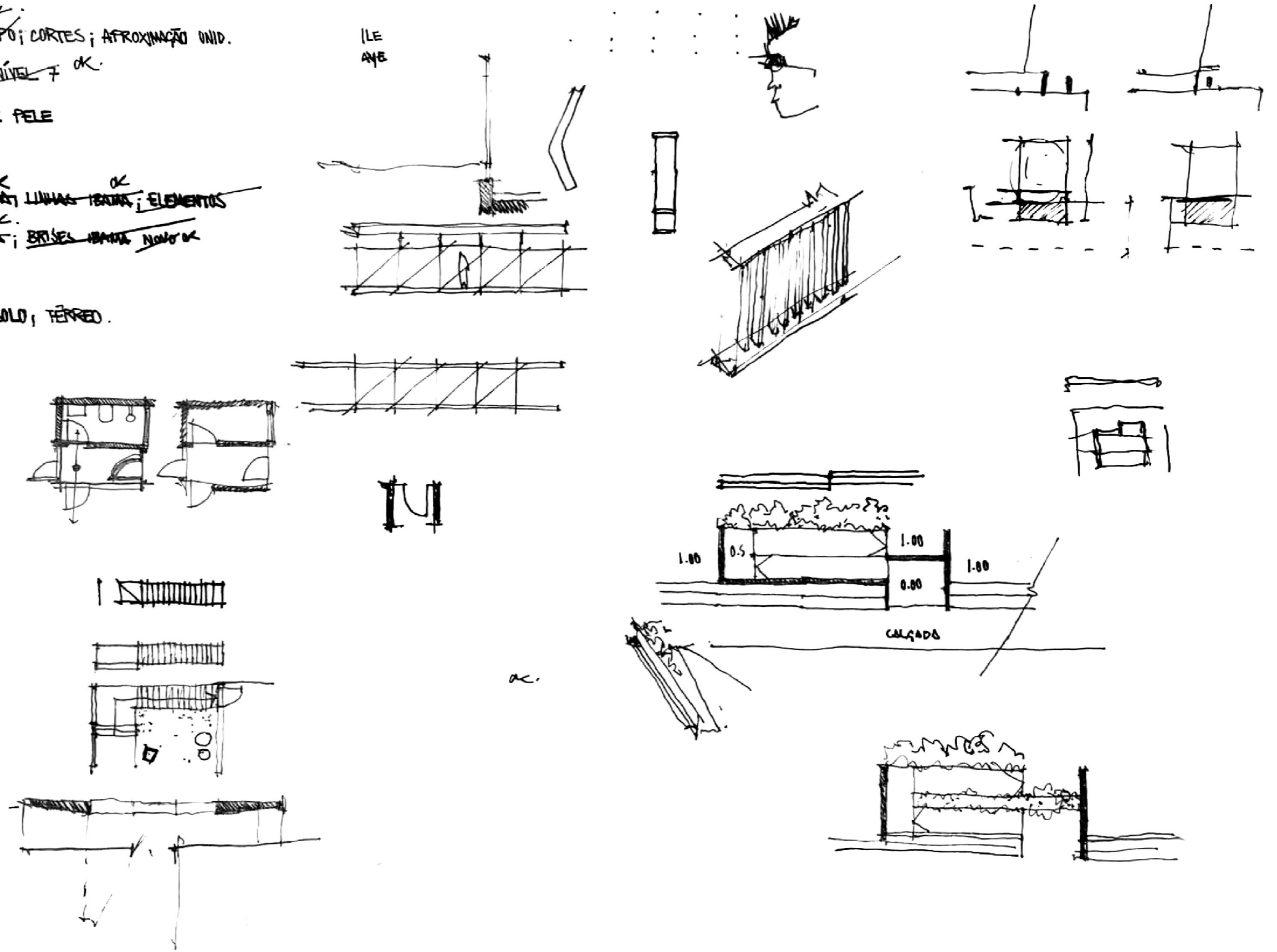


10/12/23 - DOM

- GERAR: ~~TERRAO~~^{OK}; ~~DPO~~^{OK}; CORTES; AFROXIMAÇÃO UNID.
- PROJETO: ~~IBAMA~~^{OK}; ~~NÍVEL 7~~^{OK}.
- GERAR: CORTE DE PELE

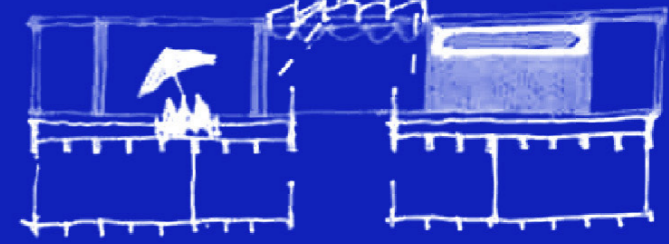
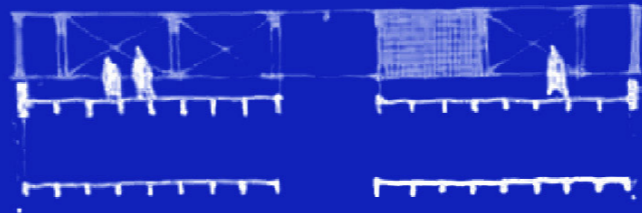
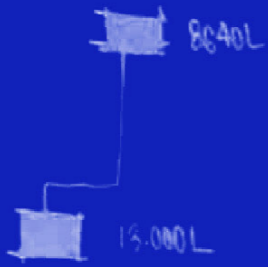
~~TIPO: ESQUADRIAS~~^{OK}; ~~LUMINÁRIAS~~^{OK}; ~~TEIADA~~^{OK}; ~~ELEMENTOS~~^{OK}
~~DO TERRAO EM CINZA~~^{OK}; ~~BRISAS~~^{IBAMA} ~~NOVO~~^{OK}

CORTE: TERRA; SUBSOLO; TERREO.

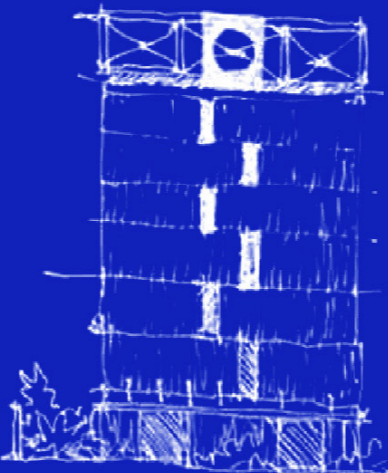
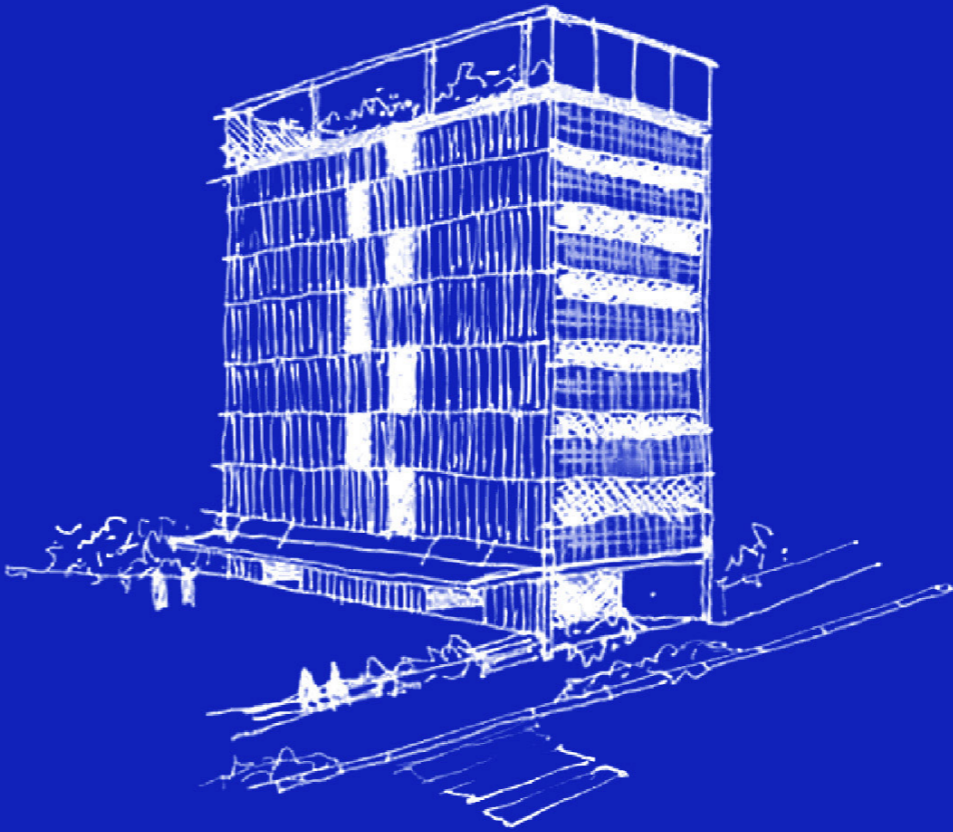
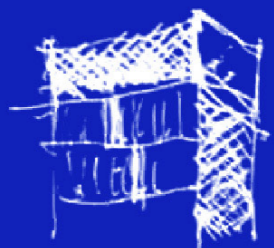
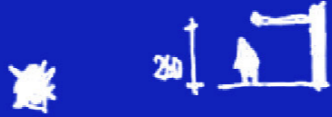


$150 \times 2 = 300$
 $4 \times 6 = 24 \times 15 = 360$

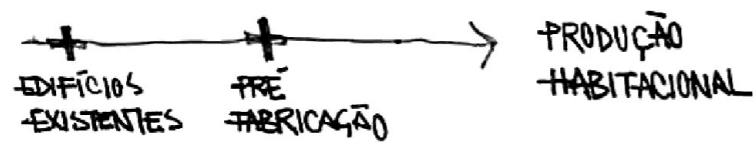
300×72
 21600
 600
 21000



- COBERTURA → OK.
- PLANTA NIVEL 7
- PASSARELA.
- MARQUISE.
- ~~CORTE A~~ OK.
- ~~CORTE B~~ OK.
- ~~DETALHES~~ OK.
- UNIDADES



15



FLUMINÓPOLIS → CENTRO; EDIFÍCIOS VAZIOS.

MOTIVAÇÃO DA PRÉ FABRICAÇÃO.

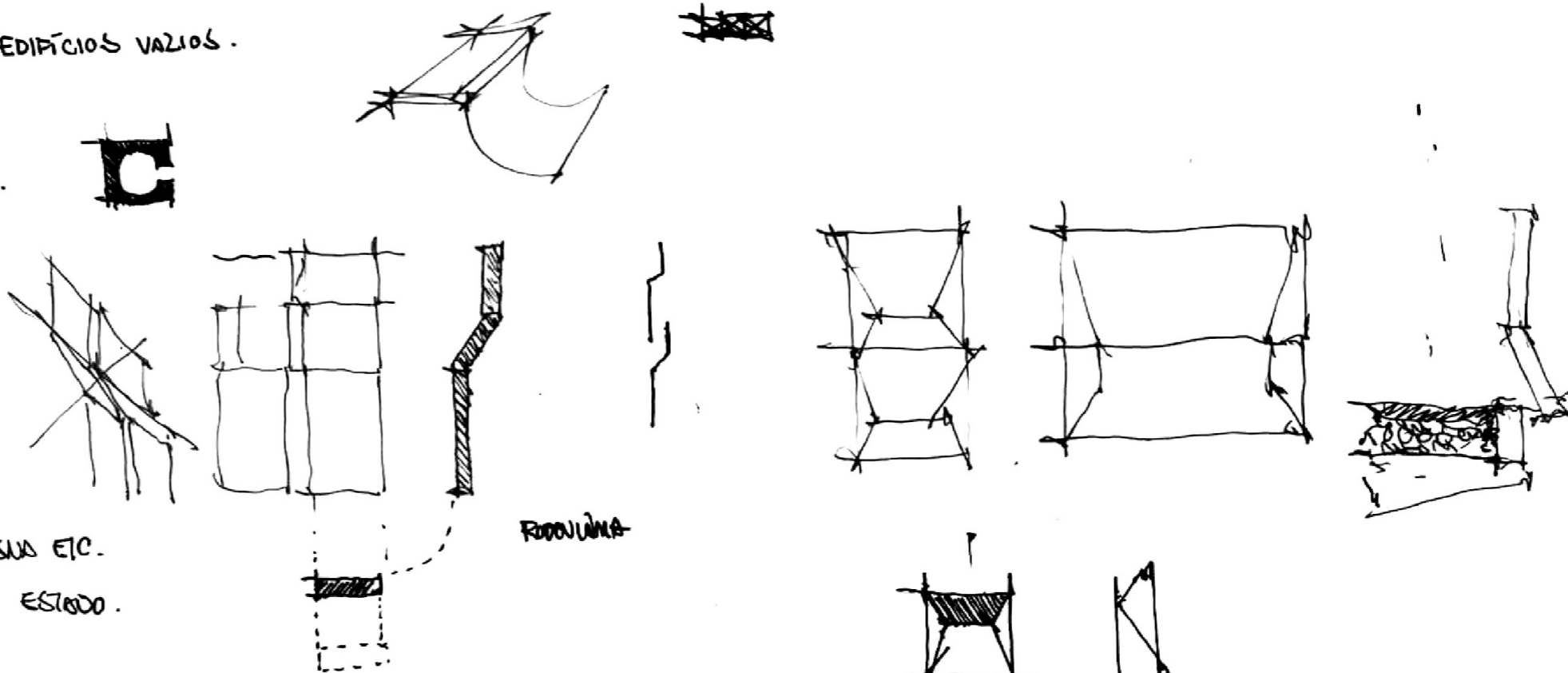
ARQUITETURA GATAPINENSE

↓
MÓDULO COMO MÉTODO PROJETUAL.

ALGO QUE ESTAVA SENDO PRODUZIDO NAS OBRAS

DO LIZ, CASSOL, MONTEIRO; BRUNO ETC.

PRESEÇA DA CASSOL NO ESTADO.

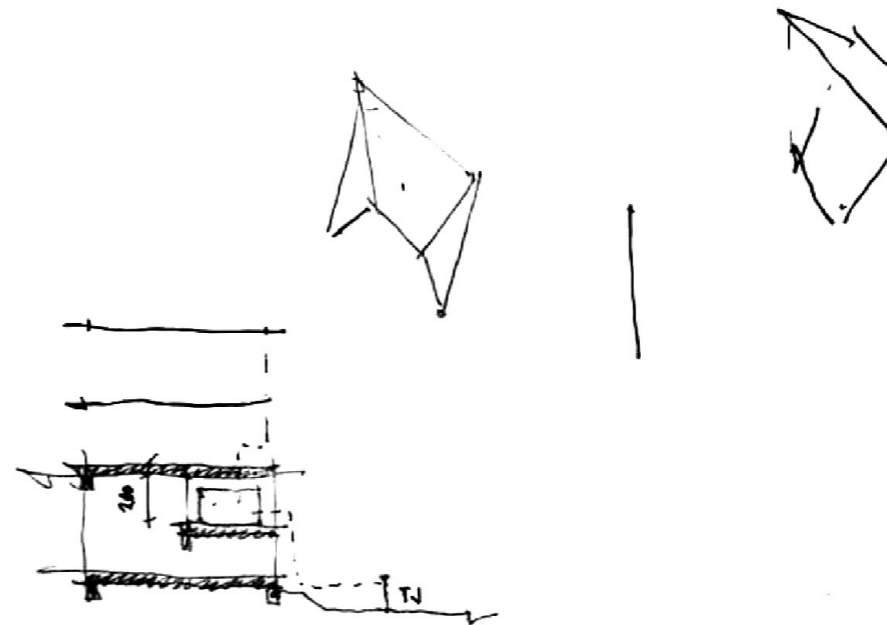


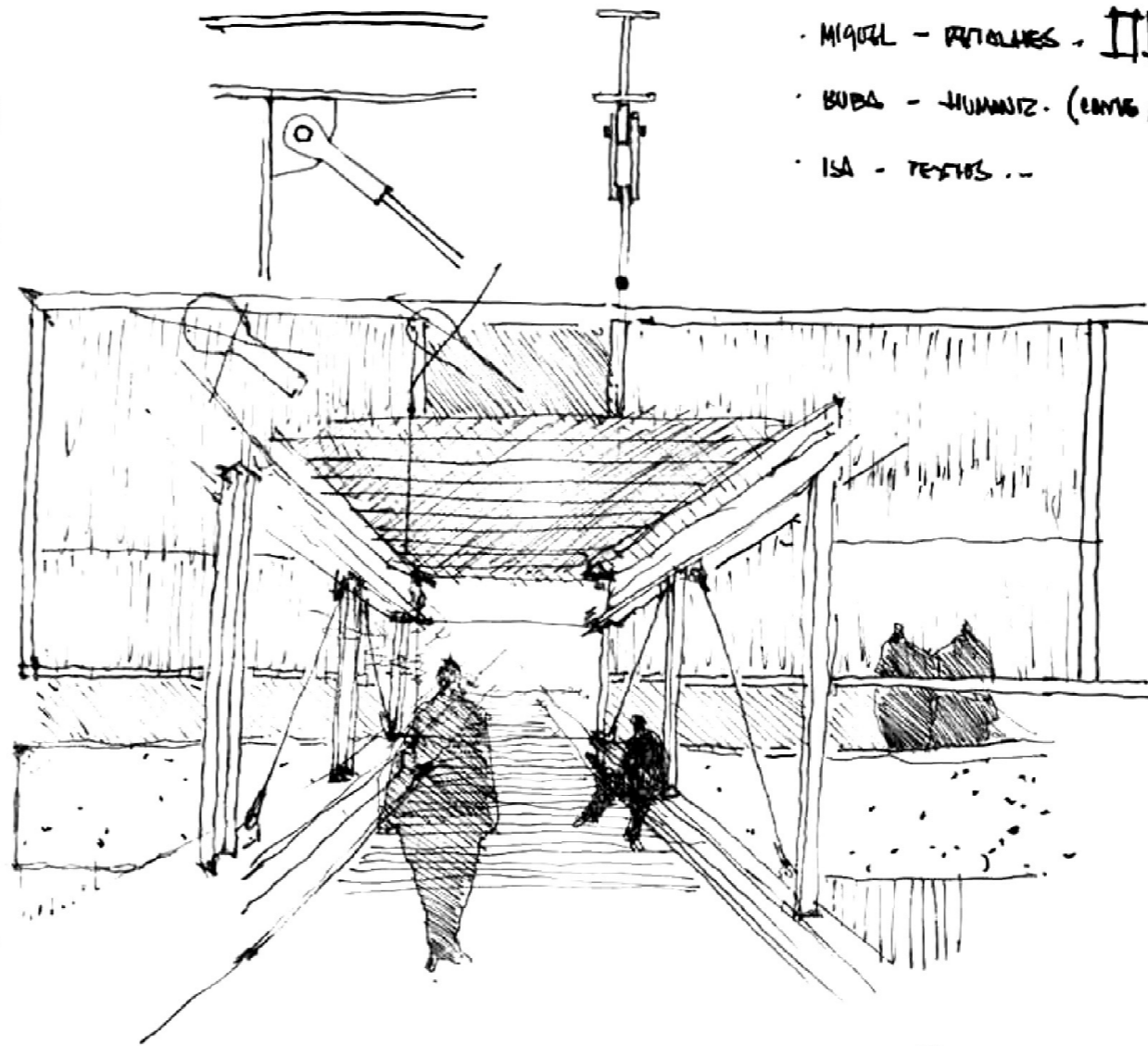
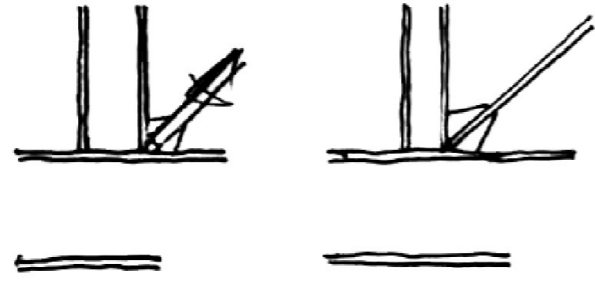
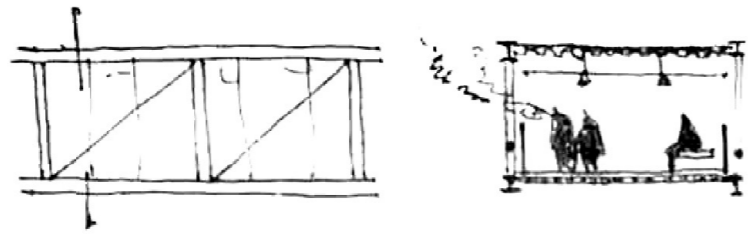
→ MÓDULO PARA QUE SEJA REPLICÁVEL QUANDO ASSOCIADOS DE FORMAS DISTINTAS.


UMA VEZ QUE O PROGRAMA HABITACIONAL, DEBDE A CASA UNIFAMILIAR DO EDIFÍCIO EM ALGUMA, É ENXUTO, O MÓDULO DEVE SER APLICADO EM DIFERENTES ESCALAS.

PROJETO.

REFLEXÃO DE COMO DEVE SER A PRODUÇÃO HABITACIONAL → CENTRAL



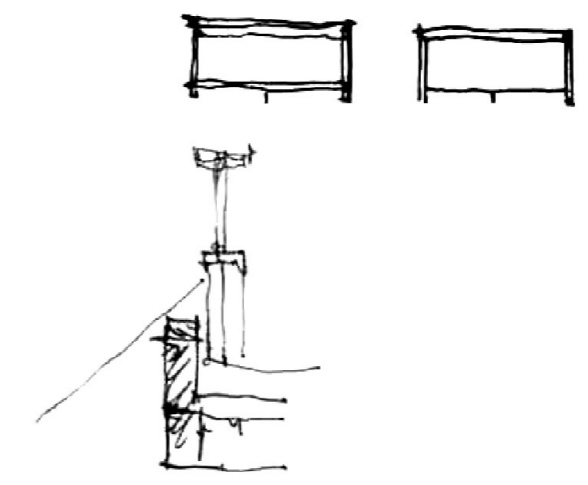
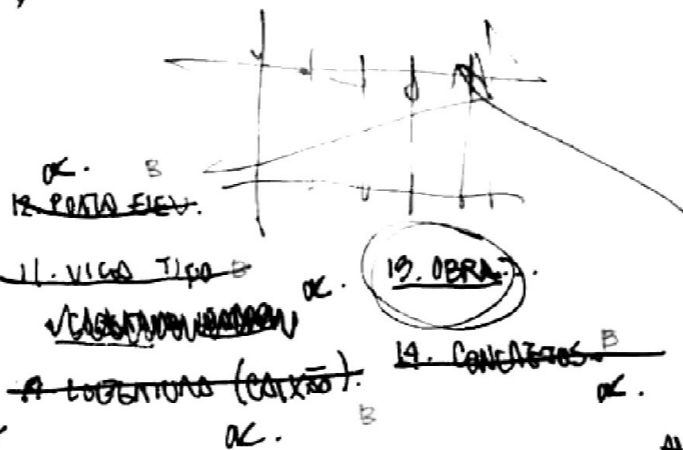


- MIAOUL - PITCHES - 
- BUBA - HUMIDIZ. (LUMES, PLANTAS).
- ISA - TESTES ...

MODELAGEM.

- TRINCA - LAJES. OK
- TRANSIÇÃO - QUADA COPO & FICHAS. OK.
- JANELAS / PORTAS. IRAMA. OK.
- CORTINAS. (PRESUNÇÃO) E TENDAS. OK.
- MANTIDAS. CRATE ... OK
- TENDAS ... MANIQUE ARBES; MANIQUE IRAMA;
- ~~FONDO BOCA FURADA TRANSIÇÃO. NAO.~~
- ~~ESQUADRAS BOMAS~~

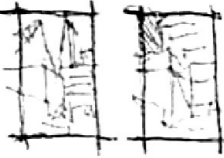
2. FUNDAÇÕES IRAMA ... (ARMA). OK.
3. COLUNAS IRAMA ... ESQUADRAS TIPO. OK.
4. CORTINA IRAMA ... OK.
5. QUADA COPO TRINCA. OK
6. PORTA QUADA COPO ... MAUO ROMOS. OK



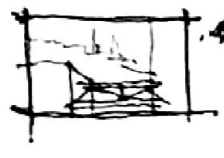
QUADA COPO
TIPOA SUB-ESTANT. OK.

AMERICAN
SYCAMORE L4-HE

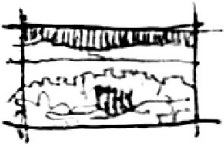
IMAGENS.

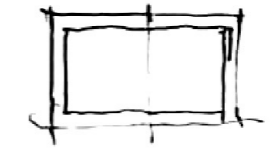
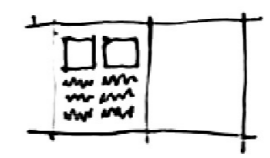
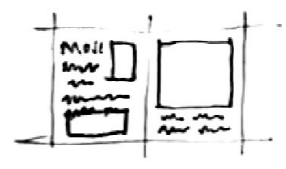
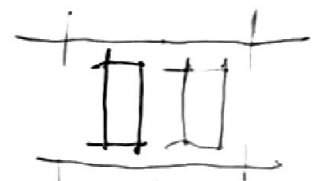
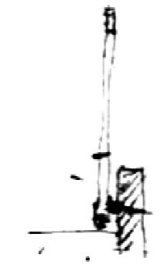
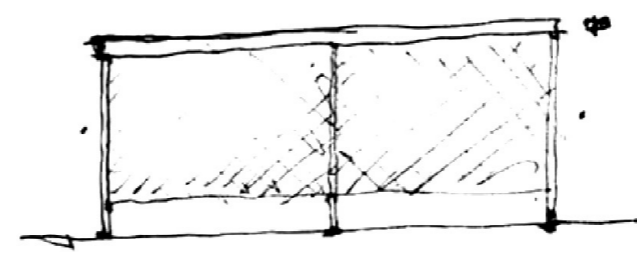
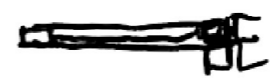
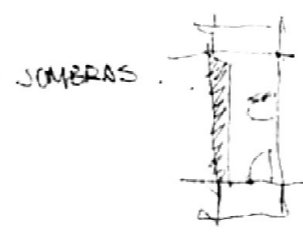
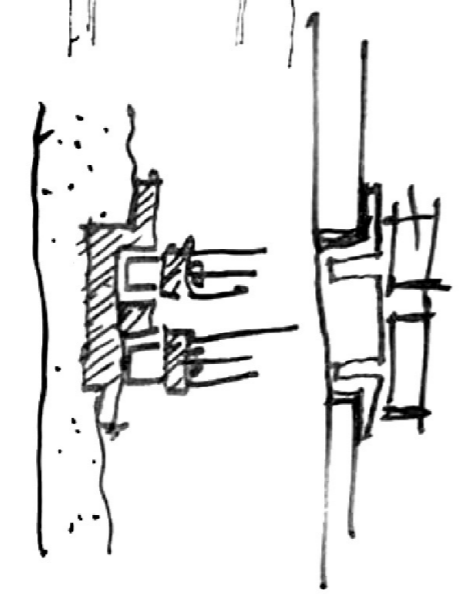
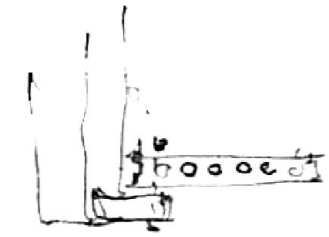
- 01 
 - ~~BEA~~ OK.
 - CANALIZADO (PASTICO) OK.
 - ~~DIFERENÇA~~ SAIRIA EXIST. E TAMBEM OK.
 - ~~DETRAIAS~~ OK.
 - COMPLETO OK.
 - OK OK.
 - CANCELADO. OK.
 - OK OK.
 - SOMENOS; TELAS; MONTANAS; TAMPA COMPO A BOMBA.
 - TELEMETROLOGIA; CALUNIAS.



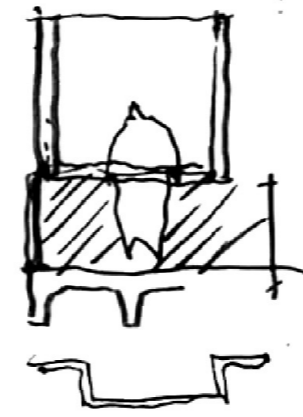
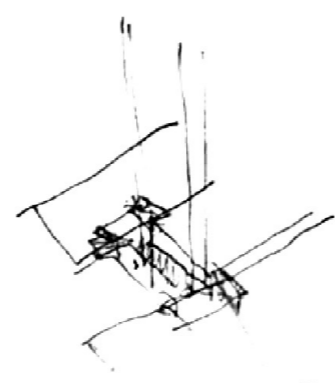
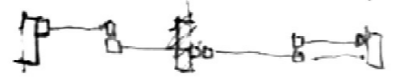
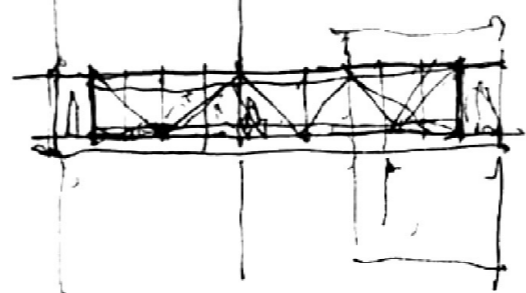
- 03 
 - OK - BAISES IBAM
 - CALUNIAS.
 - MONTANAS. OK.
 - TAMPA COMPO. OK.
 - TELAS. OK.



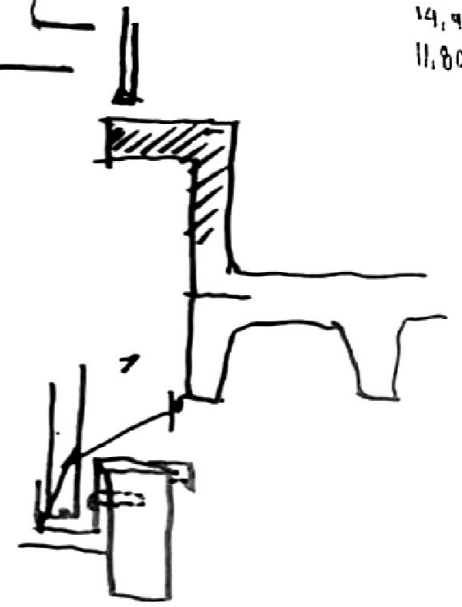
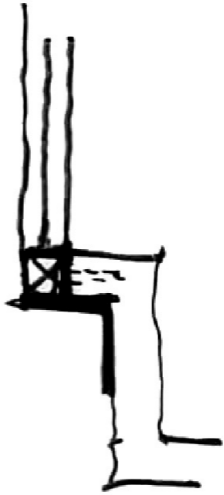
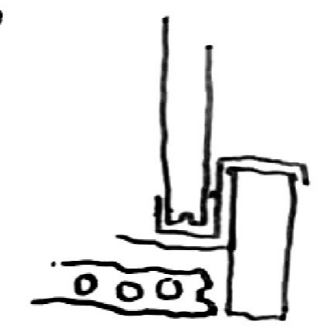
- 05 
 - EQUILIBRA
 - RIGID
 - E BRANCO.



- ISOMÉTRICOS:
UNIDADES;
ESQUADRIAS.



110



18,00
14,90
11,80

