Representação Digital 2023-2024

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FACULDADE DE ARQUITETURA
UNIVERSIDADE DE LISBOA

Mestrado Integrado em Arquitectura
Ano Lectivo 2023-2024 1º Semestre
Docente - Nuno Alão 2º Ano

20221314

Carolina P. M. B. PINTO

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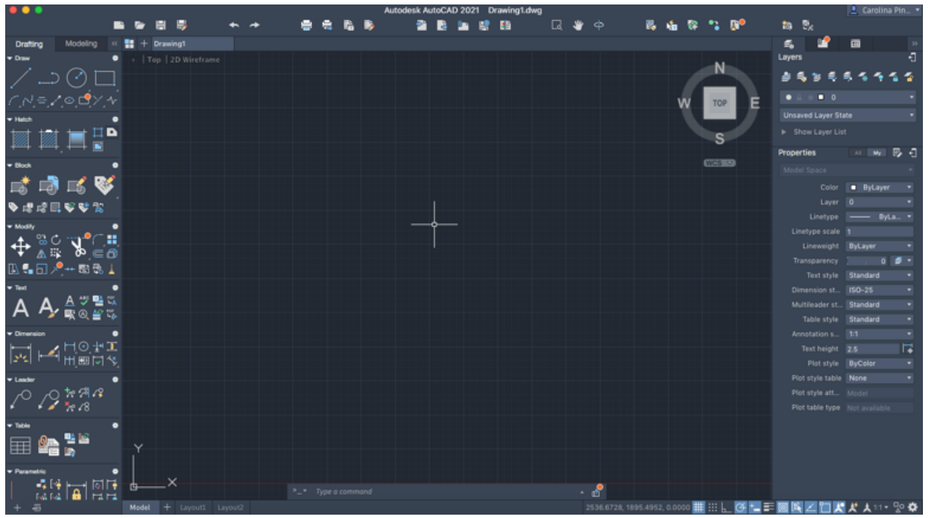
Mestrado Integrado em Arquitectura
Ano Lectivo 2023-2024 1º Semestre
Docente - Nuno Alão 2º Ano

ÍNDICE

Autodesk Student:
⇒Autocad 2021
⇒3d studio max 2021

Conteúdos:
⇒Desenho 2D
⇒Modelação 3D
⇒Visualização
⇒Configuração de página, programar



Exercício: decalque de uma imagem 2D , layers, escalas, layouts

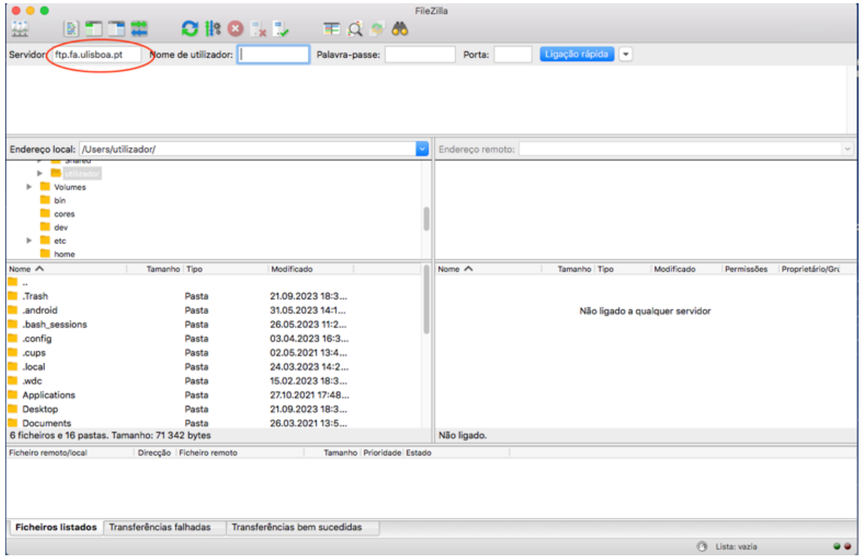
Filezilla (cliente) → servidor: ftp.fa.ulisboa.pt; utilizador: numero de aluno; pass: moodle

Editor de texto html: Brackets ou Note Pad+++ ou Sublime

Public_html → índex.html

Pesquisar página: home.fa.ulisboa.pt/~numero de aluno

AVALIAÇÃO:
60% são presenças – ”11 faltas”
Número 09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Palavra-passe:
Porta:
Ligação rápida
Endereço local: /Users/utilizador/
Endereço remoto:
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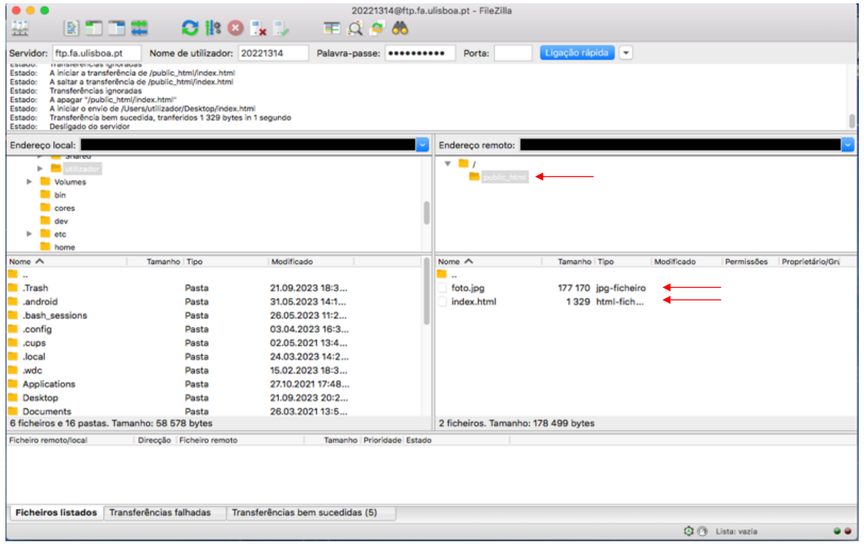
Não ligado.
Ficheiros listados
Transferências falhadas
Transferências bem sucedidas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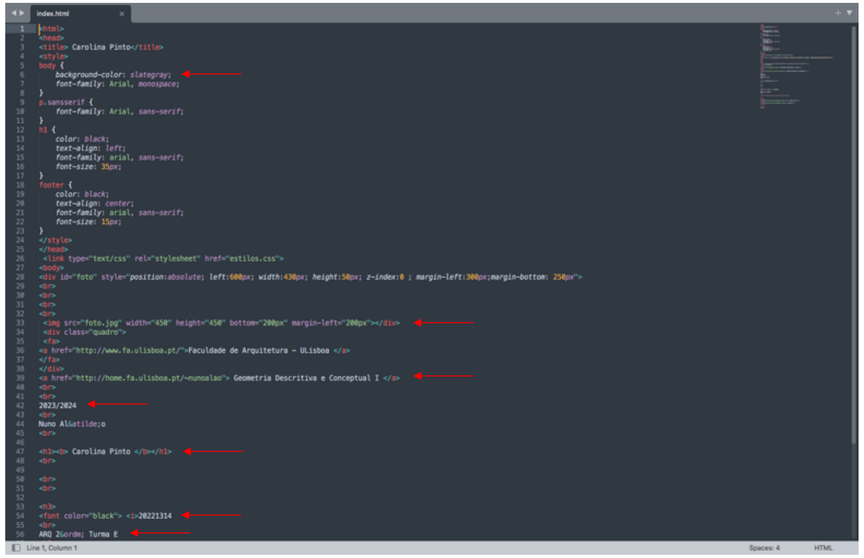
Servidor: ftp.fa.ulisboa.pt
Nome de utilizador: 20221314
Palavra-passe:
Porta:
Ligação rápida
Endereço local:
Endereço remoto:
foto.jpg 177 170 jpg-ficheiro
index.html 1 329 html-fich...
6 ficheiros e 16 pastas. Tamanho: 58 578 bytes
2 ficheiros. Tamanho: 178 499 bytes
Ficheiros listados
Transferências falhadas
Transferências bem sucedidas (5)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font-family: arial, sans-serif;
font-size: 35px;
}
footer {
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text-align: center;
font-family: arial, sans-serif;
font-size: 15px;
}
</style>
</head>
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<fa>
Faculdade de Arquitetura - ULisboa
</fa>

 Geometria Descritiva e Conceptual I

2023/2024

Nuno Alãatilde;o

<h1> Carolina Pinto </h1>

<h3>
<font color="black"> <i>20221314

ARQ 2º Turma E


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Geometria Descritiva e Conceptual I
2023/2024
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Carolina Pinto
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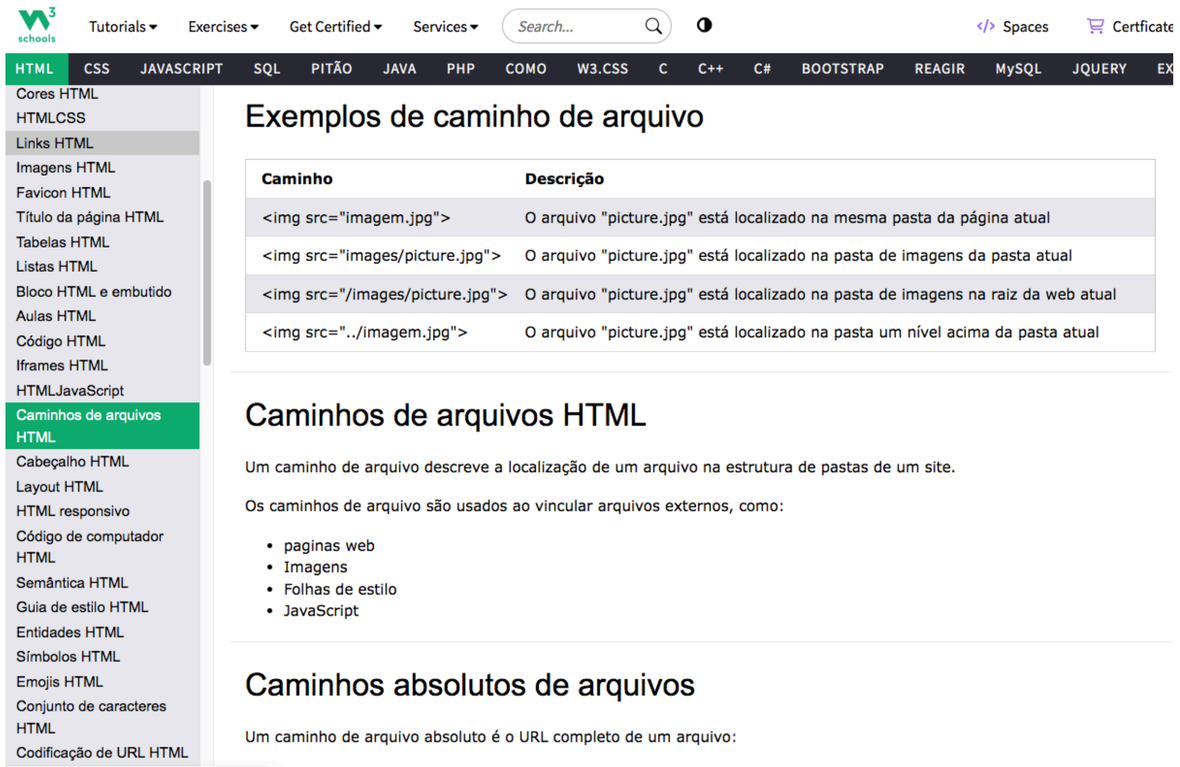
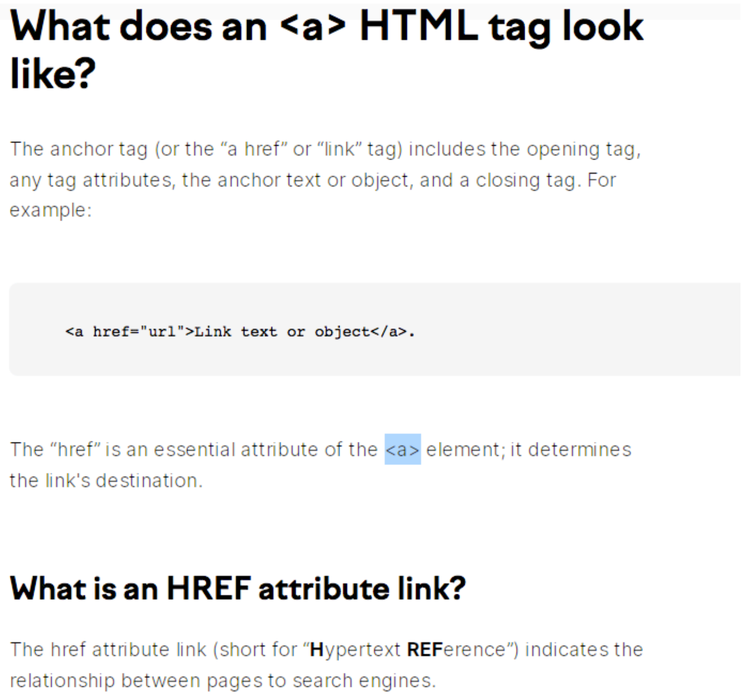
ARQ 2º Turma E
Blogue de GDC I
Contacto

CSS Tutorial -W3schools : tutoriais de configuração de página html



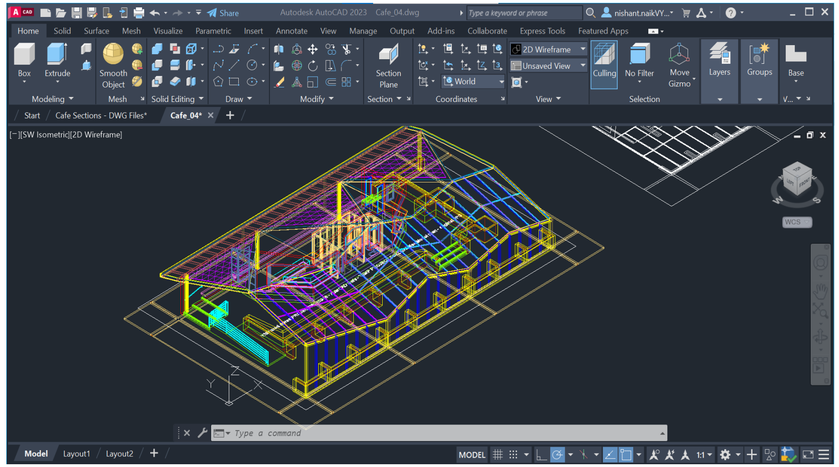
Criar nova página : Aulas

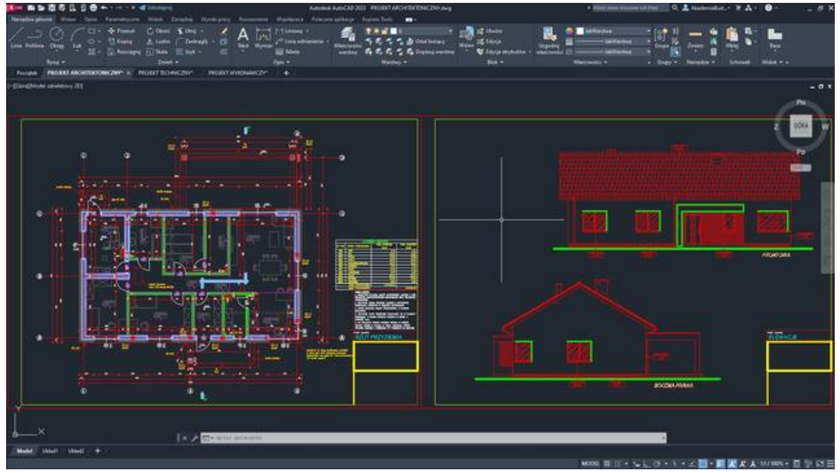


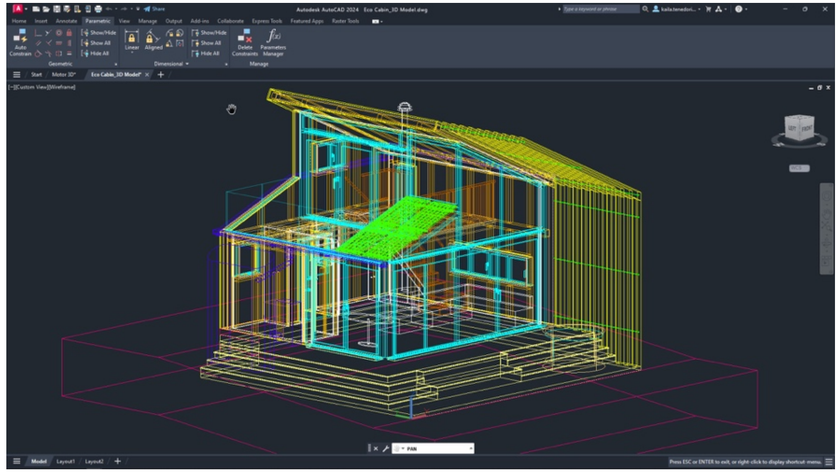
LINGUAGEM PROGRAMA:

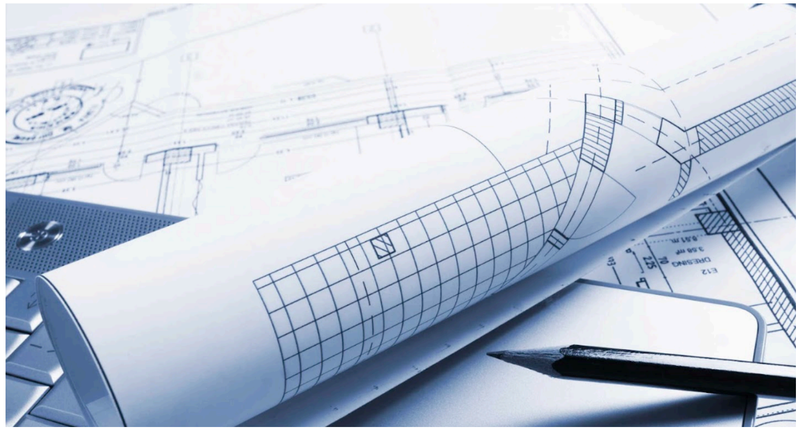
Ú - ú
À - à
Ê - ê
Õ - õ
1º - 1º
2ª – 2ª

Imagem relacionada com a cadeira Representação Digital:









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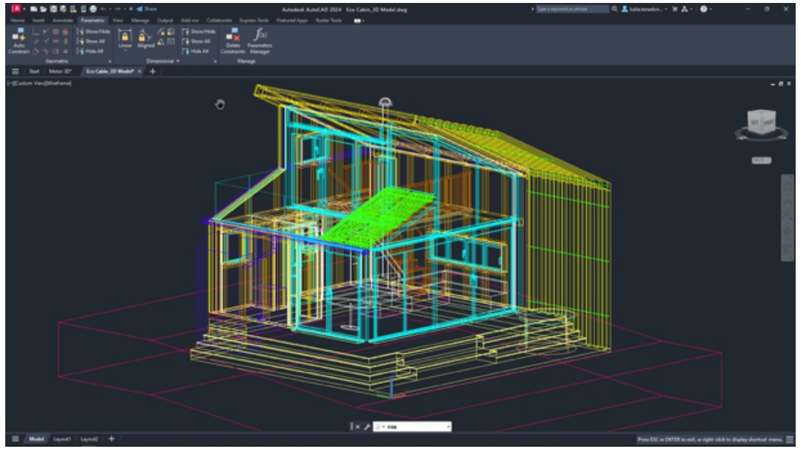

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SEMANA 1

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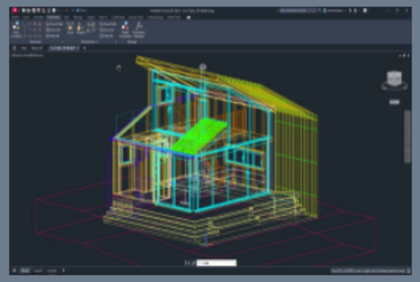
ARQ 2º Turma E



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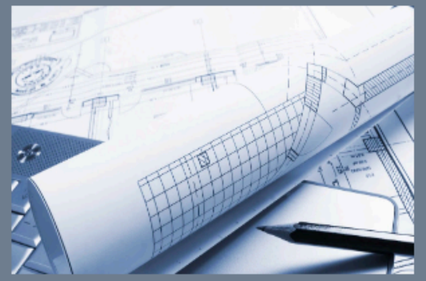
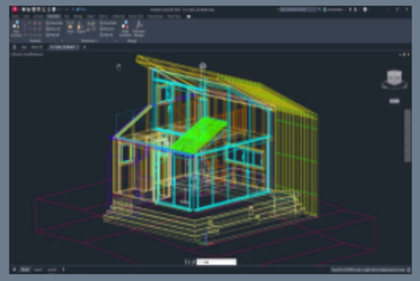
Nuno Alão

Carolina Pinto
20221314

ARQ 2º Turma E





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20221314

ARQ 2º Turma E

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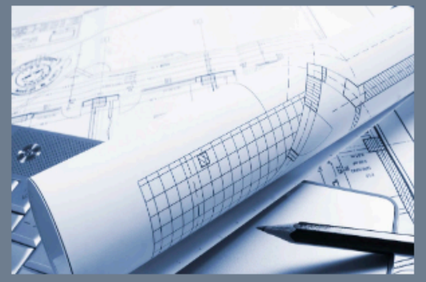
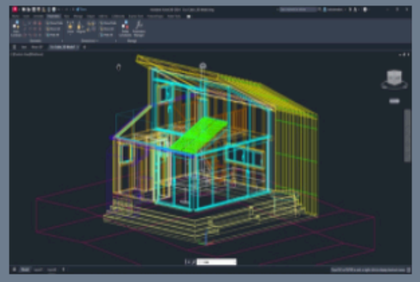
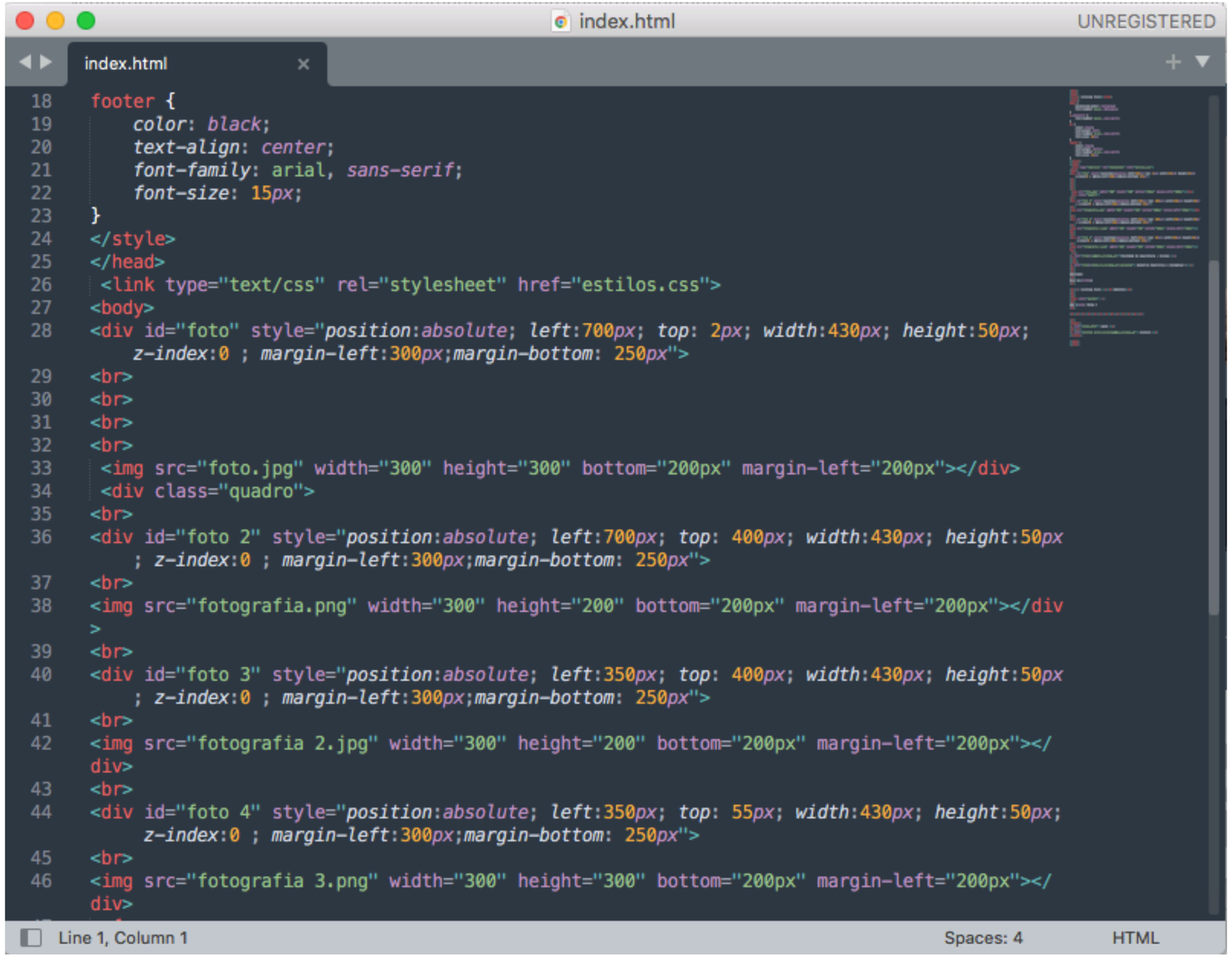




Aulas

Contacto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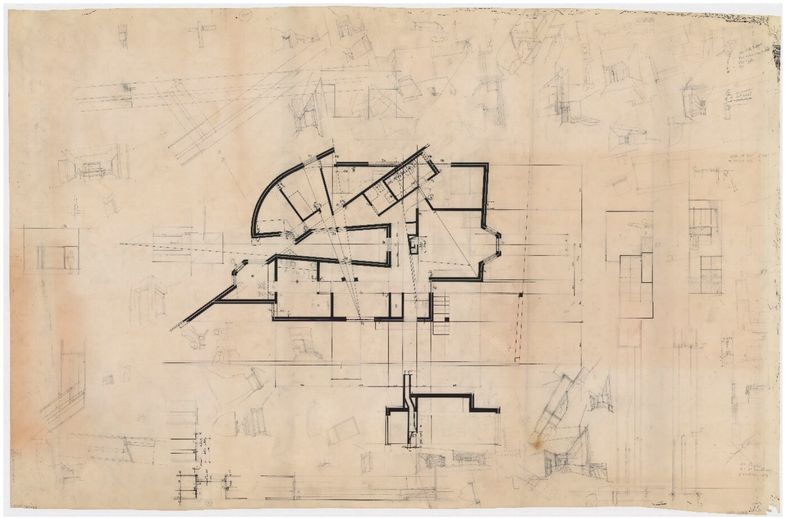
Line 1, Column 1
Spaces: 4
HTML

AUTOCAD:

- L – line
- A – texto
- C – close
- Offset – paralelas
- Dist – distância
- List
- Ficheiro – acadiso.dwg
- Model space – zona de trabalho
- Paper space – layout
- Eixo X- vermelho
- Eixo Y – verde
- 10 unidades por 10 unidades – último quadrado
- Unidade de medida = mm
- Unidade autocad = m
- Escala do autocad = 1/1000
- 1/1000 para 1/100 – imprimir x10
- 1/1000 para 1/20 – imprimir x50
- Definir linhas, formas tridimensionais, ponto



COORDENADAS:

Coordenadas Cartesianas (x,y,z):

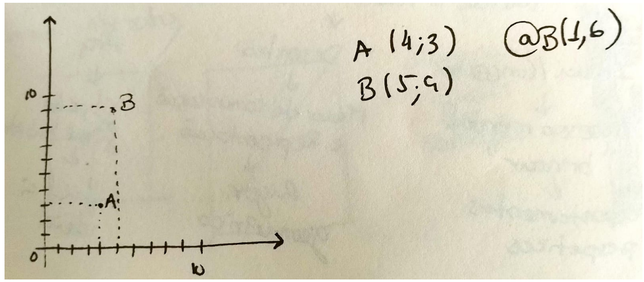
- Absolutas (relativas ao (0,0,0))
- Relativas (relativas ao ponto anterior)

Coordenadas Polares:

- dist.<ângulo

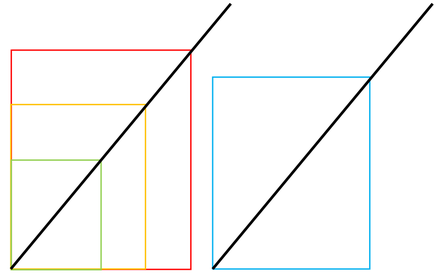
AUTOCAD

COORDENADAS DE PONTOS



COORDENADAS ABSOLUTAS = #

COORDENADAS RELATIVAS = @



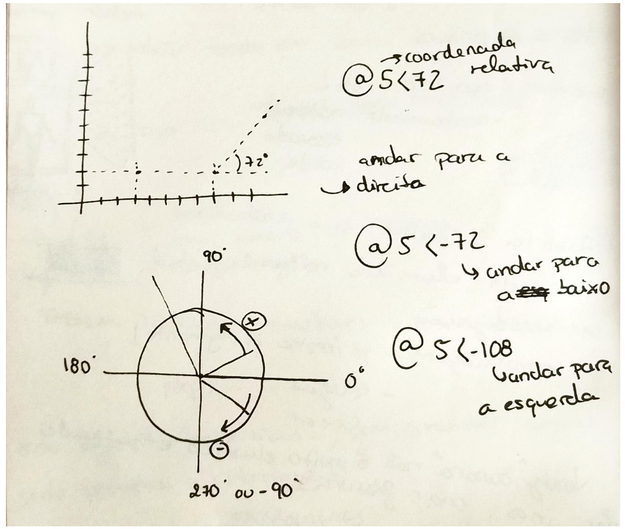
PROJETO
(desde a ideia até ao objeto construído)

IDEIA / CONCEITO	DESENHO	ARQUITETURA
Processo metal “brincar” - apontamentos perspéticos	Meio de comunicação e representação – rigor geométrico	Objeto final habitável – fiel à ideia

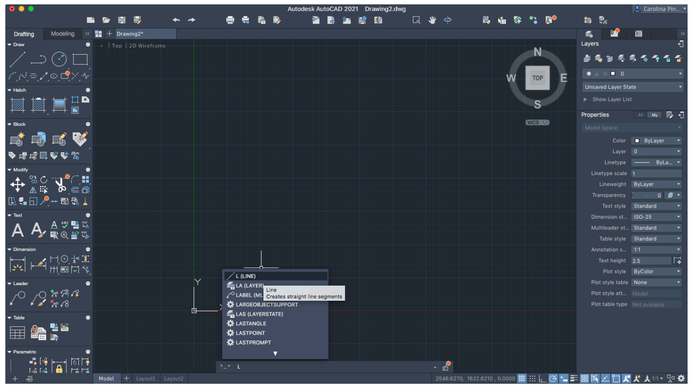
Siza – quarteirão de Berlim após bombardeamentos; esquisso; objeto vs escala humana;
Congelar = suspender a imagem para que não se veja

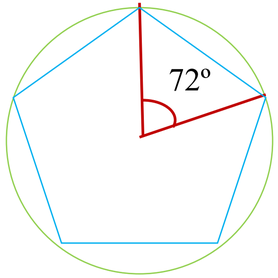
ESCALA = Medidas reais utilizadas na representação; dimensões reais vs dimensões do desenho
PROPORÇÃO = relação entre duas dimensões de um mesmo objeto

PENTÁGONO

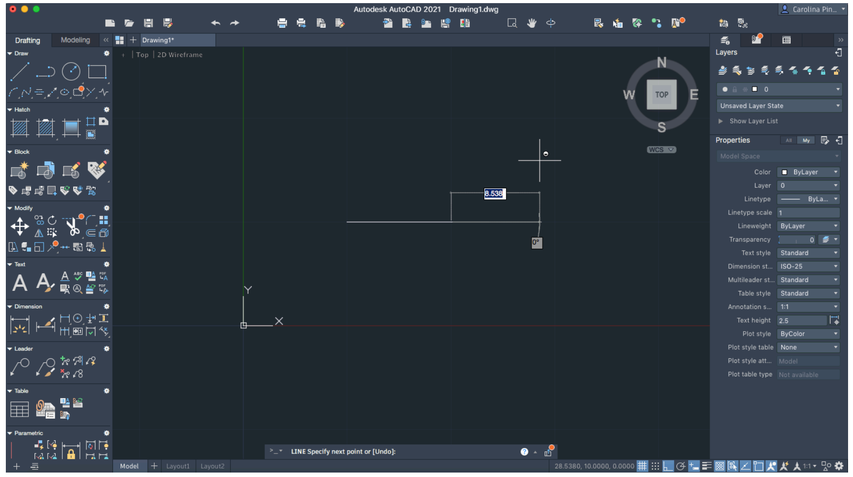


CONSTRUÇÃO DE UM PENTAGONO





360/5 =72



- Tabela de comandos: L – line
  - #10,10
  - #20,10

CONSTRUÇÃO DE UM PENTAGONO (cont.)

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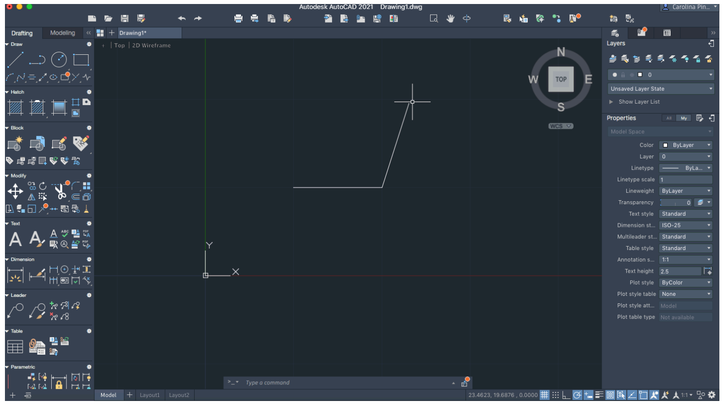

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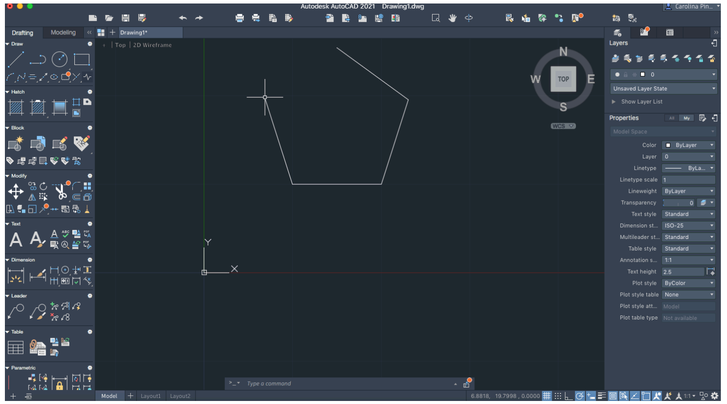
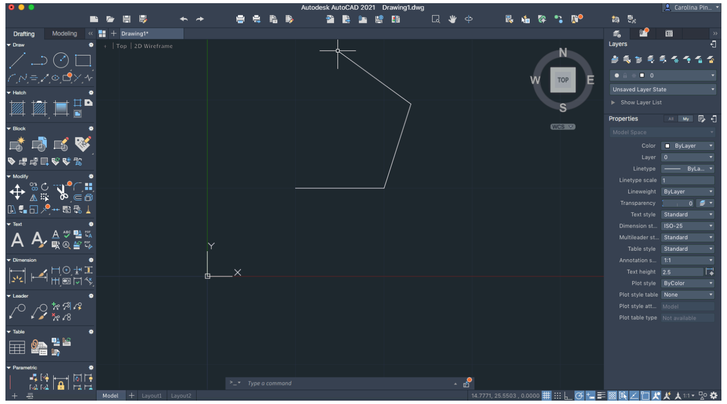
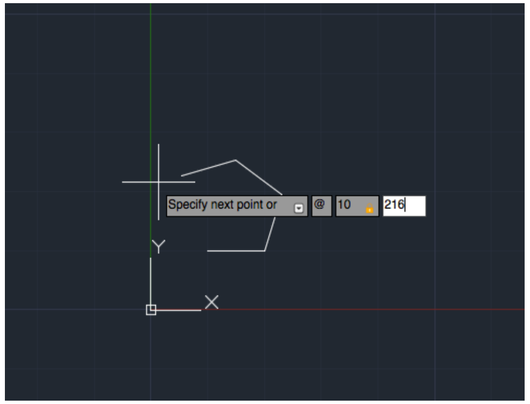


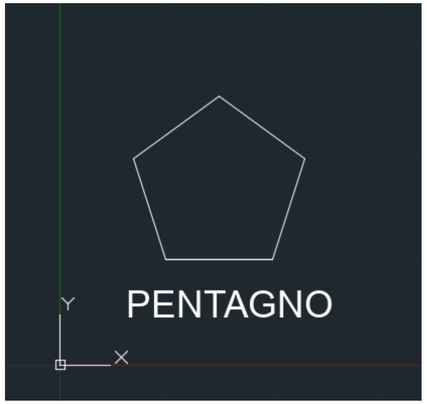
⇢ C-close

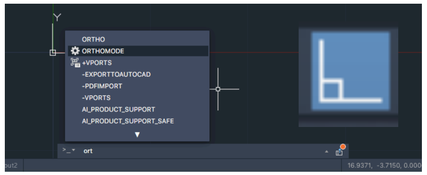
⇢ @10<144

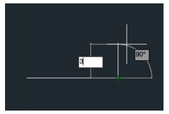


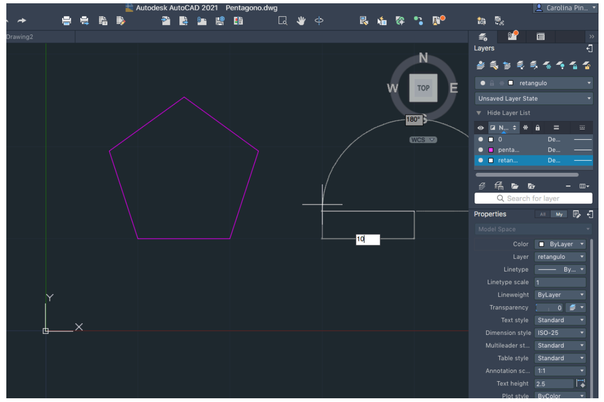
⇢ @10<216



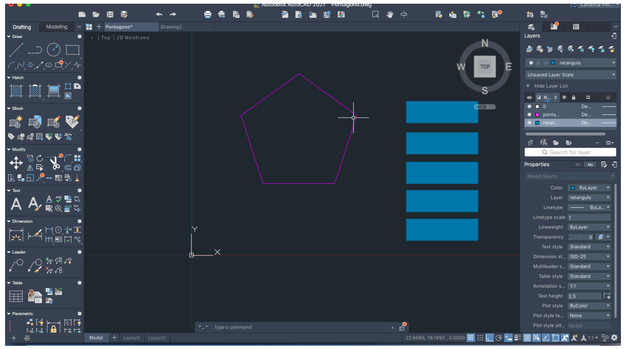








Orthomode – ângulos de 90º e linhas retas verticais e/ou horizontais



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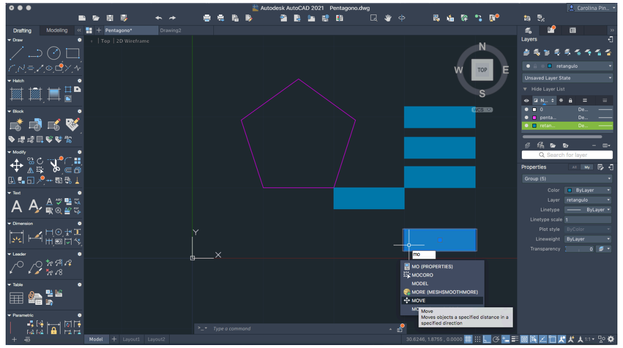
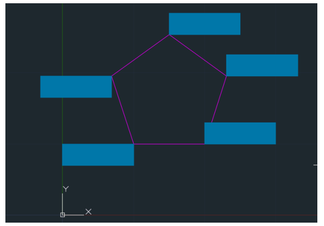
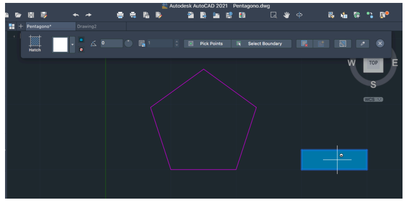
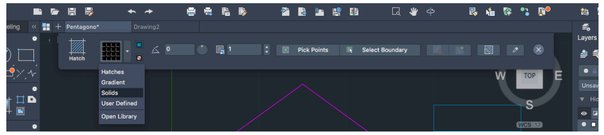


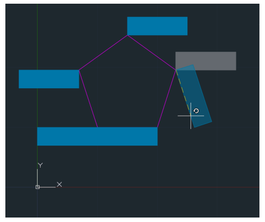
Move



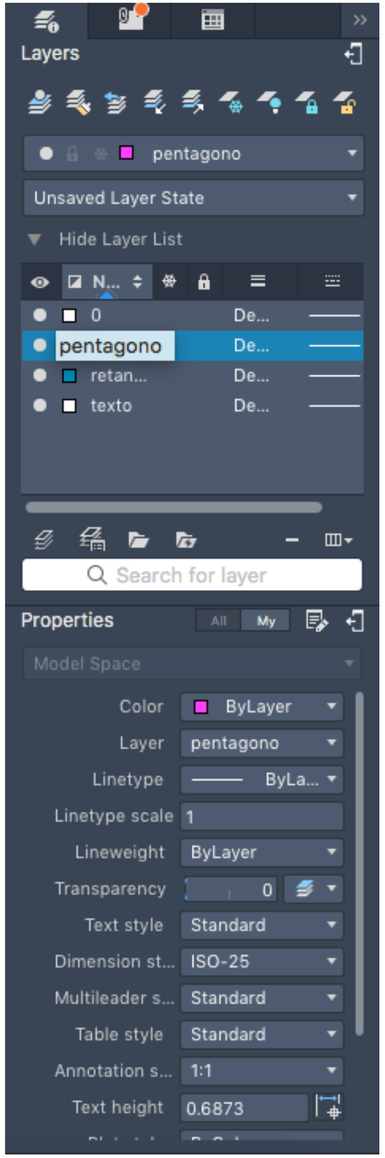


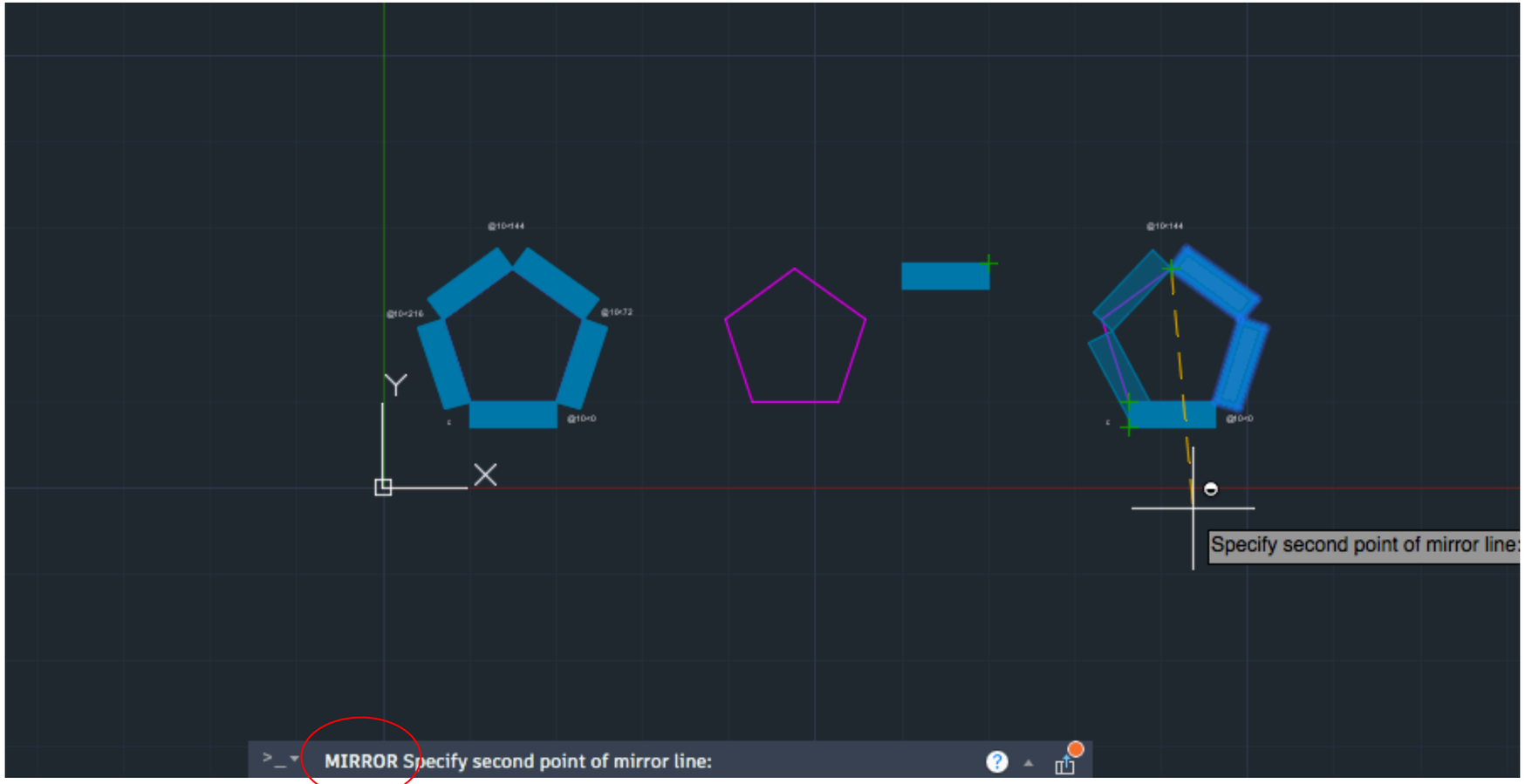


Hatch – preencher a forma

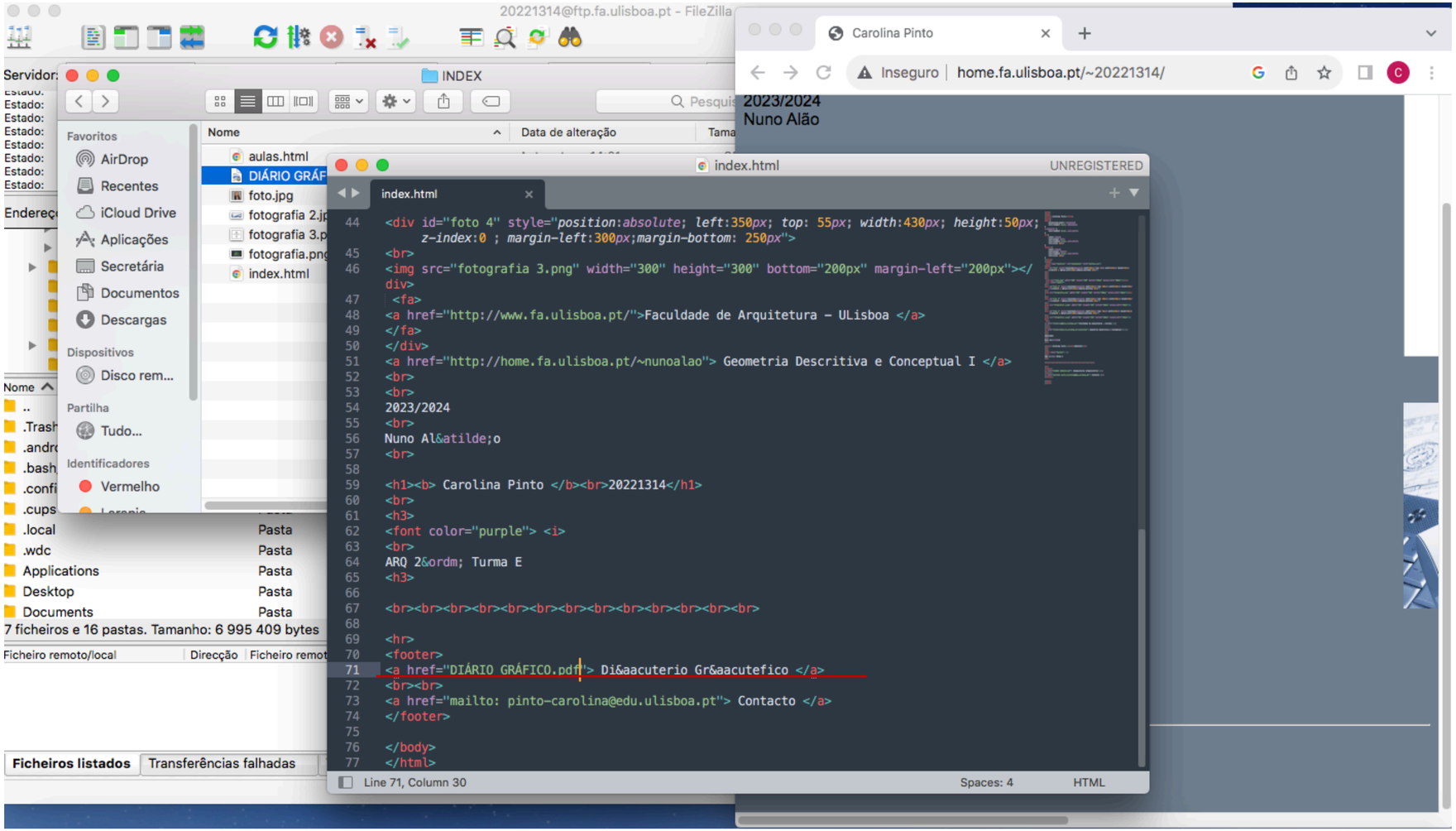


Rotate




@10<144
@10<216
@10<72
@10<0
Specify second point of mirror line:
MIRROR Specify second point of mirror line:

CRIAÇÃO DE UM <a href > PARA DIÁRIO GRÁFICO



COMANDOS e ANOTAÇÕES:

cmd8 –ortho on/off
Chprop – change proporties
2enter – operação acaba
Pl – polyline
Copy
M –move
Rotate
Hatch – preencher com trama
Group – agrupar
Ungroup – deagrupar
Dtext – escrever
Z –zoom
E- extents
Align
Mirror
Stretch - esticar
extend
Trim - cortar

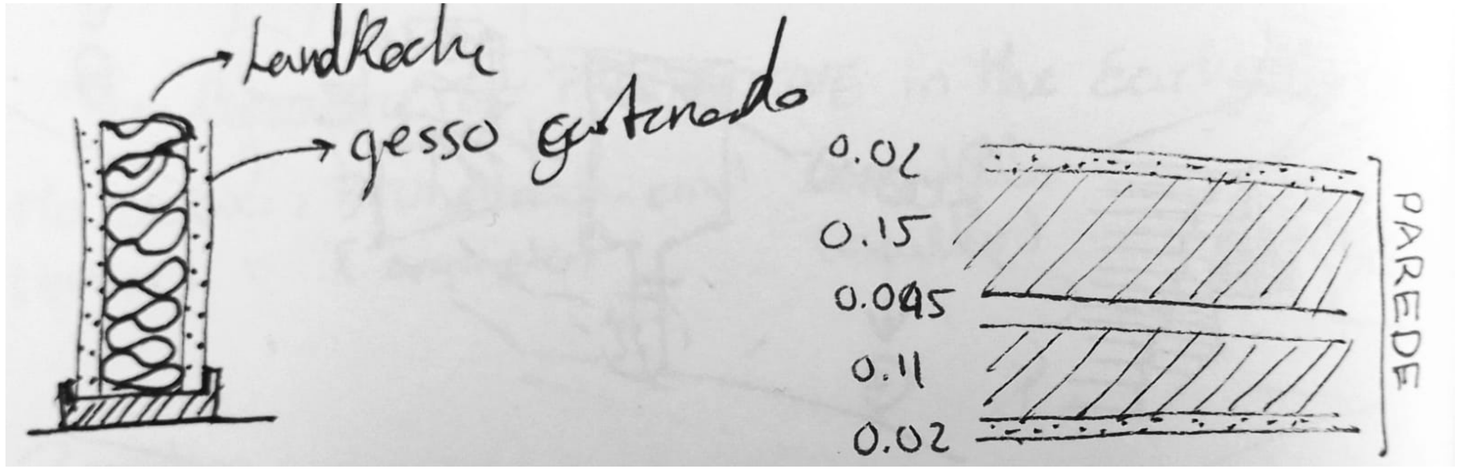
Fator Escala (sf) = 1
DIMR=dimd x sf

Dimensao linha desenho
Dimensao real

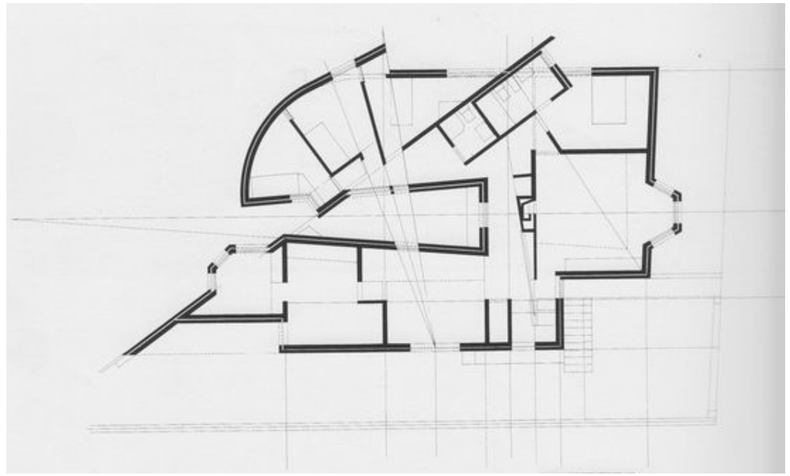
2m real
Autocad 7
2/7=0.2875
Logo, o sf=0.2875

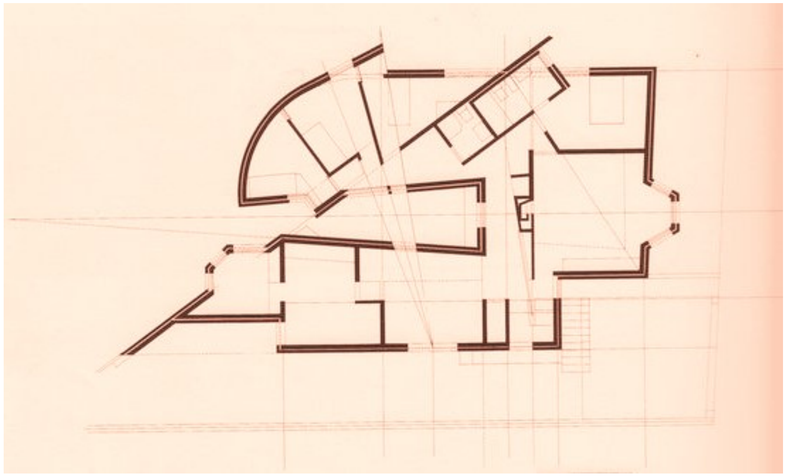
List
0.02
15/21
0.045
0.11
0.02

Offset de 0.045

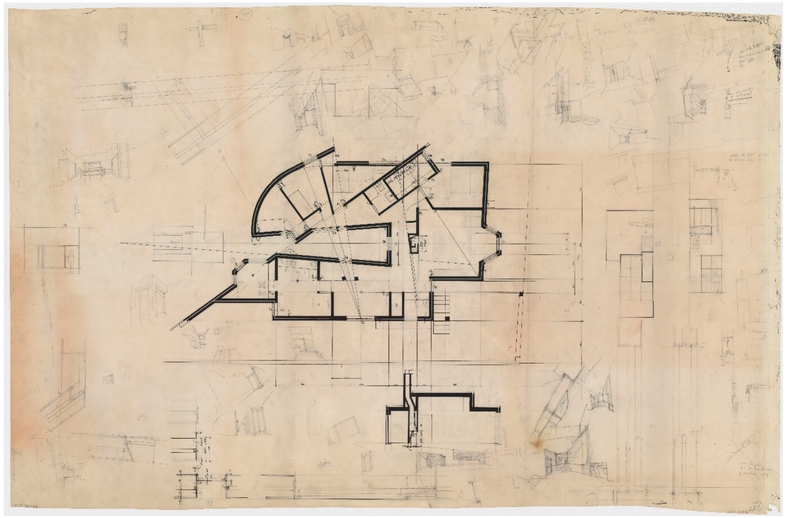


CASA ANTÓNIO CARLOS SIZA
DECALQUE

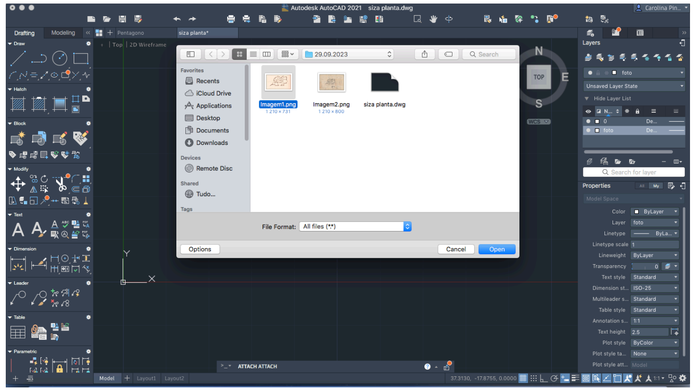




Criar layer - fotografia
Attach para colocar a imagem no autocad
Criar layer - linhas
Scale para escala a imagem segundo um scale factor
Criar layer - paredes
Line, para fazer a parede: reboco, tijolo, caixa de ar, tijolo e reboco
Line, para completar a parede perpendicular: reboco e tijolo
Trim para cortar as interseções de modo a criar uma parede continua

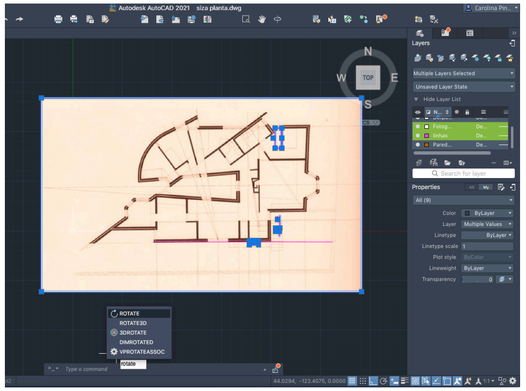


ATTACH

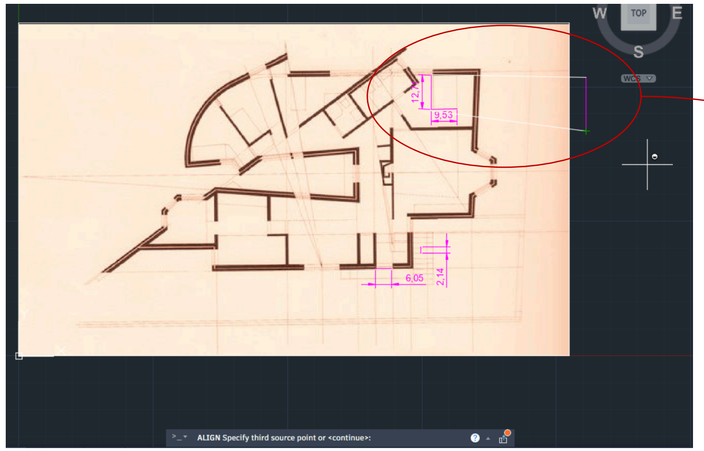


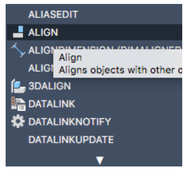
ROTATE

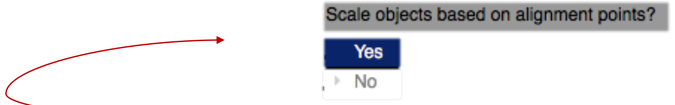
(segundo uma linha ortogonal de modo a que a planta fique paralela aos eixos)



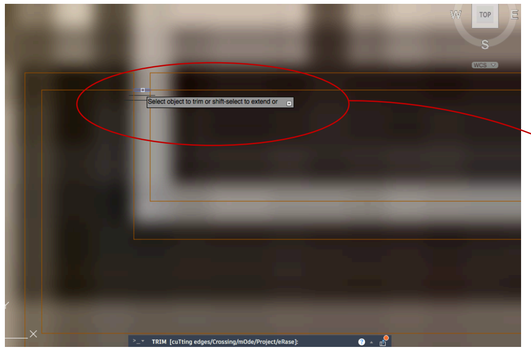
ALIGHT

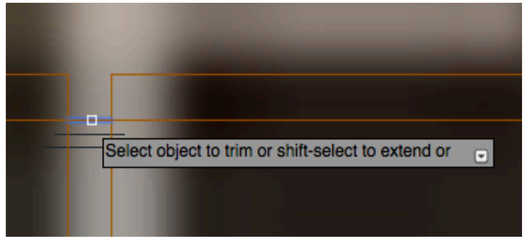






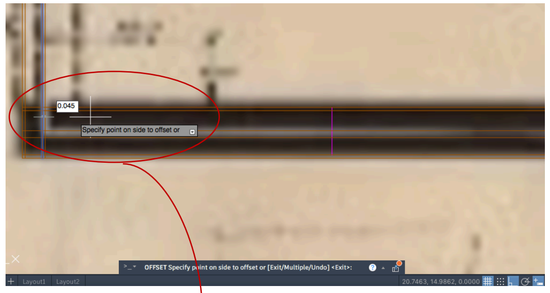
TRIM

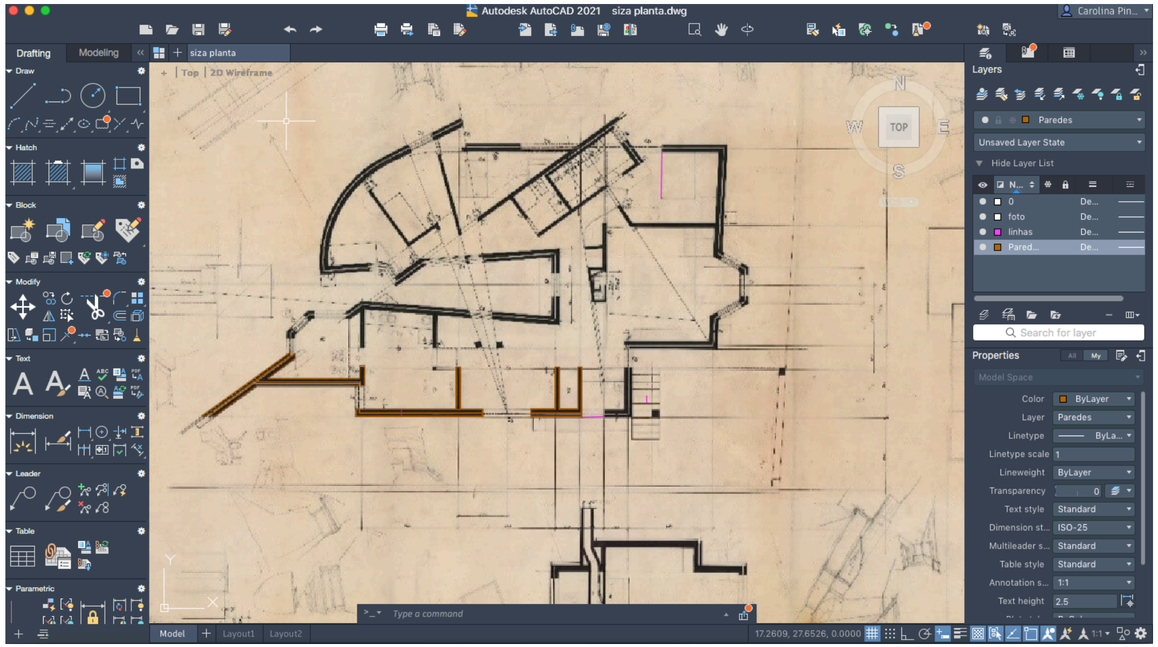


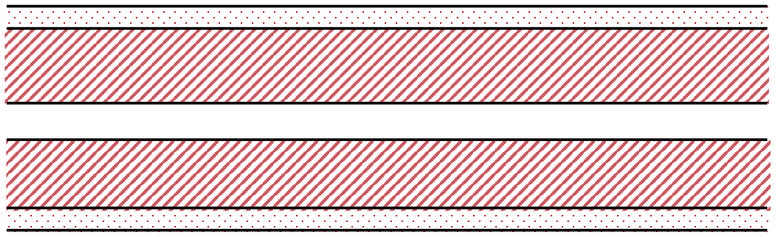


OFFSET

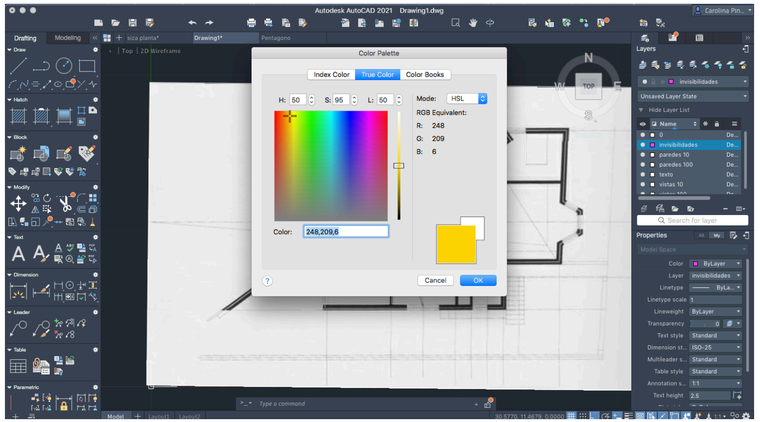
(linhas paralelas segundo distâncias estipuladas pelo desenhista)

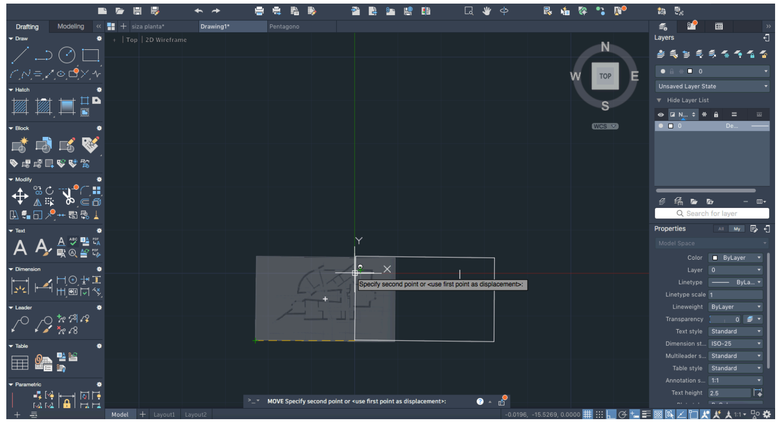


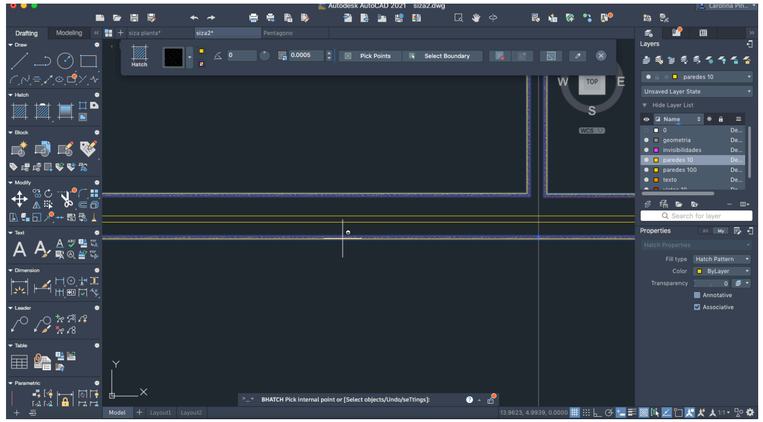


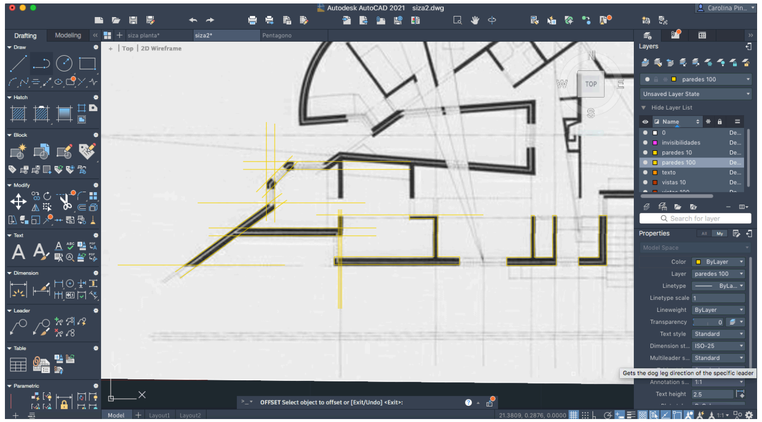


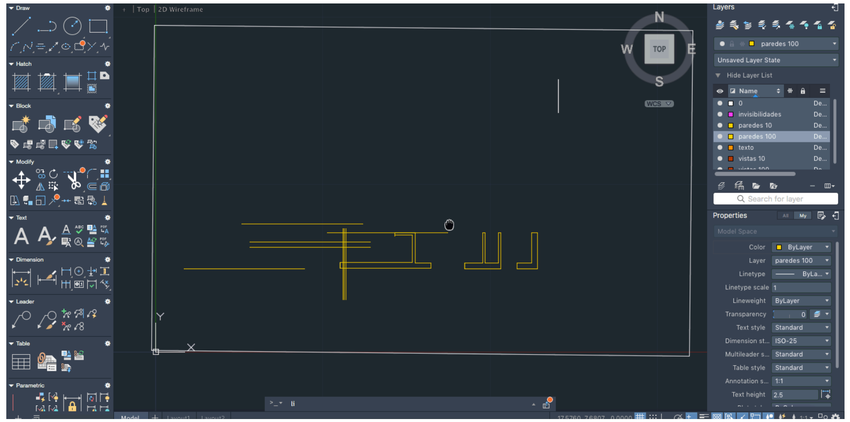
0.02 – reboco
0.15 - tijolo
0.045 – caixa de ar = 0.345
0.11 - tijolo
0.02 - reboco





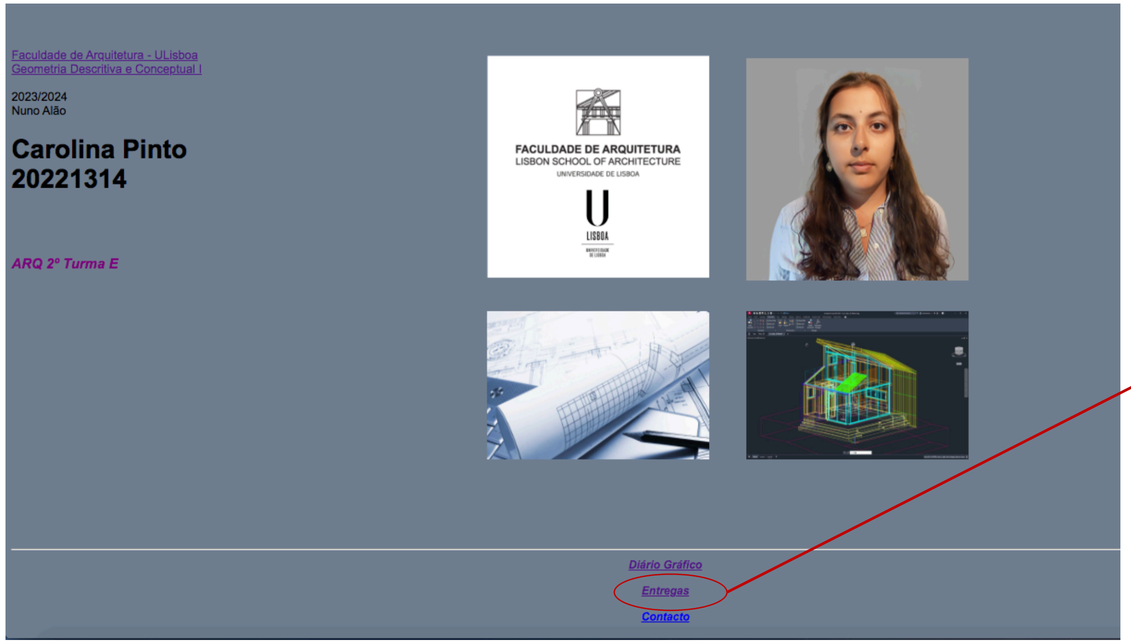






Fillet – juntar duas pontas de linhas que atualmente estão separadas segundo um raio: se for 0 fico 90º, se for 1 fica curva
Arc - Arcos com raios ou marcados a partir de 3 pontos
Draworder – from/back/above/under
Pan – deslocar
Matchprop – igualar as propriedades

CRIAÇÃO DE UM SEGUNDO HTML PARA ENTREGAS



CRIAÇÃO DE UM SEGUNDO HTML PARA ENTREGAS

Entregas.html — UNREGISTERED

Entregas.html

```
<html>
<head>
<title> ENTREGAS </title>
<style>
body {
    background-color: slategray;
    font-family: Arial, monospace;
}
p.sansserif {
    font-family: Arial, sans-serif;
}
h1 {
    color: black;
    text-align: center;
    font-family: arial, sans-serif;
    font-size: 35px;
}
footer {
    color: black;
    text-align: center;
    font-family: arial, sans-serif;
    font-size: 15px;
}
</style>
</head>
 <link type="text/css" rel="stylesheet" href="estilos.css">
<body>

 <fa>
<a href="http://www.fa.ulisboa.pt/">Faculdade de Arquitetura - ULisboa </a>
</fa>
<br>
</div>
<br>
<br>
2023/2024
```

Line 1, Column 1 — Spaces: 4 — HTML

```
<br>
Nuno Al&atilde;o
<br>

<h1><b> ENTREGAS </b></h1>
<br>

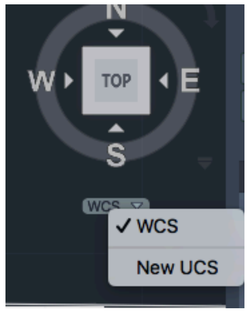
<br>
<br>

<h3>
<font color="black"> <i>
<br>
<h3>

<br><br><br><br><br><br><br><br><br><br><br><br><br><br>

<hr>
<footer>
<a href="aulas.pdf"> Di&aacuterio Gr&aacutefico </a>
<br><br>
<a href="mailto: pinto-carolina@edu.ulisboa.pt"> Contacto </a>
</footer>

</body>
</html>
```



Criar um novo sistema de unidades

Wcs – new ucs

Origem do sistema: origem dos eixos, x, y

View top

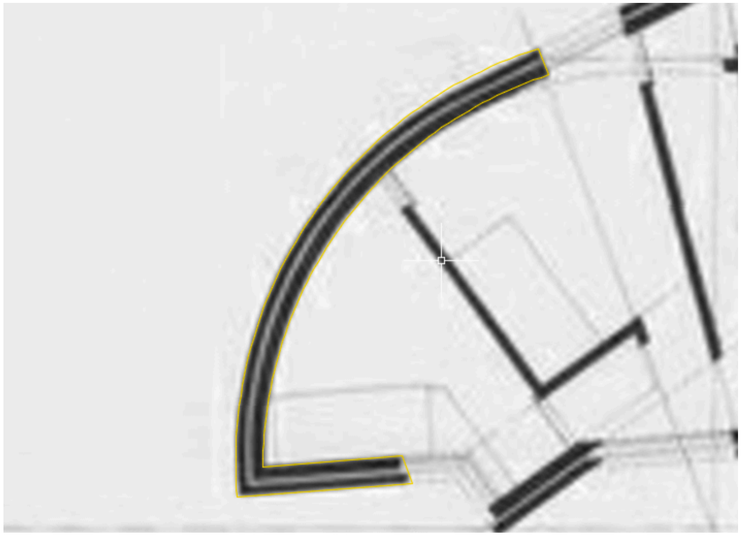
COMANDOS:

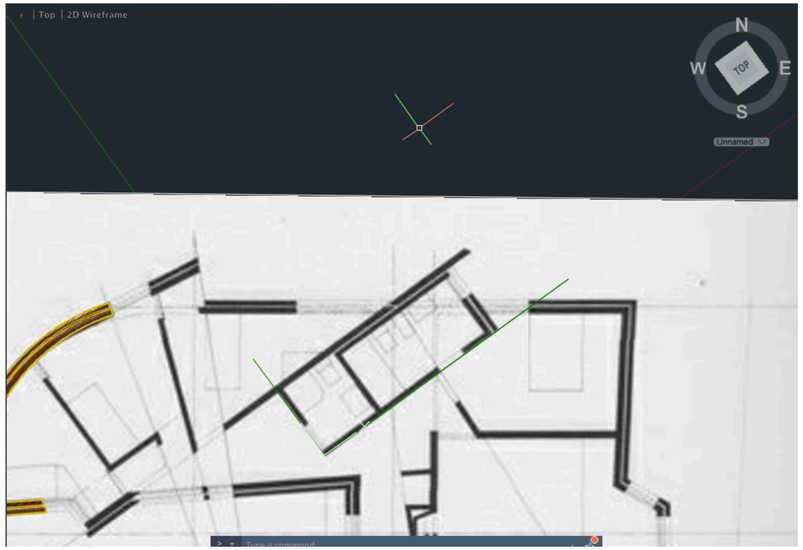
Osnap – objeto snap

Nearest – mais próximo

Mview
Vplayer

(comandos utilizados para os layouts finais, folhas de apresentação)





REVISTA:

ARCHITECTURAL DETAILING

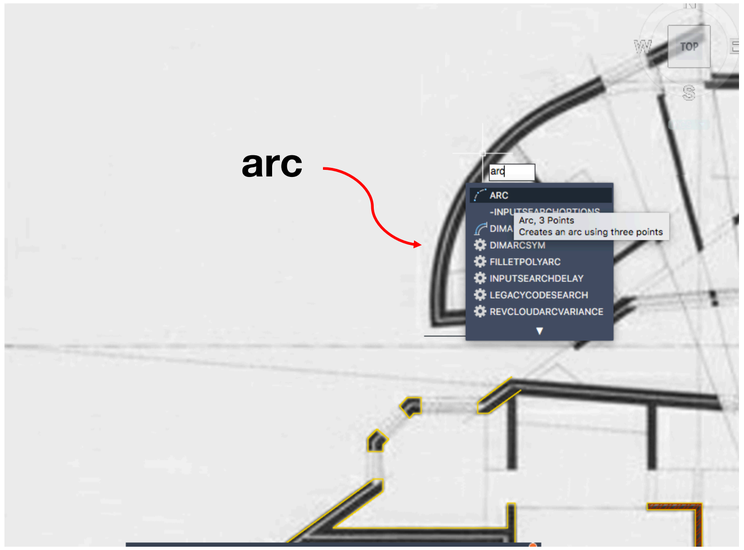
DOMUS

LOTUS

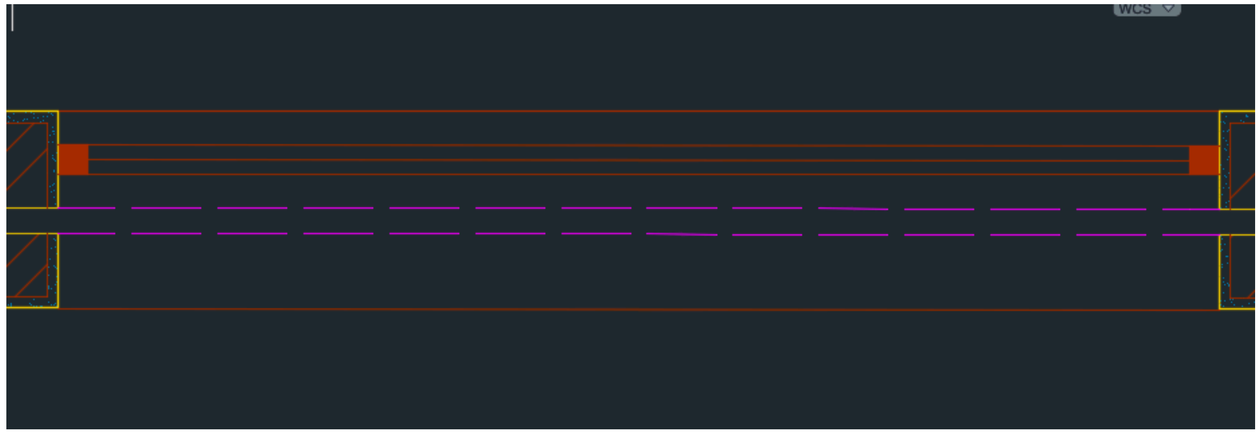
GA

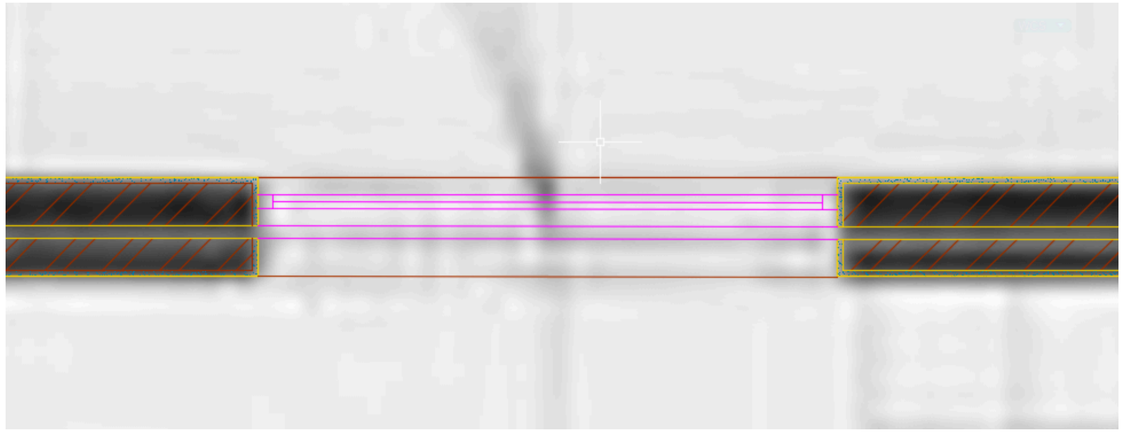
ARCHITECTI

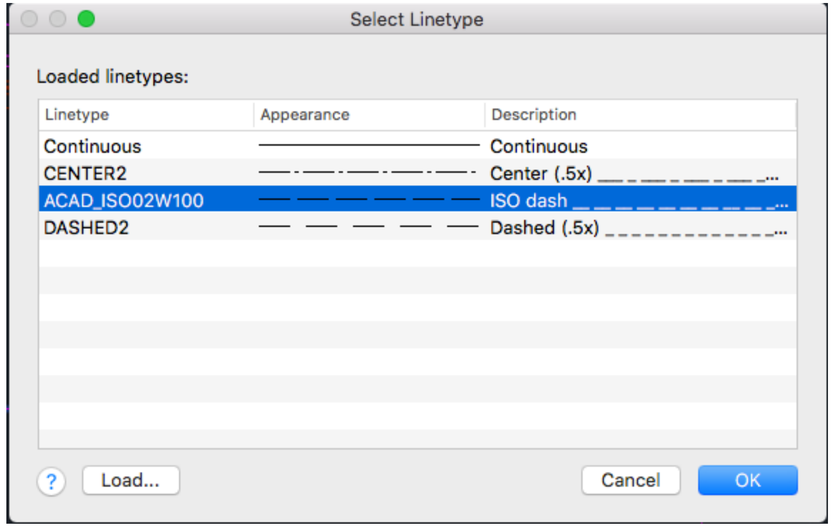
ARCHITECTURE AUJOURDUI

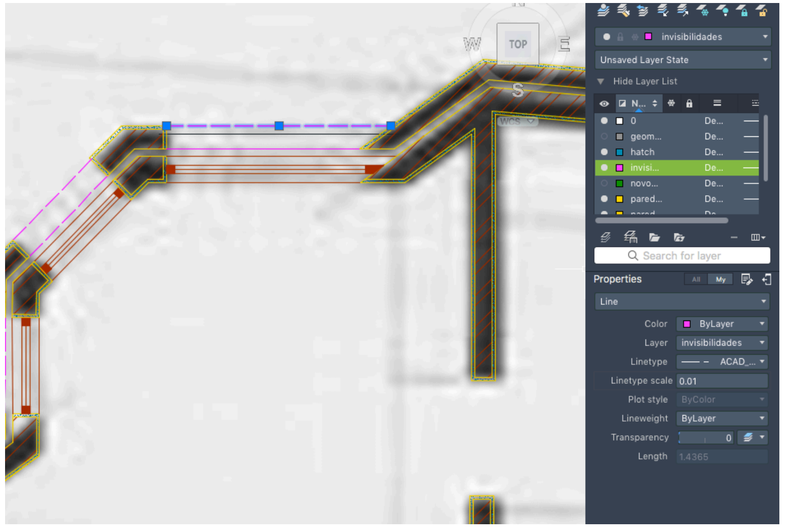


TIPO DE LINHA:

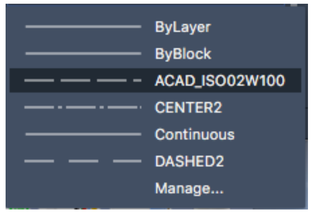


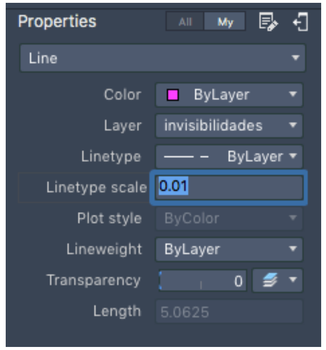


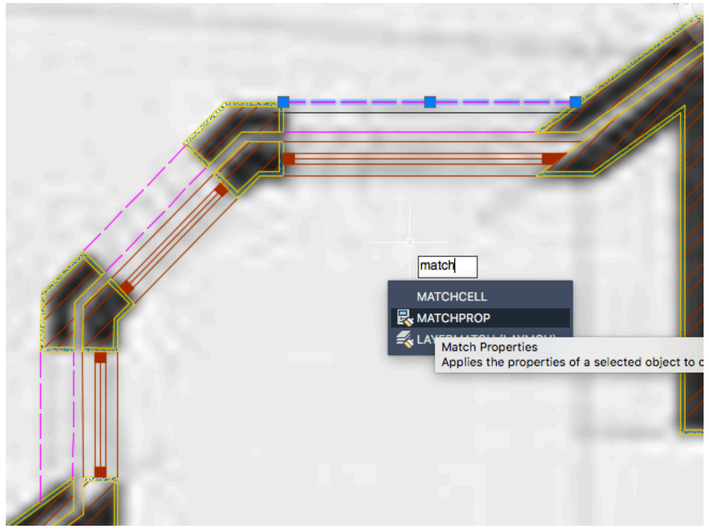




Manage...load...chprop...0.01

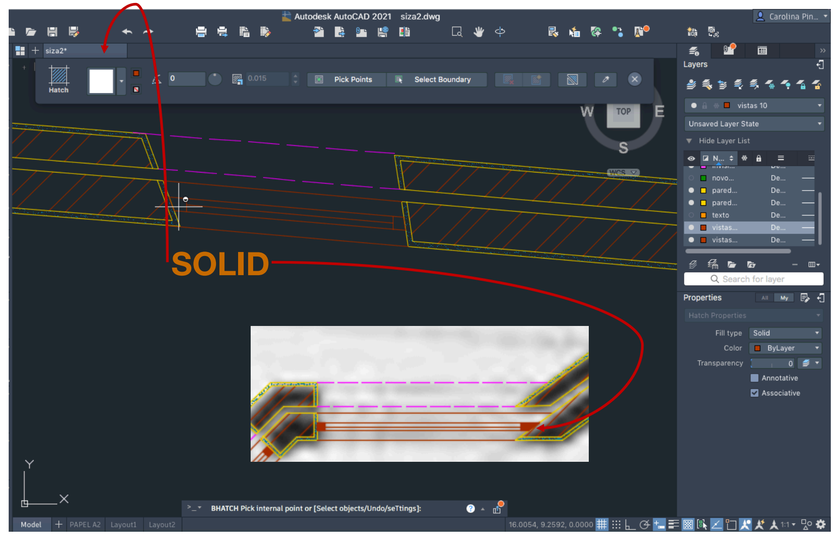




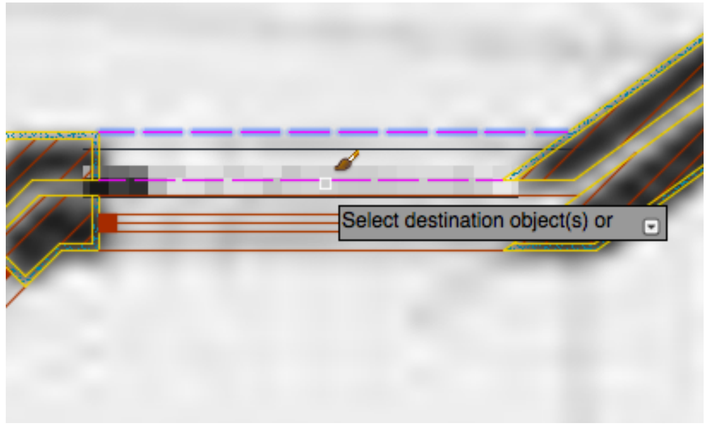


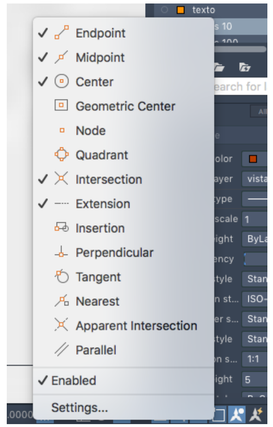
Matchprop

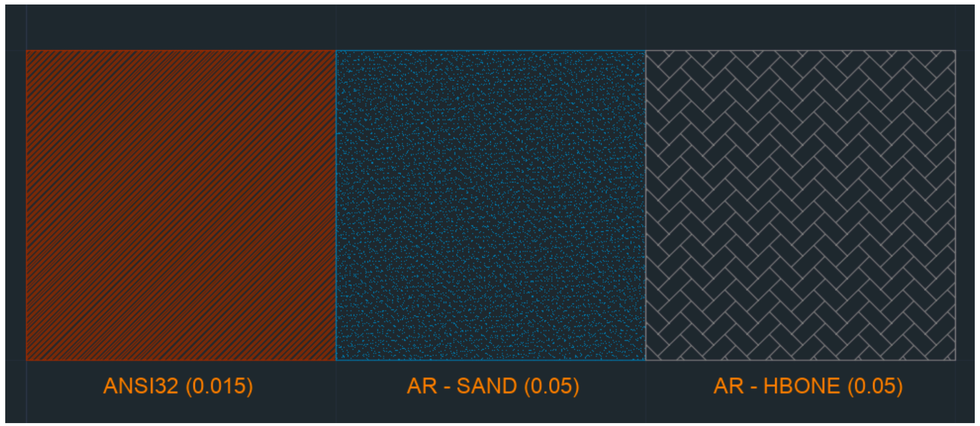
Object snap

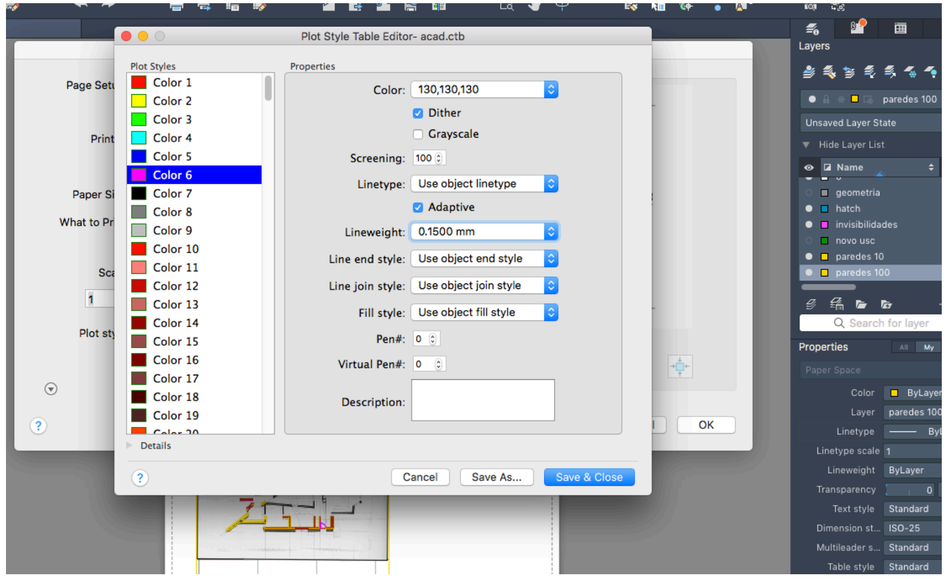


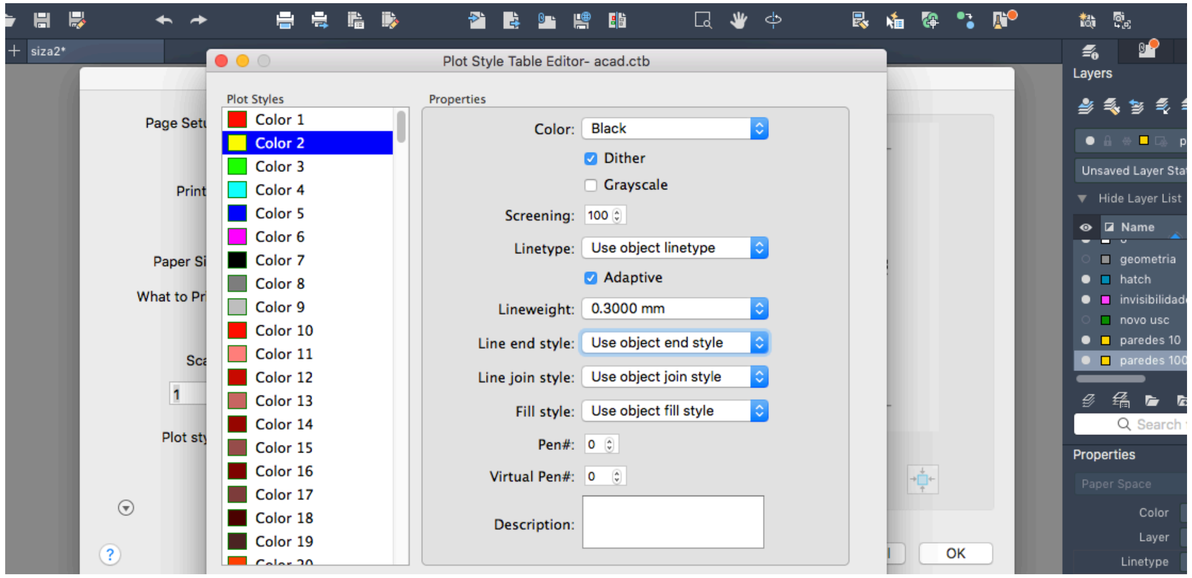
Hatch

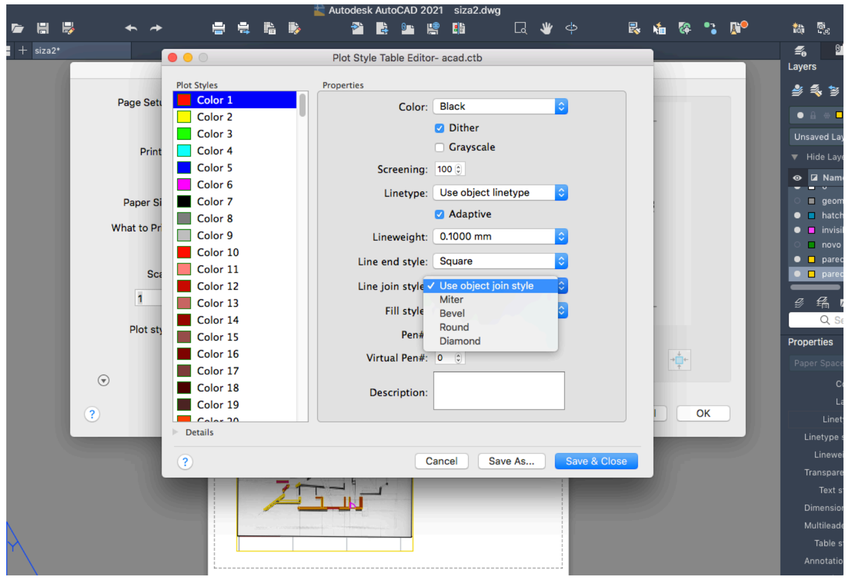




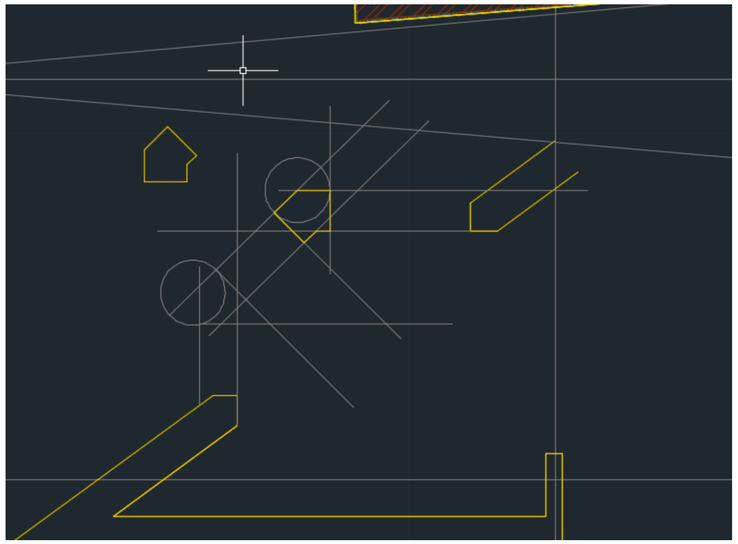


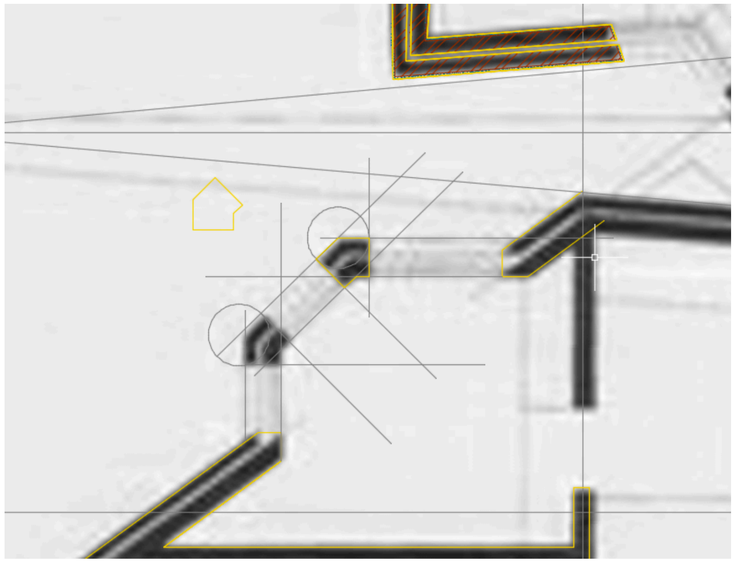




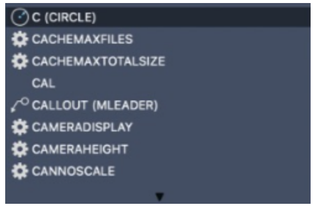


Formatar as definições das linhas de modo a que na impressão fique tudo calibrado, ou seja, cor, espessura, ponta da linha, etc..





Circle – gerar distancias iguais



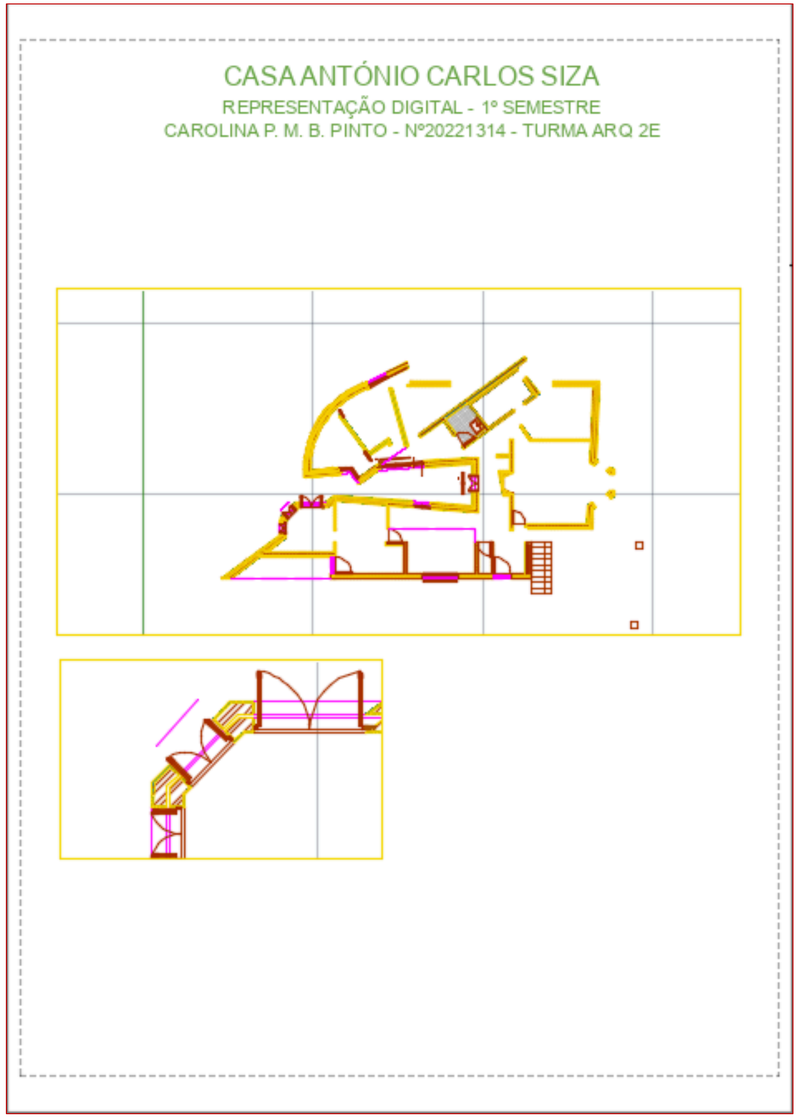
Break – quebrar linha
(F – define o primeiro ponto; depois ponto onde partir)

Divide – dividir a linha em x partes

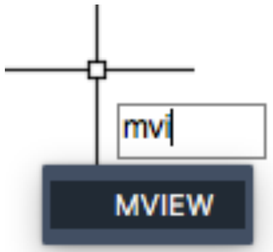
DIM –dimensionar
DIMALI – dim aliqued
DIMANG – dim angular
Letras 2,5mm
Scale – tudo vai atras
Freese – congelar
Thaw – descongelar

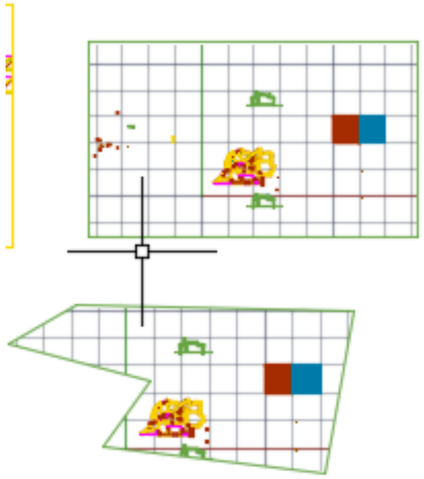
Preto – o que fica
Amarelo – a retirar
Vermrelho – novo

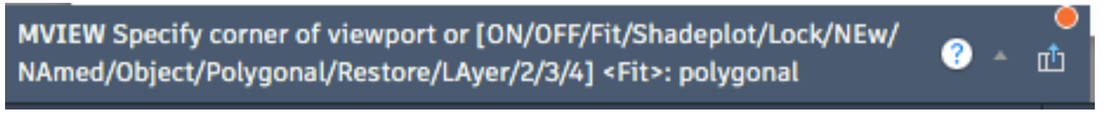
Cotas
Material
Anotações
Painel a2 mas pode ser a1/a0



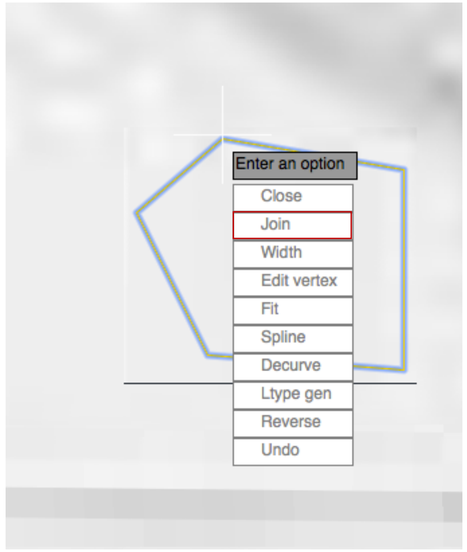
MVIEW – Polygonal – nova forma para caixa de apresentação



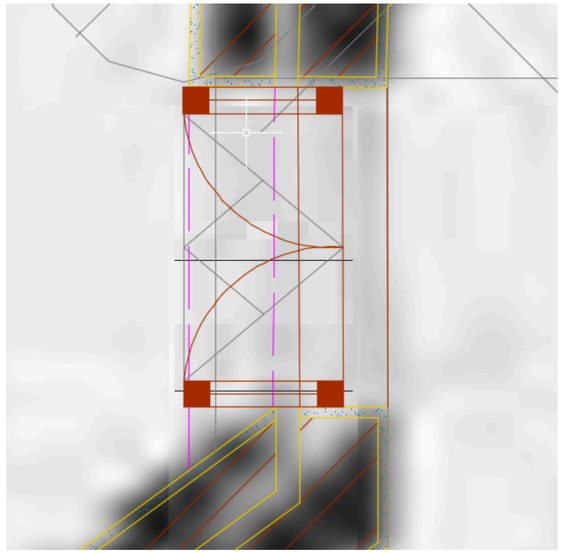


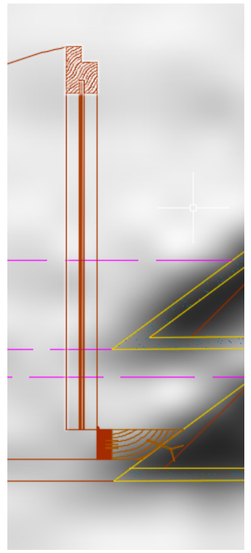


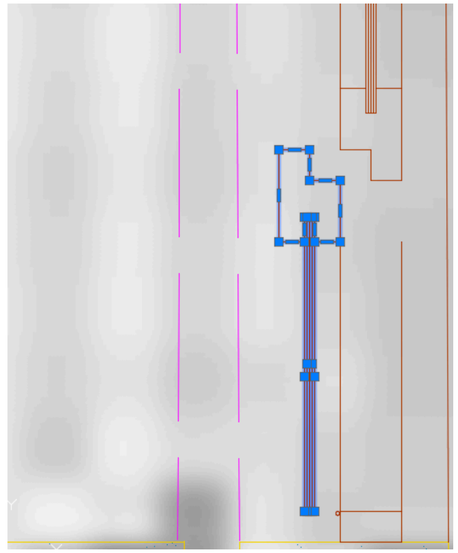
Pedit – apenas em poyline

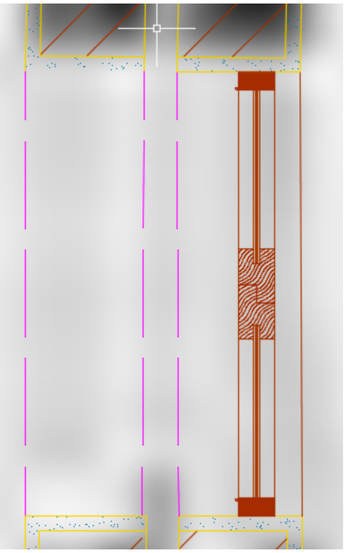


VISTAS 1:100 - JANELAS - VISTA 1:10



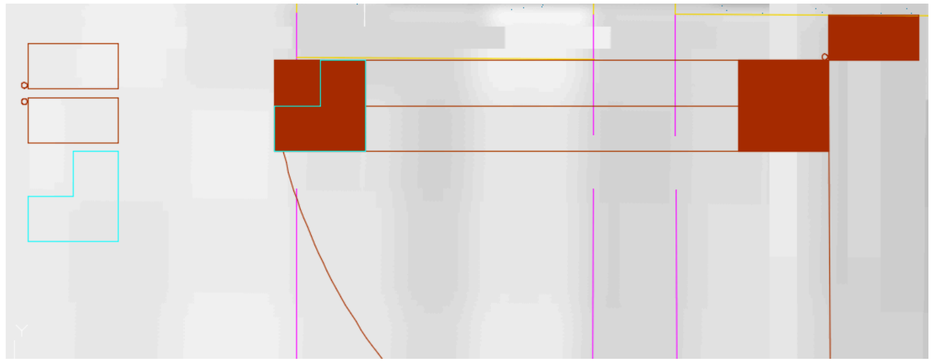


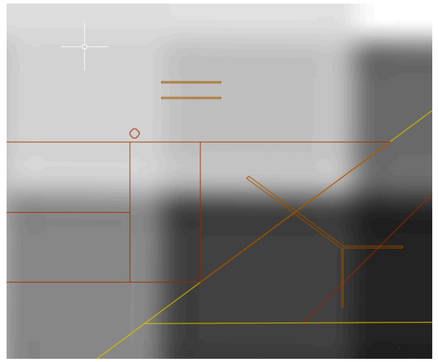


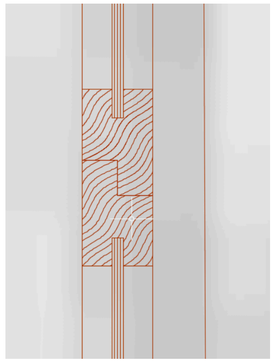


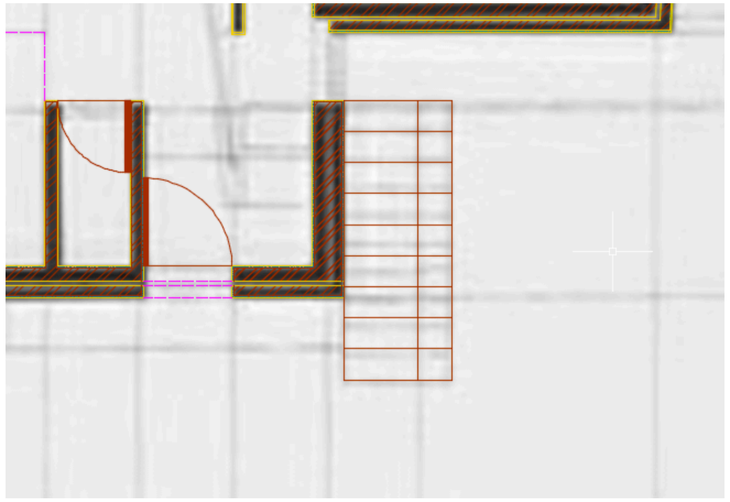
Spline – polyline de curvas

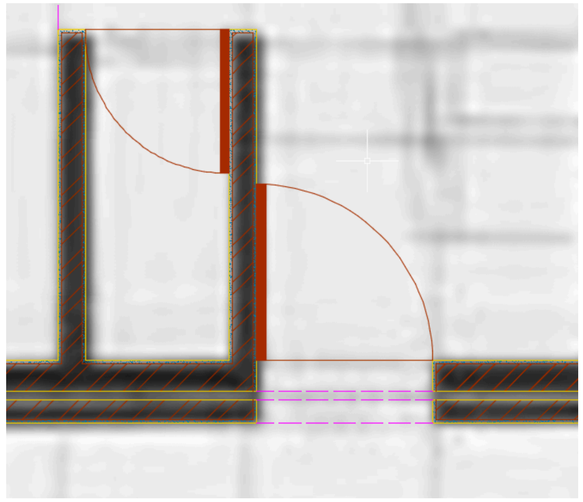
Hatch - Trabalhar a madeira





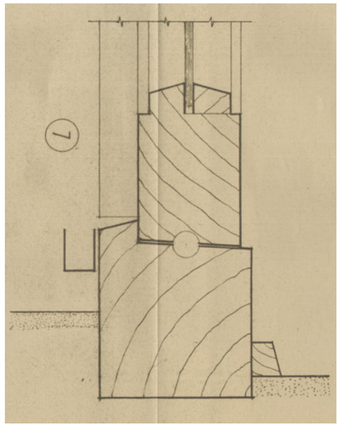


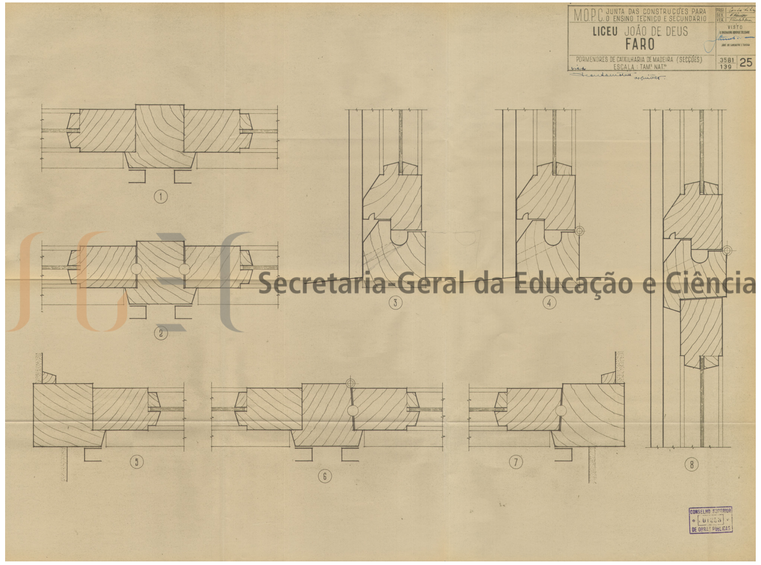




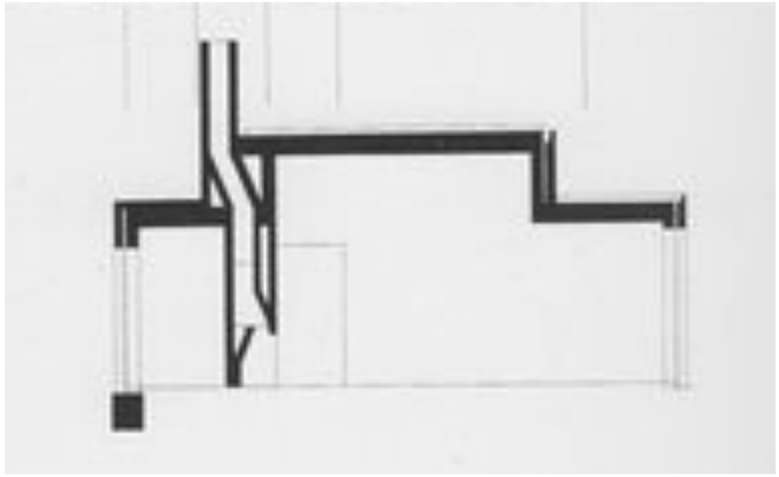
Trabalho adia para 6 a 10 de novembro
Acrescentar ao trabalho: pormenor mais amplo
Alçado e um corte
Imagens de pesquisa da internet

Secretaria geral da educação – 1942 - https://asap-ehc.tecnico.ulisboa.pt/database/images.php?d=../imagens/projetos/76-150
Desenho vetorizado

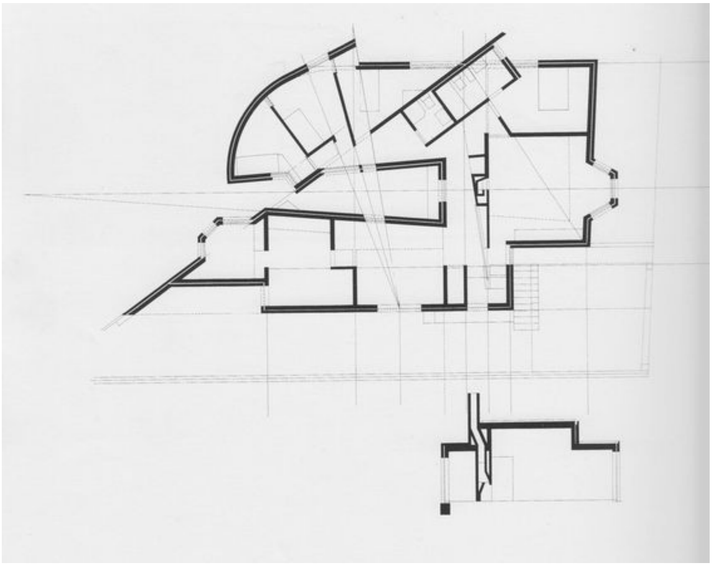


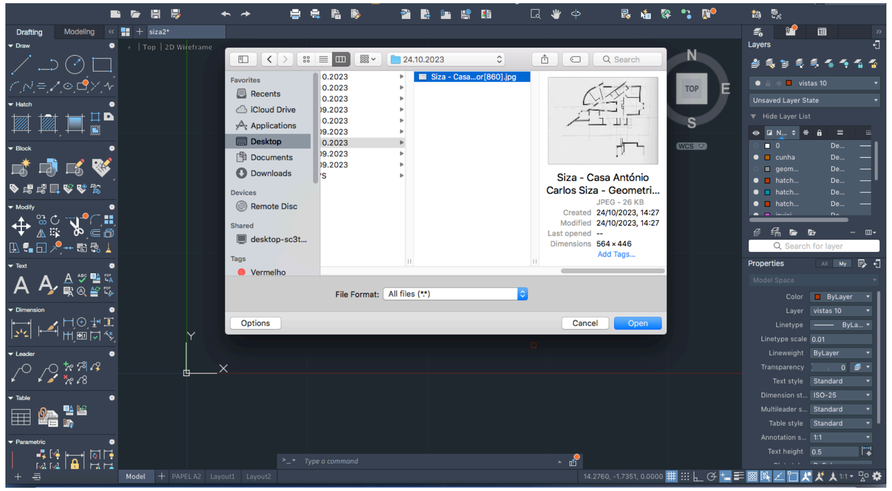


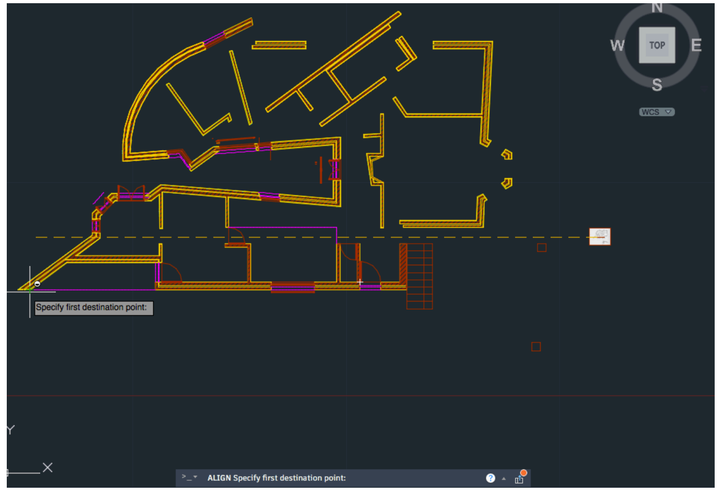
CORTE AB:



Degrau de 8cm
Alinhar com a planta
2,4o e 3,50/3,40 base de tetos
Circunferência TTR – 2 tangencias + 1 raio
Reboco – ar-sand 0.001
Betão – ar-conc – 0.0005
Impermeável – honey / desenhado







SQUARE - Lavatório mural com

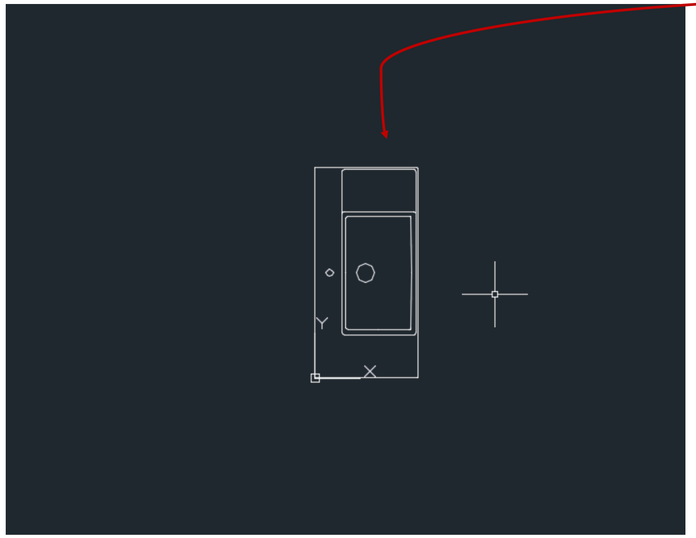
roca.pt/produtos/square-lavatorio-mural-jogo-fixacao-32752A..0?sku=A32752A000

Para obter atualizações futuras do Google Chrome, precisa do macOS 10.15 posterior. Este computador está a usar o macOS 10.13. Sa

DESCRIÇÃO CARACTERÍSTICAS INFORMAÇÃO TÉCNICA

FICHEIROS 2D E 3D BIM DESENHOS TÉCNICOS

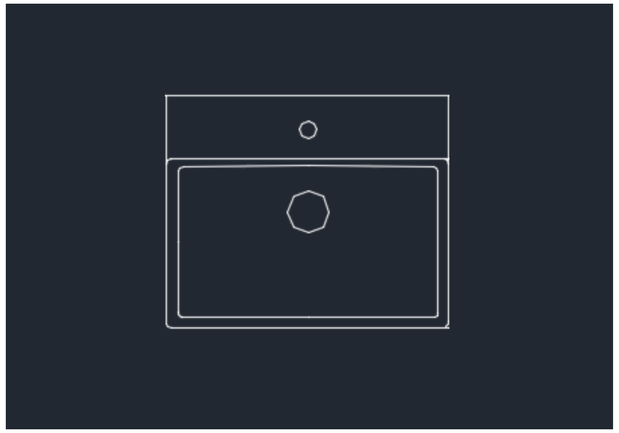
Descarregar os ficheiros CAD (2D, 3D) deste produto em diferentes formatos.

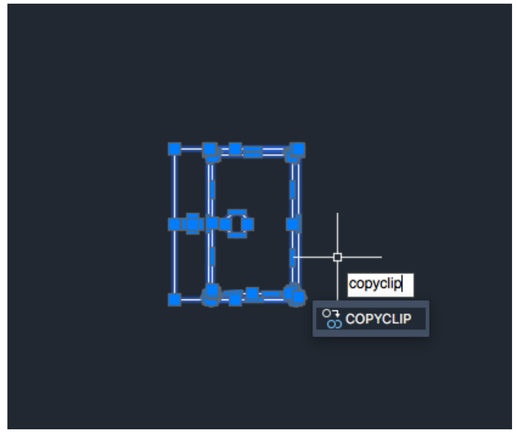


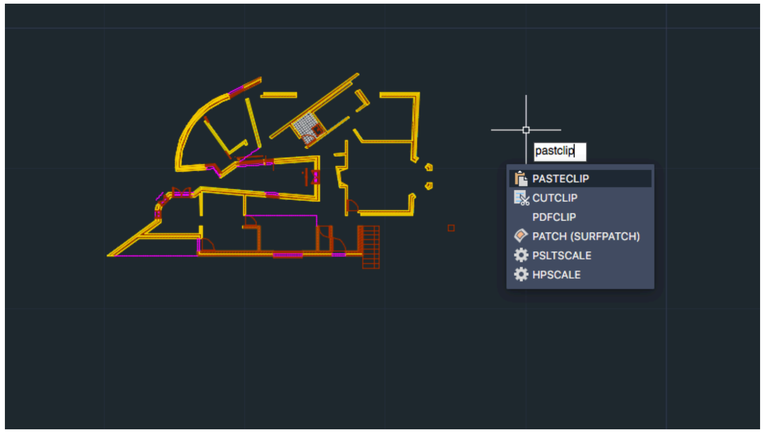
2D				
PLANTA	DWG	DWG	DXF	DXF
ALÇADO	DWG	DWG	DXF	DXF
PERFIL	DWG	DWG	DXF	DXF

3D						
	3DS	DWG	DWG	DXF	DXF	FBX

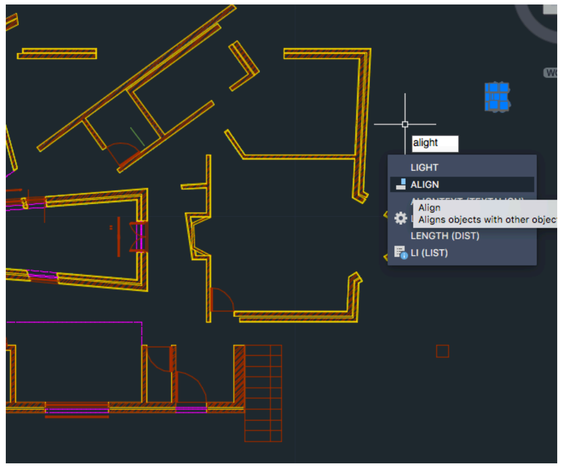
Block - blocos – entidades conjuntas (conjunto)

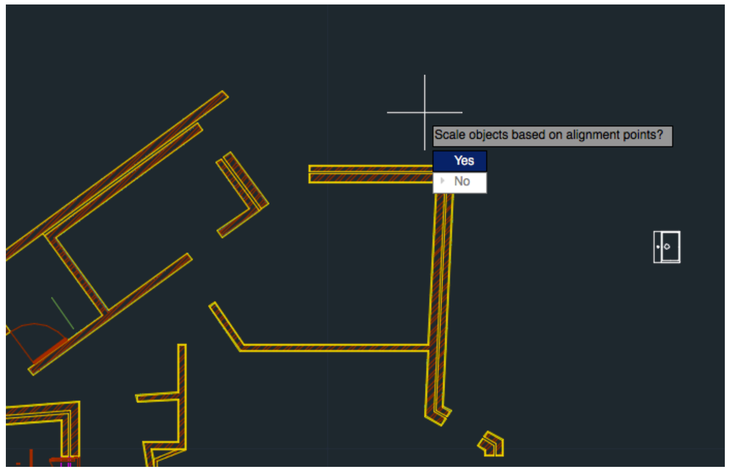


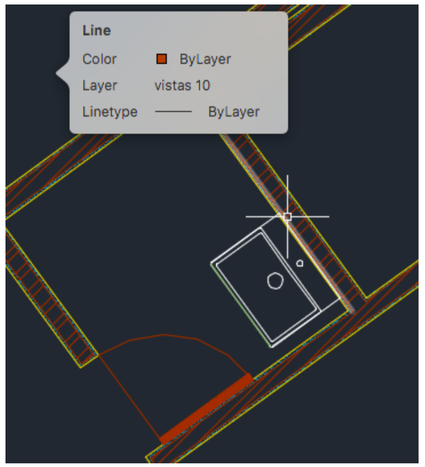


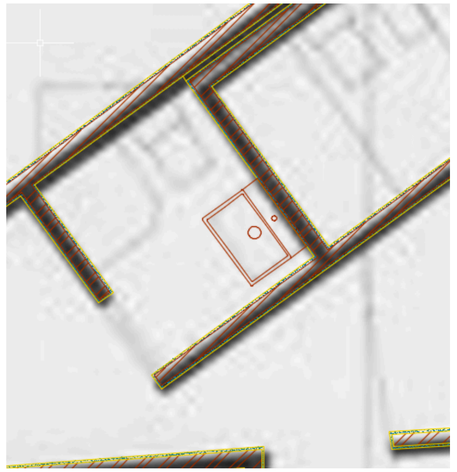


Copyclip – copiar para outro ficheiro
Copiar para clipboard

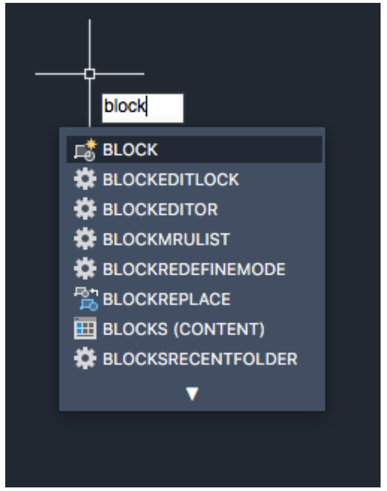


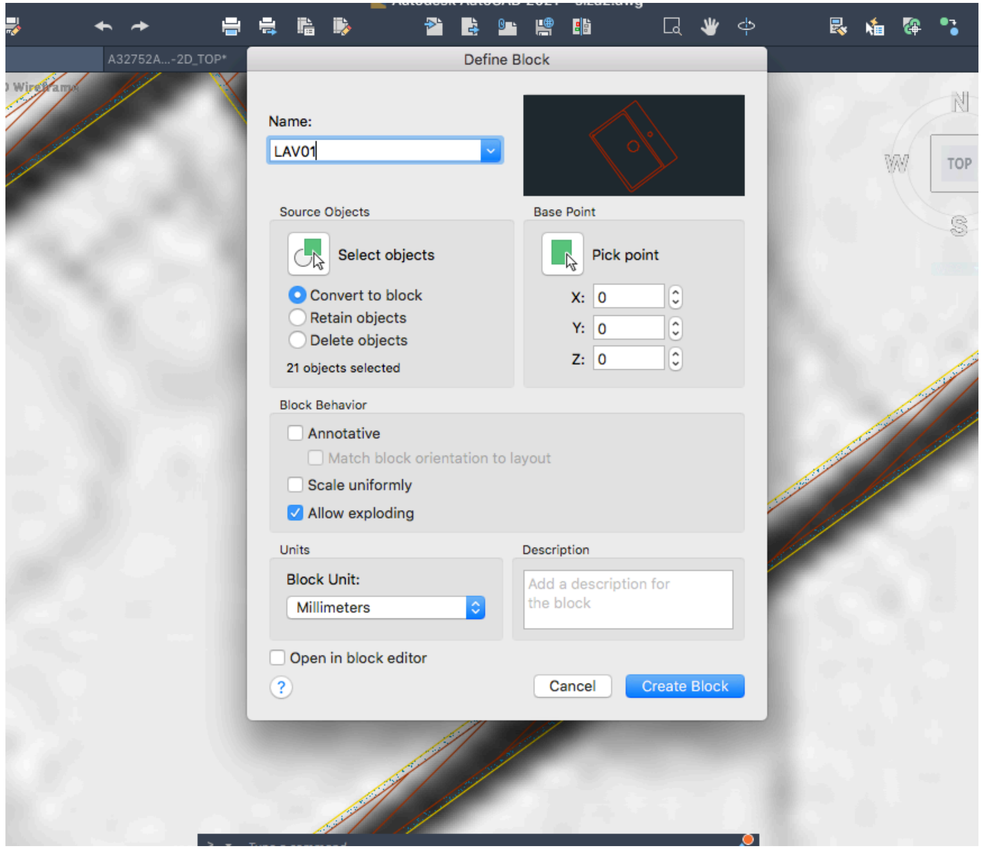




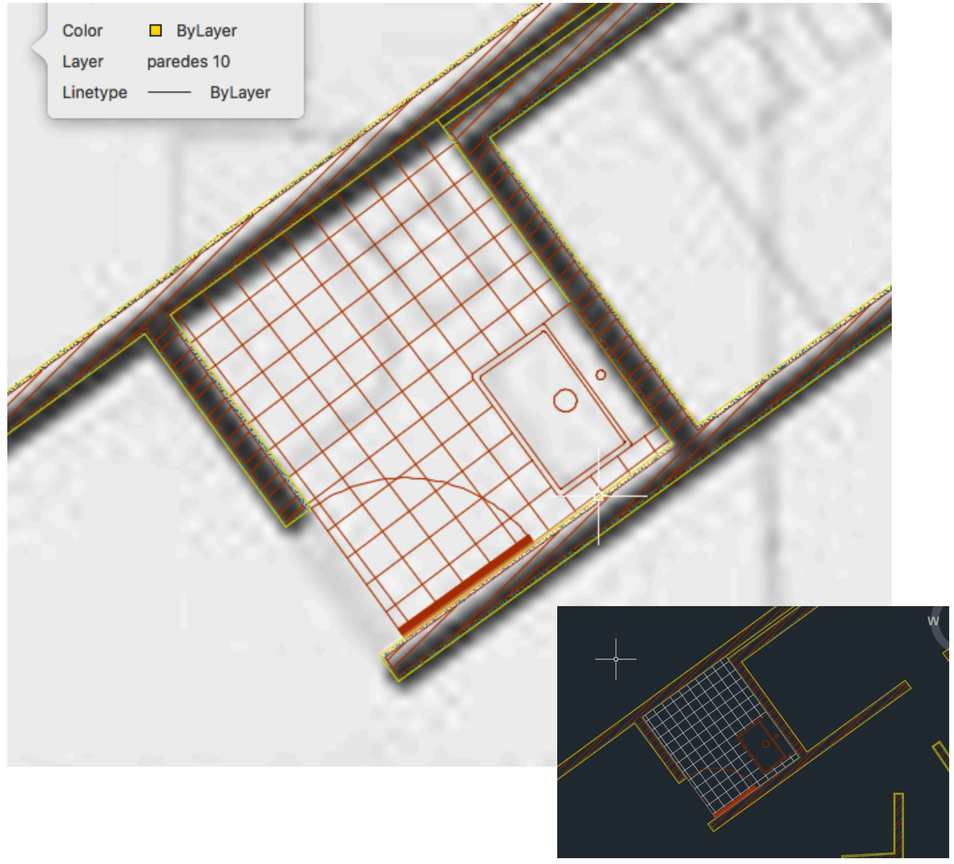


BLOCK – “guarda” o ficheiro dentro do documento – LAV01

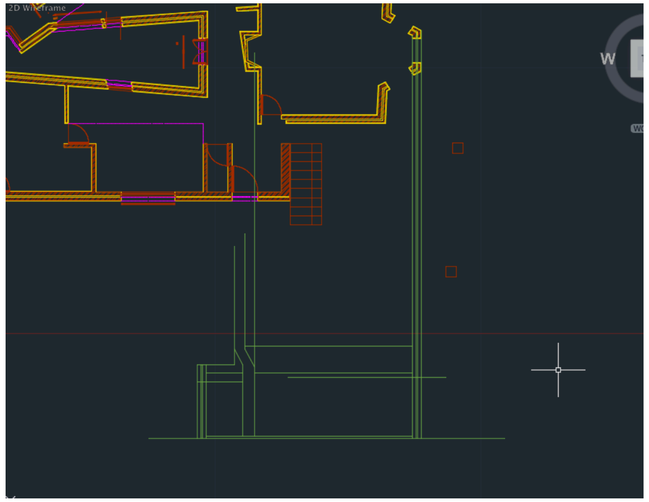


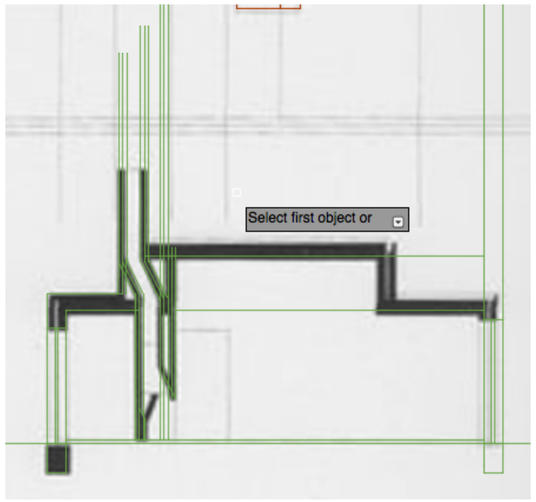


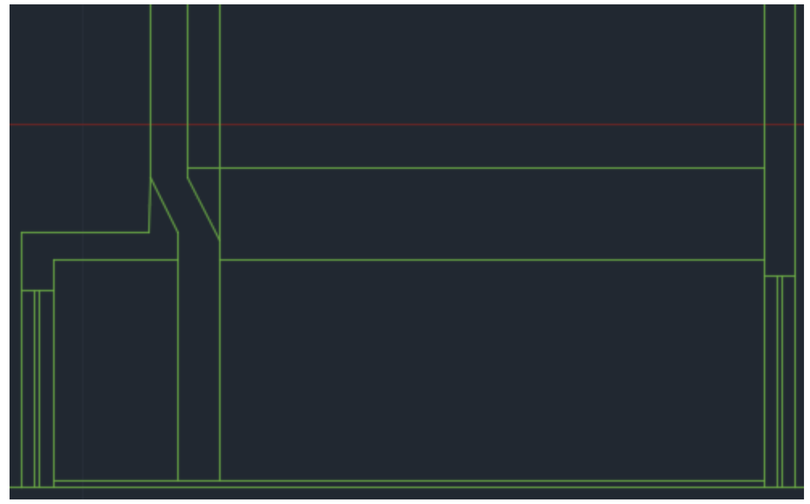
Pavimento casa de banho – ANSI 37
(orientar a linhas de modo a ficarem paralelas às paredes ~81º)

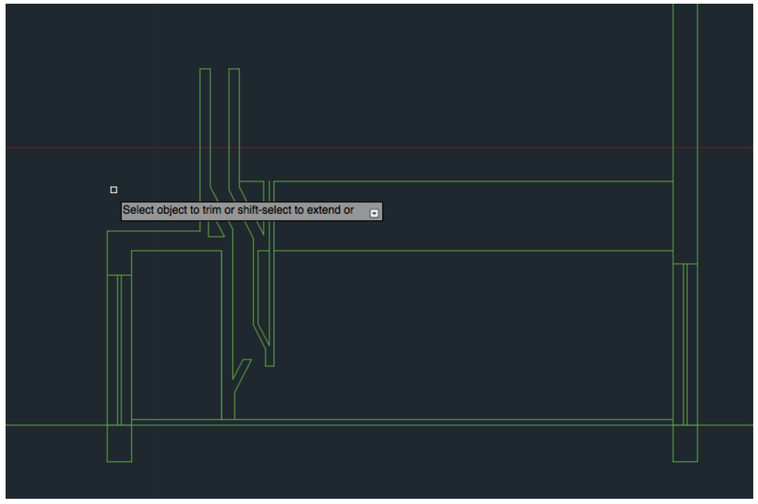


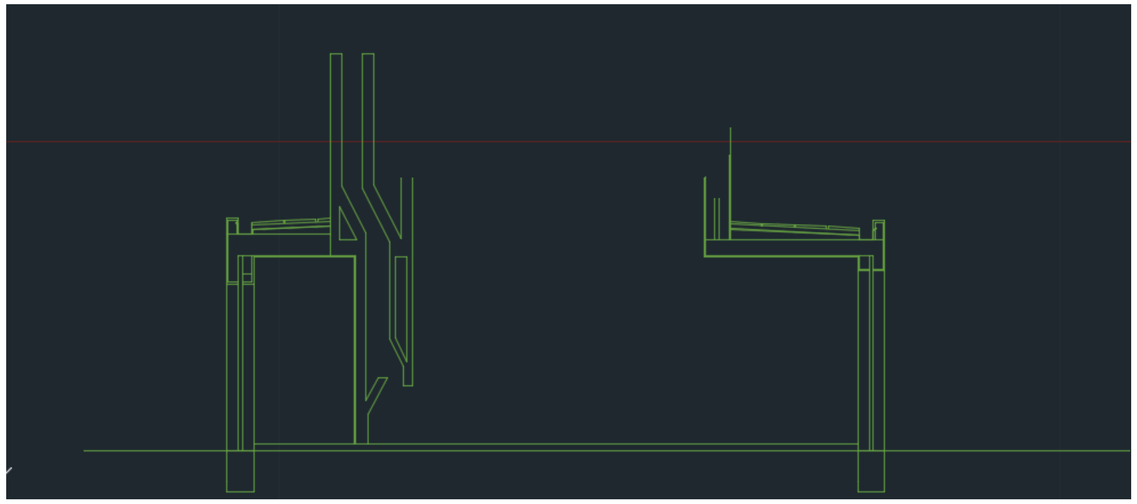
PROCESSO PARA A REALIZAÇÃO DO CORTE

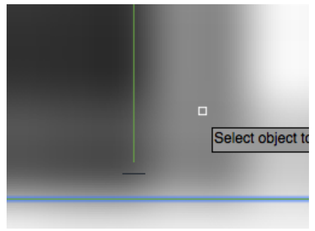




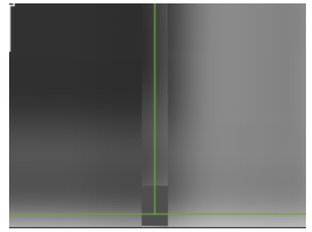




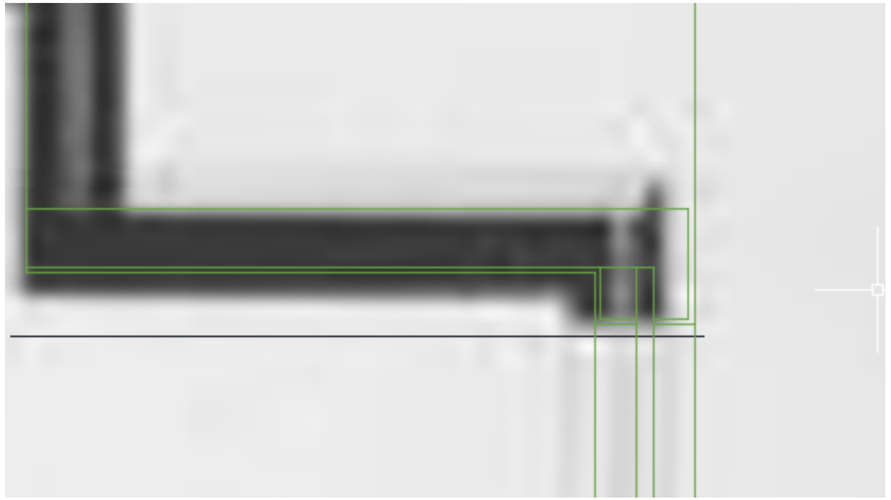


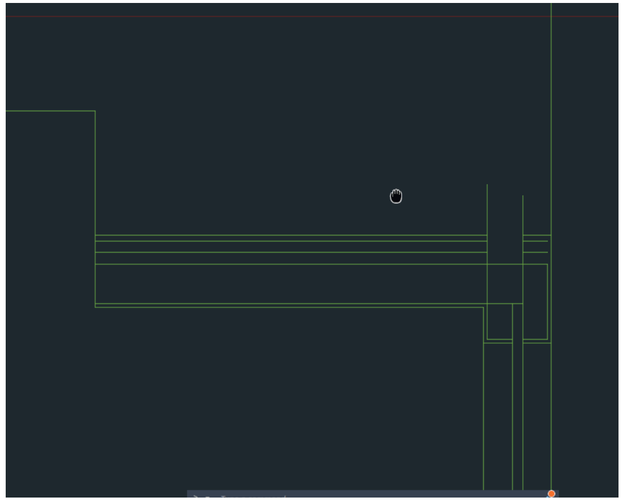


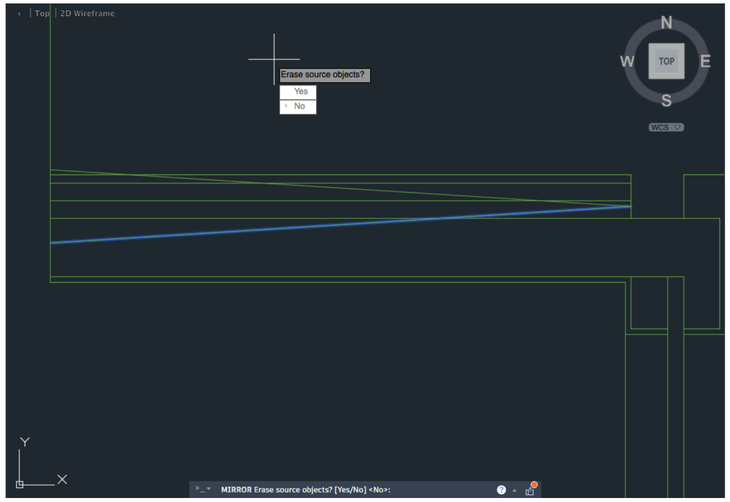
Extend

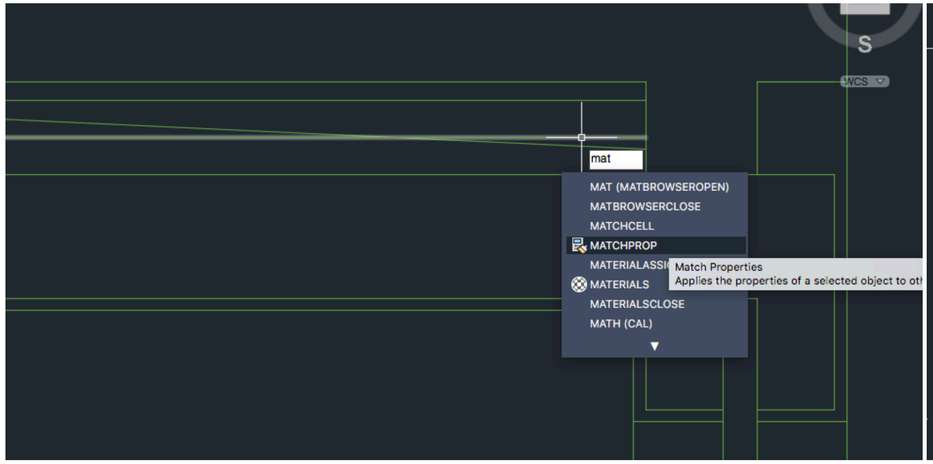


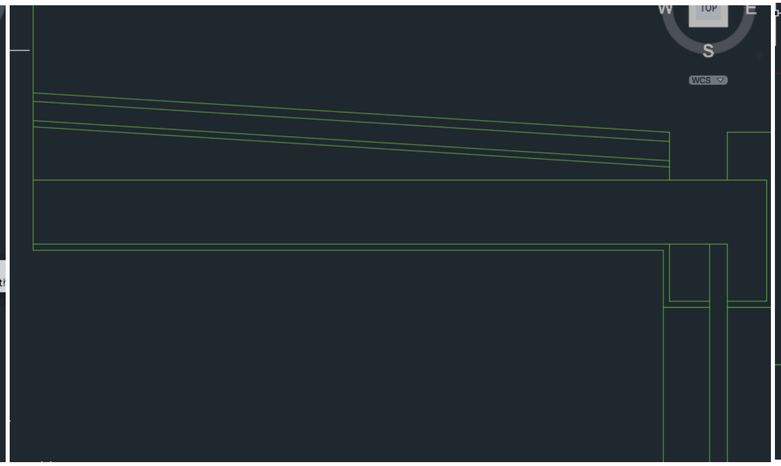
PROCESSO PARA A REALIZAÇÃO DO CORTE (CONTINUAÇÃO)

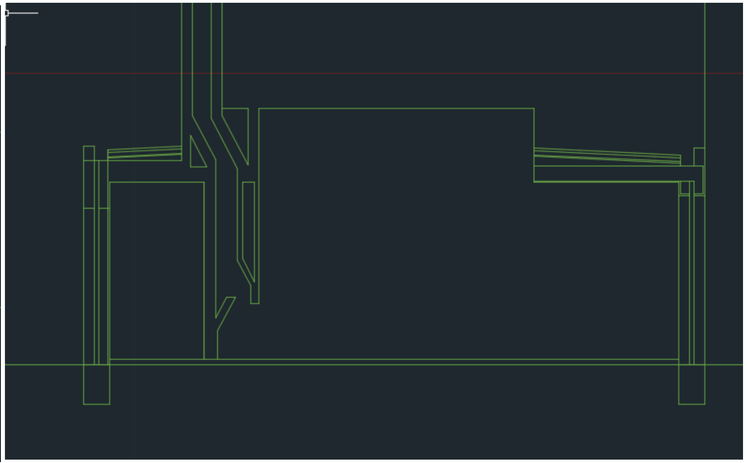




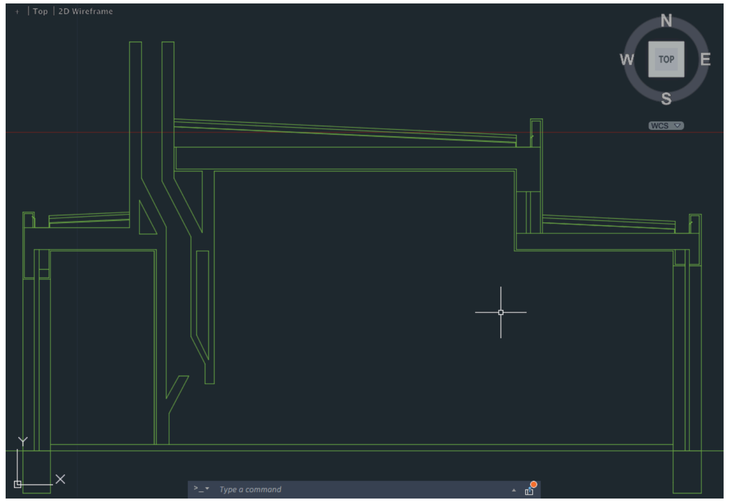


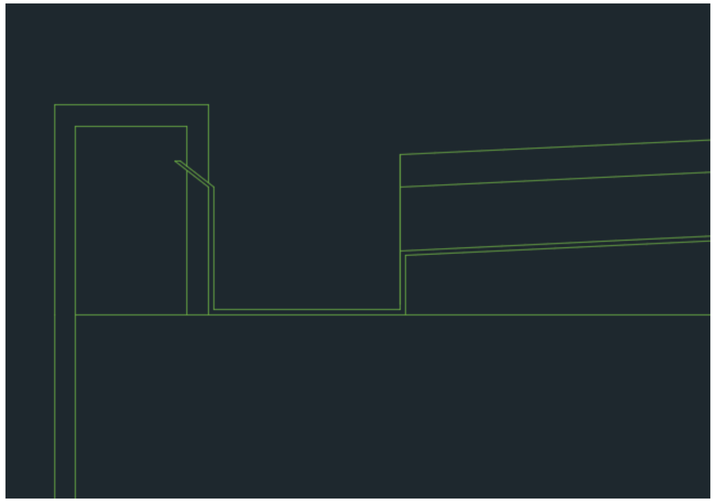


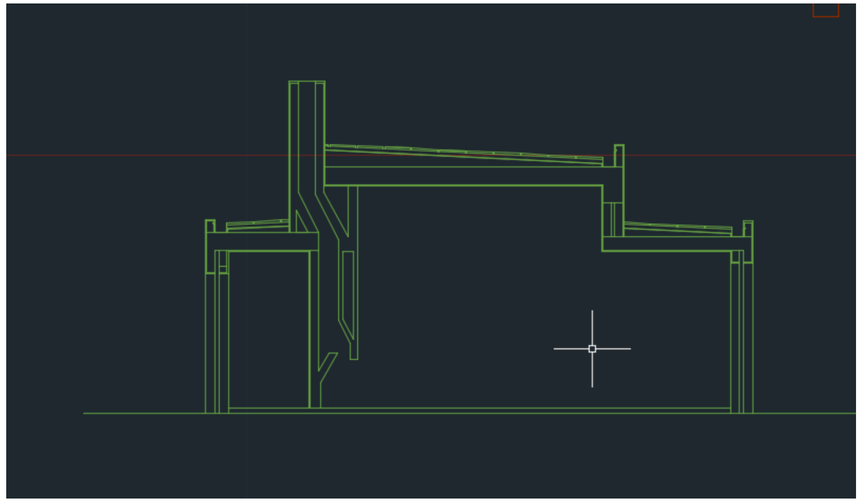


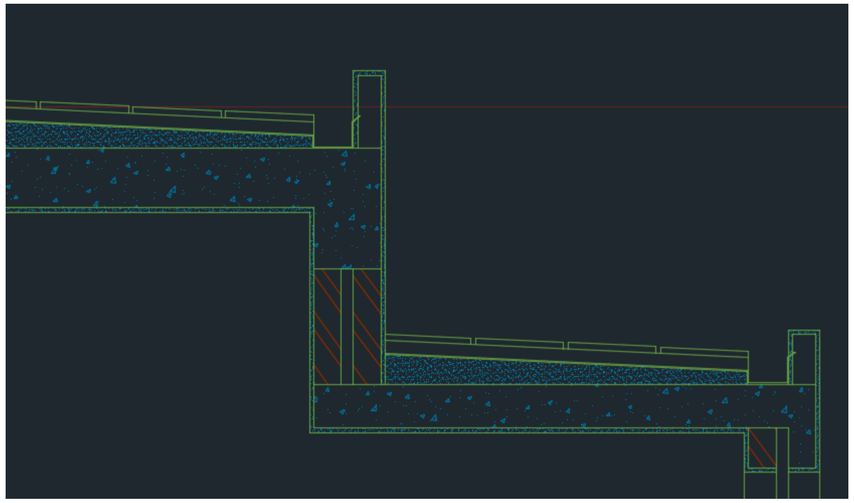


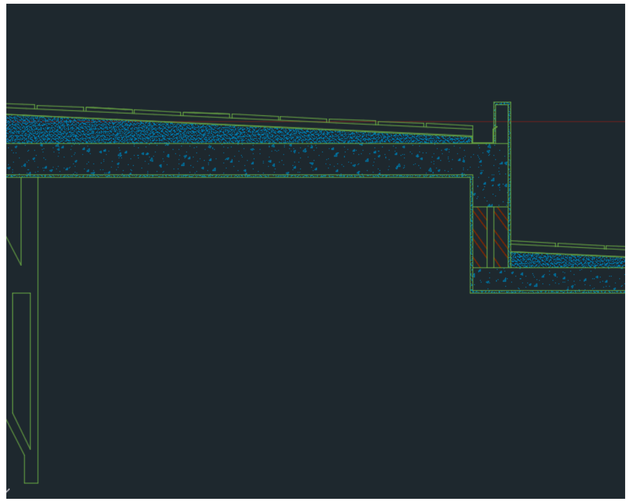
PROCESSO PARA A REALIZAÇÃO DO CORTE (CONTINUAÇÃO)

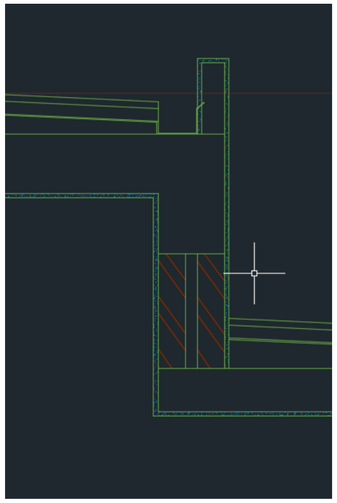


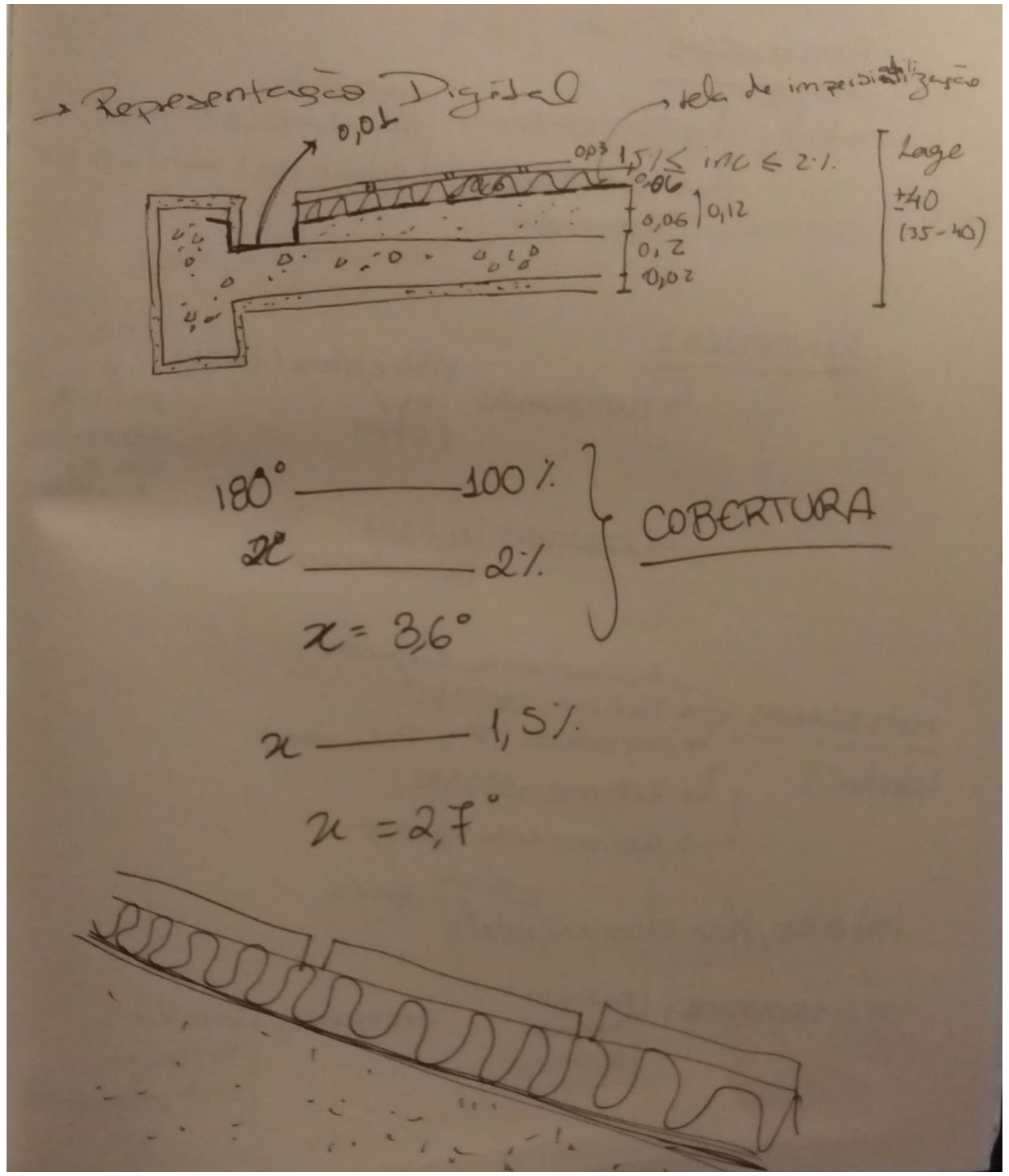


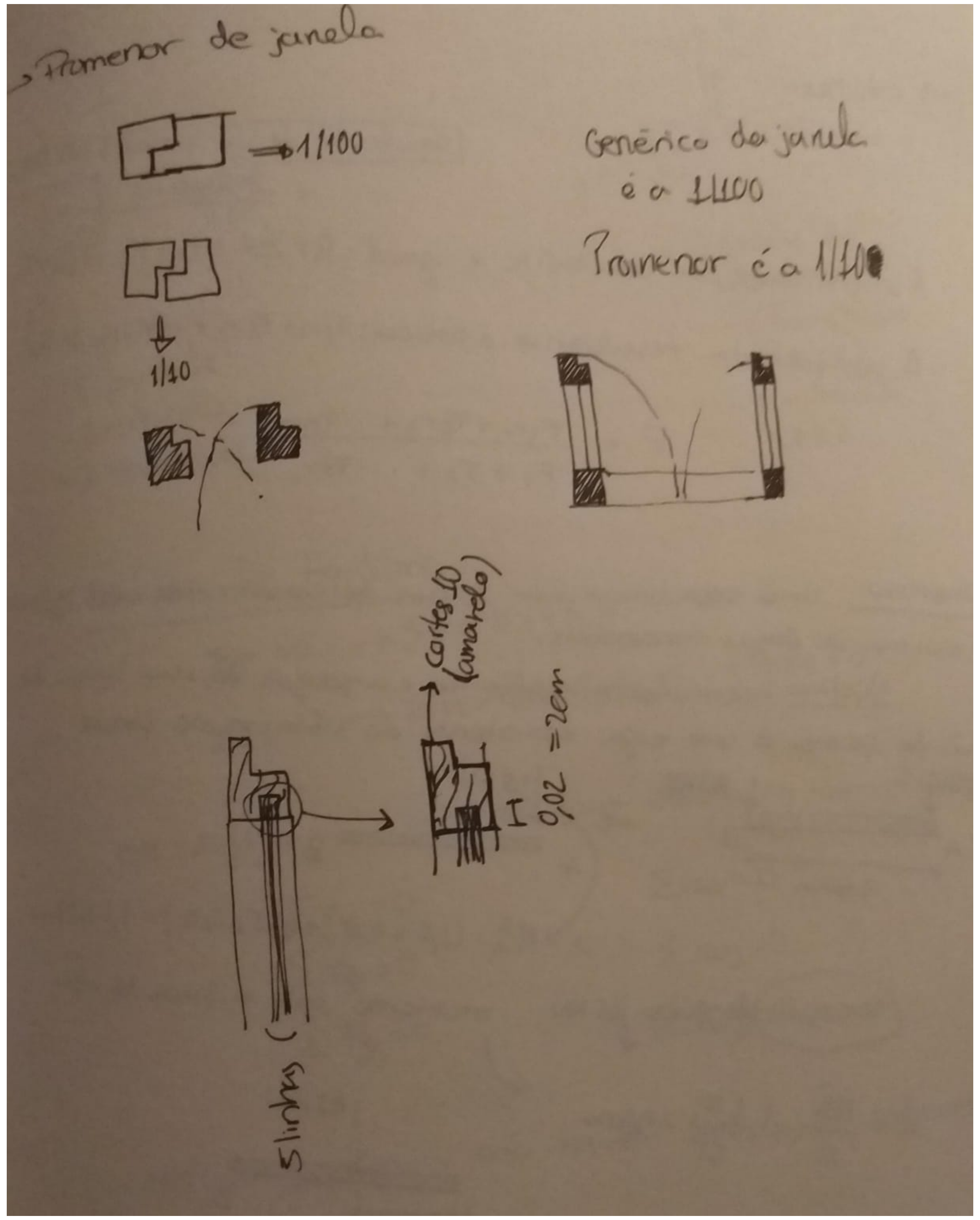


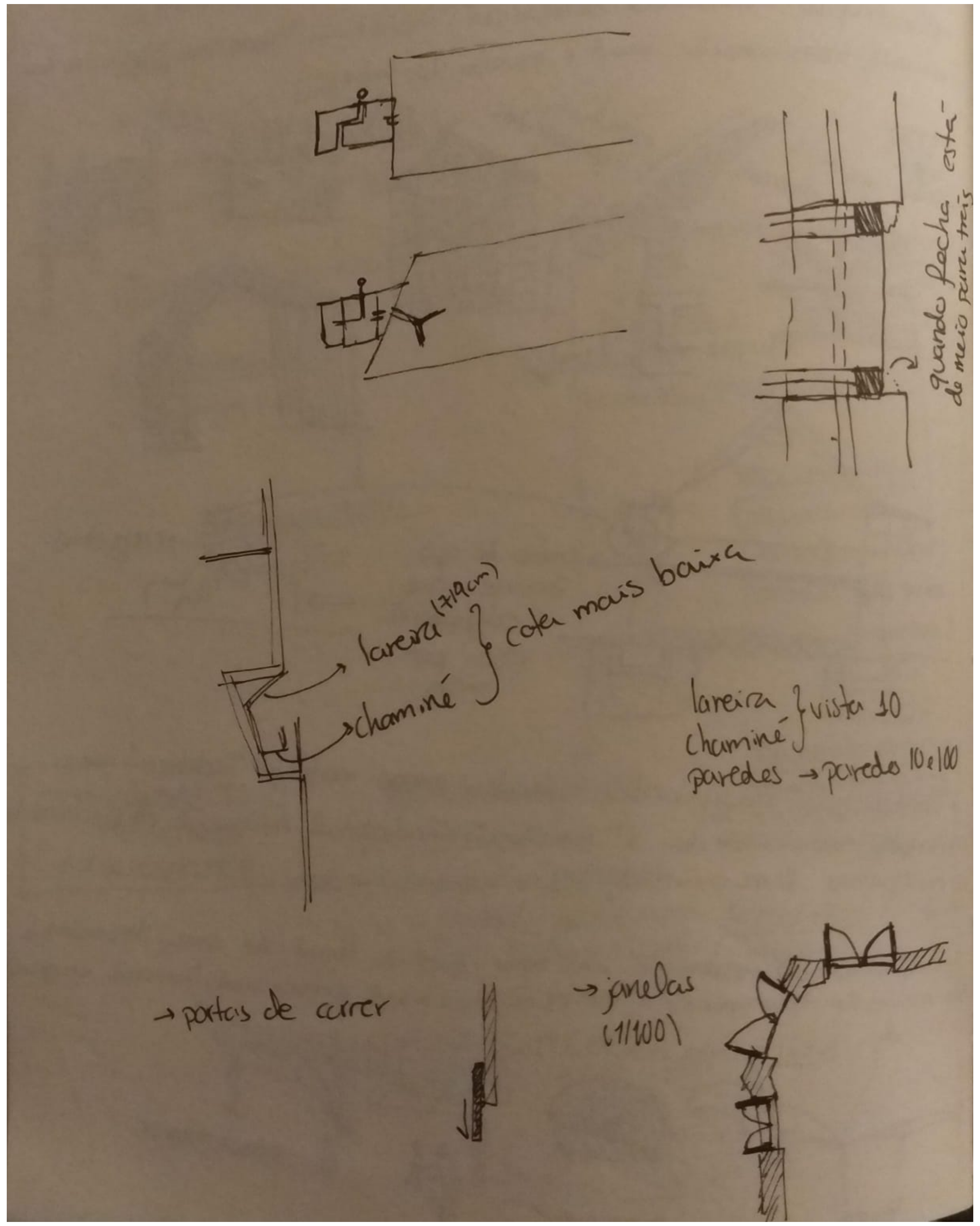




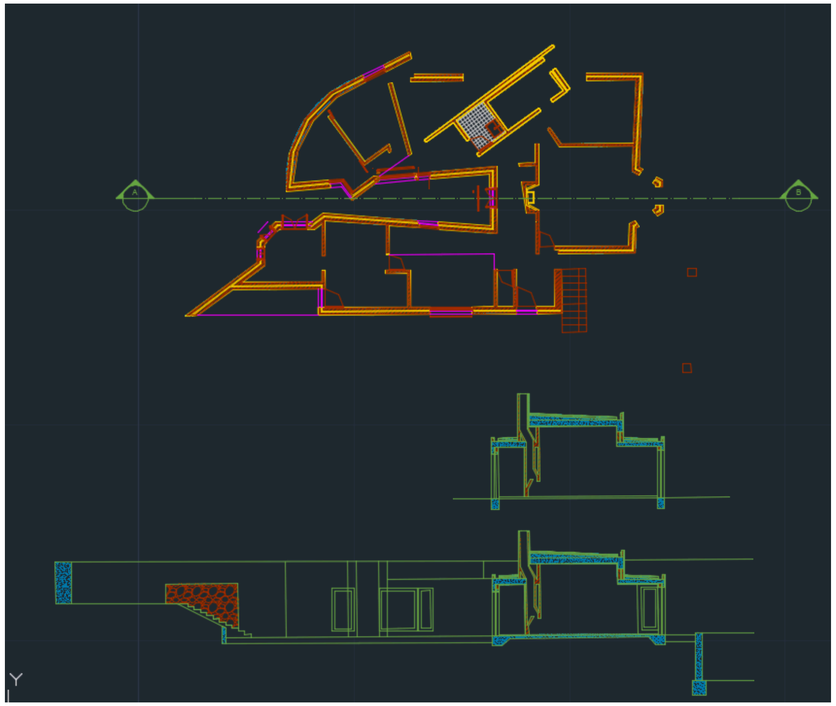


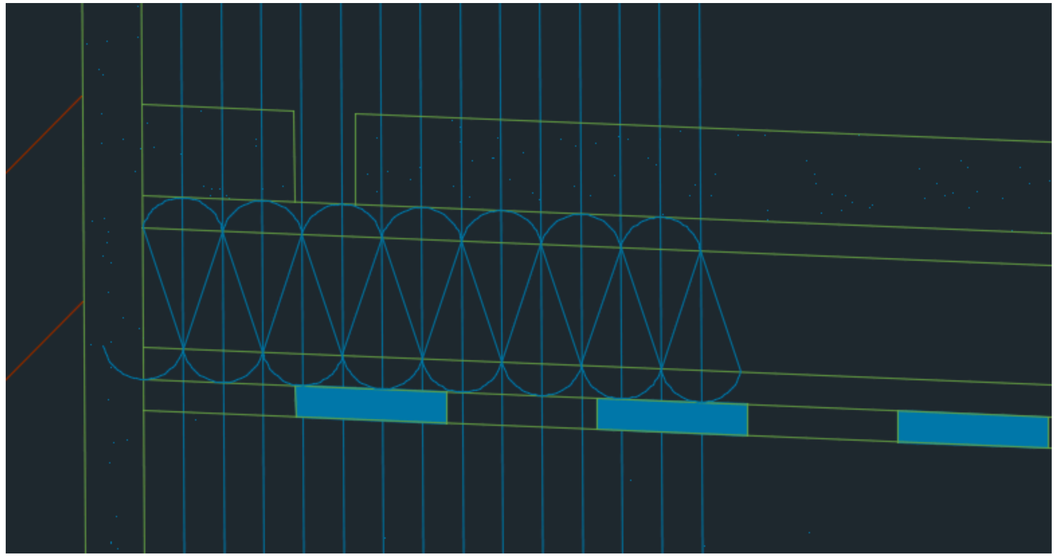

→ Representação Digital
tela de impermeabilização
0,01
1,5% ≤ inc ≤ 2%
Lage
±40
(35-40)
0,06
0,12
0,2
0,02
180° — 100%
x — 2%
x = 3,6°
COBERTURA
x — 1,5%
x = 2,7°

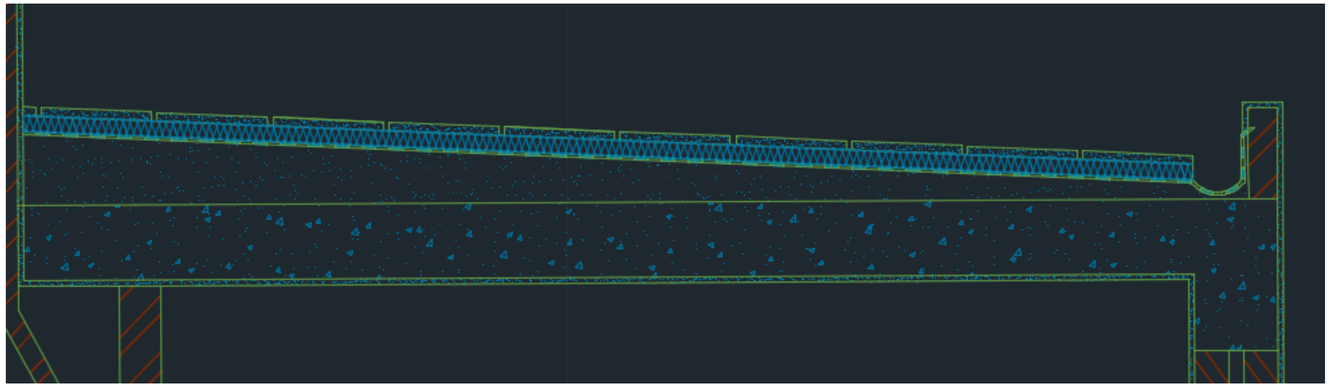

Pormenor de janela
1/100
1/10
Genérico da janela é a 1/100
Pormenor é a 1/10
cortes 10 (amarelo)
0,02 = 2cm
sliding


quando fecha está de meio para trás
lareira
chaminé
cota mais baixa
lareira
chaminé
vista 10
paredes → parede 10 e 100
→ portas de correr
→ janelas (1/100)

CORTE AB

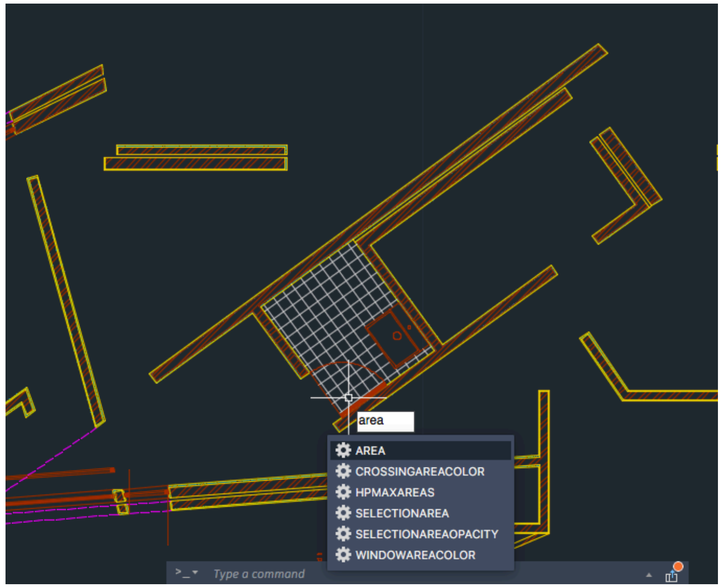


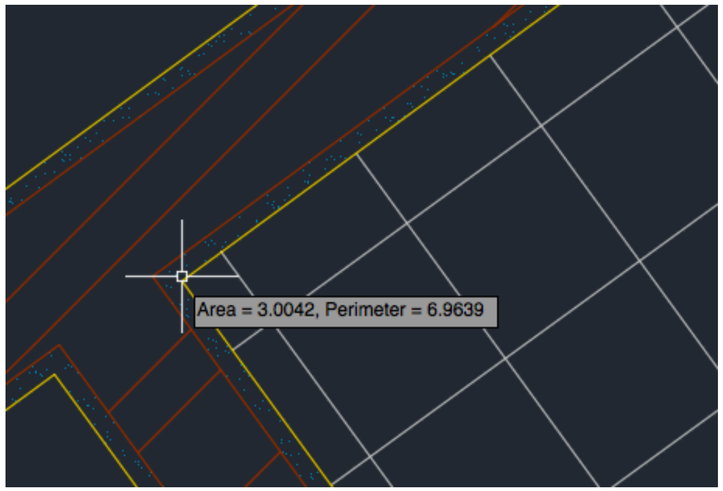


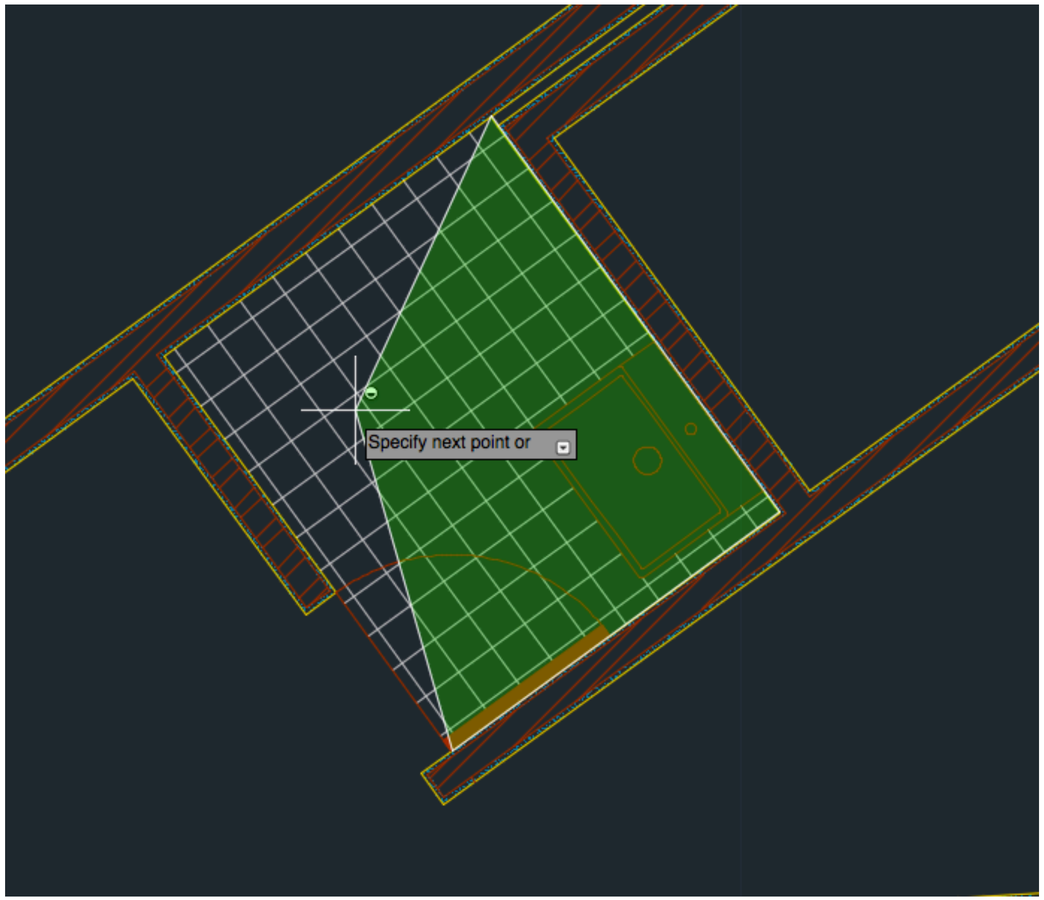


Definir regiões – Area – selecionar todos os vértices que pretendo para definir uma região, dar-me-ia também um perímetro.

Vai originar uma polyline que por sua vez ao clicar a list, vai aparecer a zona toda caracterizada.







Ponto x 40
Linha 30
Perpendicular a meio linha com 50 – eixo

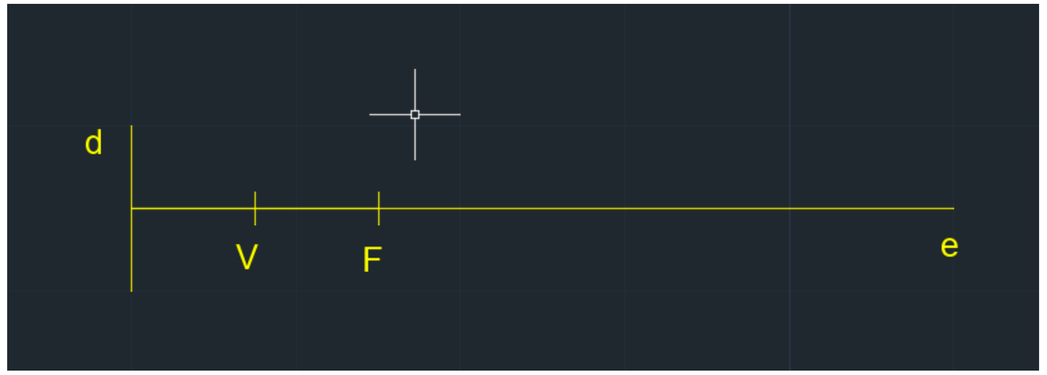
Dtext em ambas as linhas – 1,5 altura (d) + (e) e nos pontos F (15) e V (7,5)

V 7,5
Circulo com centro no F e abrir para la do V (8)
fazer na layer pontos circle com 0.25 para marcar as interceções

Spl splayn e passar uma linha por todas a intececoes
Orbit – rodar o plano em prespetiva
Revsurf 0 aos 180/360
Surf tab 1 – meridianos (30)
Surf tab 2 – paralelos (20)
Shade -

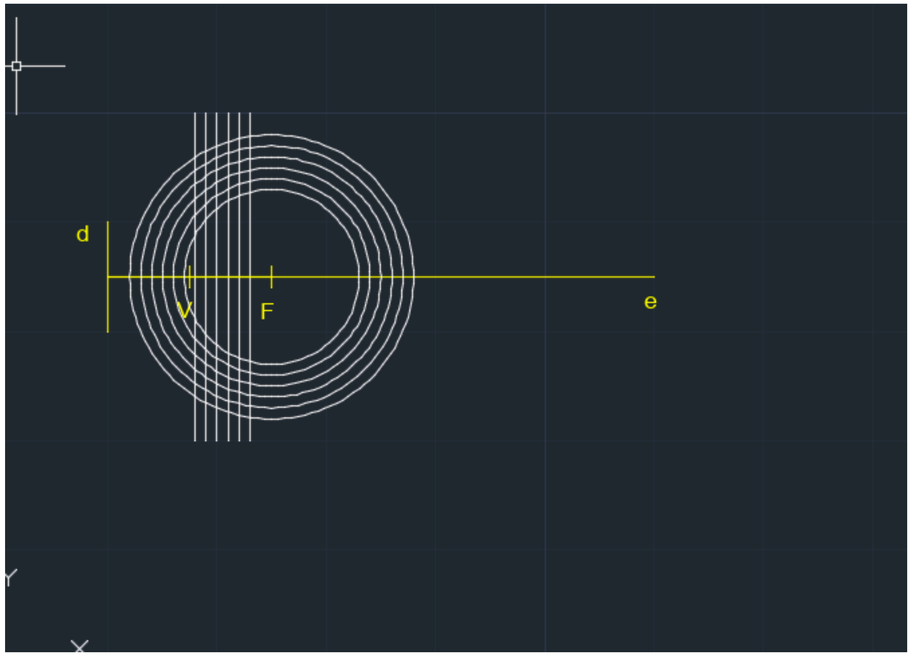
Offset da diretriz 15 para a direita de modo a marcar o foco

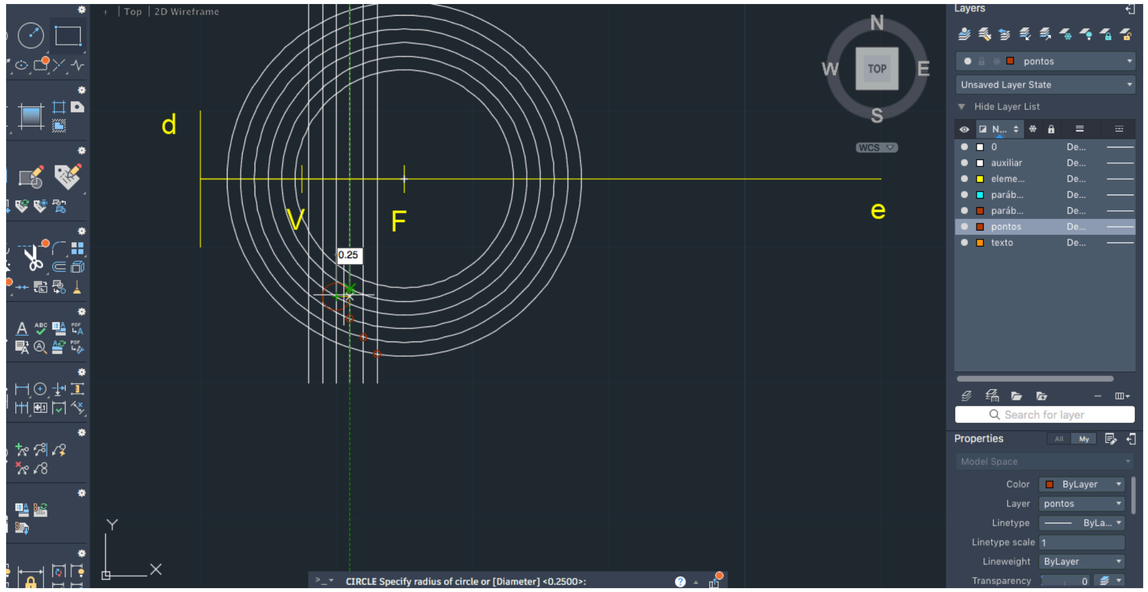
Foco – ponto
Diretriz - reta

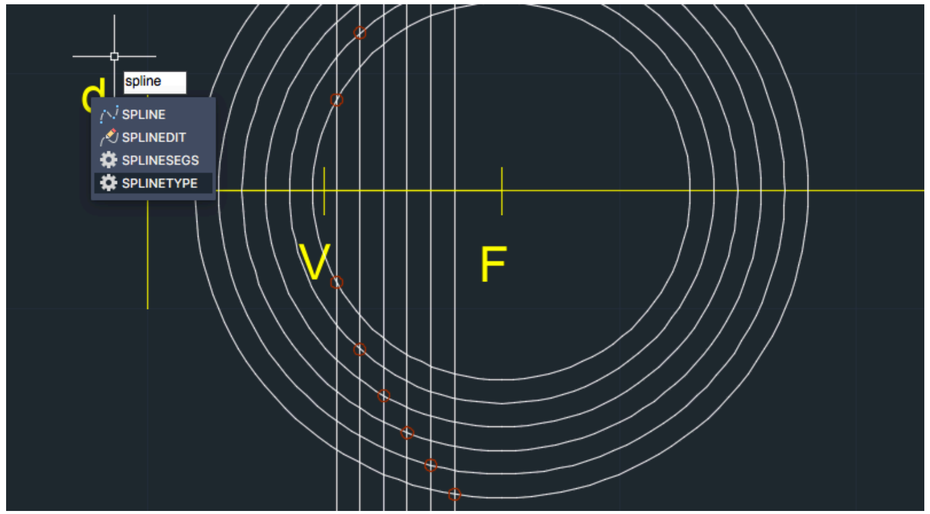


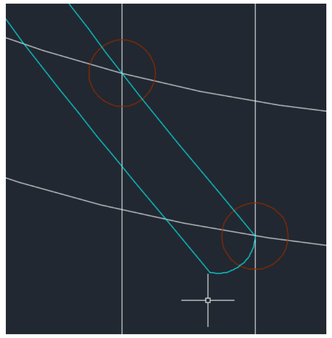
Criar 6 layers:

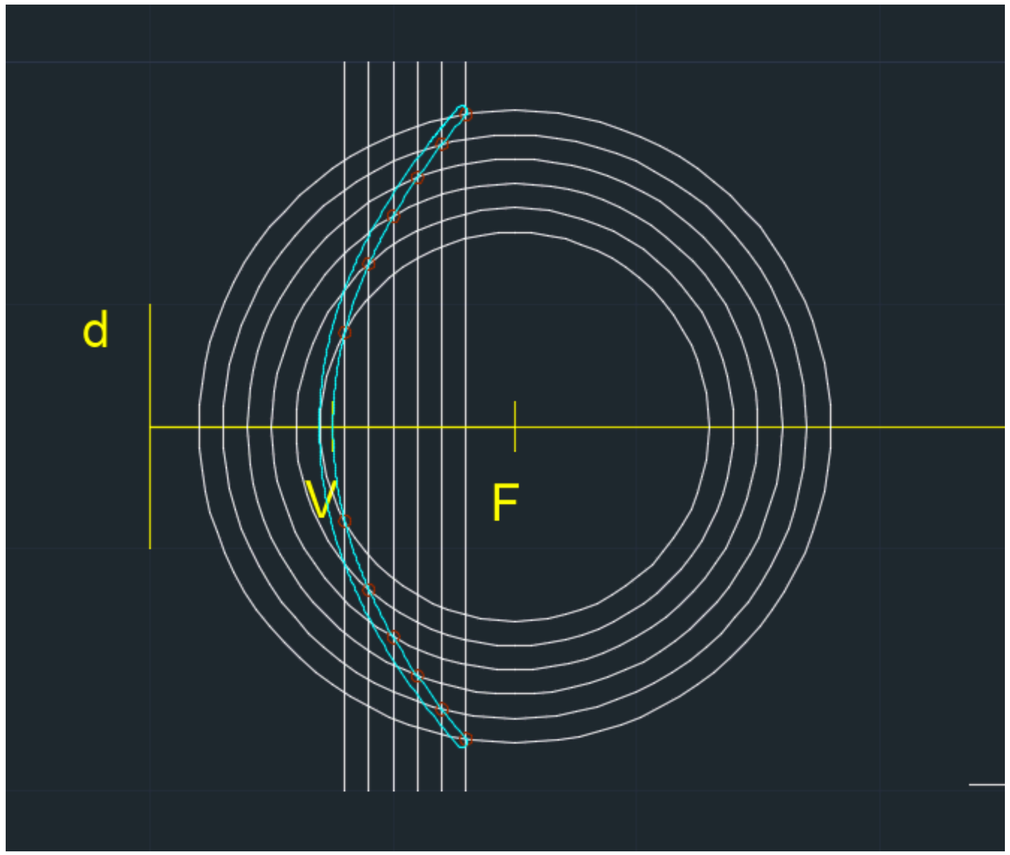
- Auxiliar (cinzento – 8)
- Elemento diretor (amarelo – 2)
- Pontos (encarnado – 22)
- Texto (laranja– 30)
- Parabola 1 (ciano – 4)
- Parabola 2 (encarnado – 22)

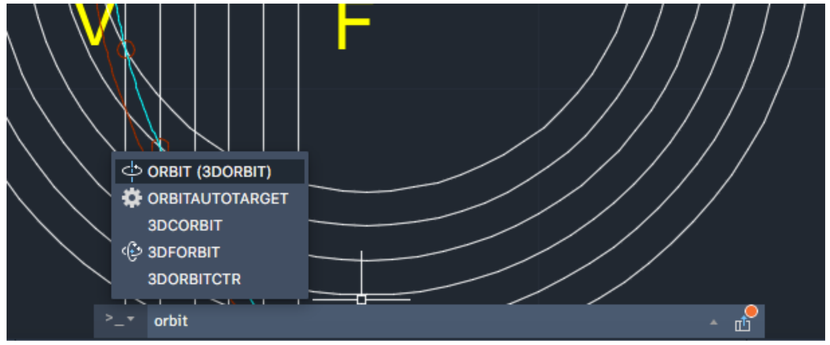



Top | 2D Wireframe
d
V
F
e
0.25
N
W
TOP
E
S
WCS
Layers
pontos
Unsaved Layer State
Hide Layer List
0
auxiliar
eleme...
paráb...
paráb...
pontos
texto
Search for layer
Properties
Model Space
Color ByLayer
Layer pontos
Linetype ByLa...
Linetype scale 1
Lineweight ByLayer
Transparency 0
CIRCLE Specify radius of circle or [Diameter] <0.2500>:

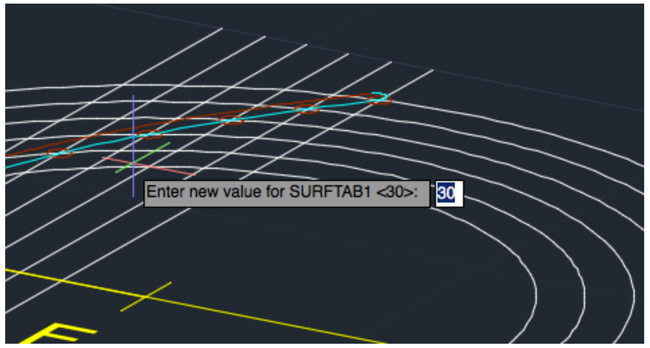

spline
SPLINE
SPLINEDIT
SPLINESEGS
SPLINETYPE
V
F

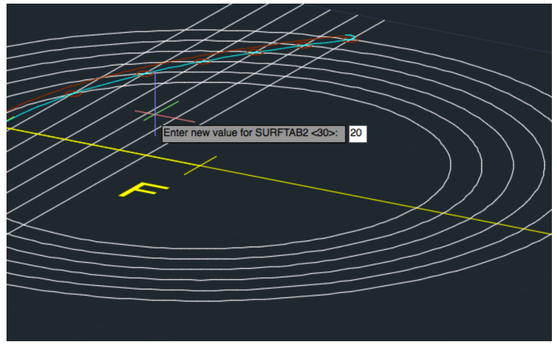



d
V
F

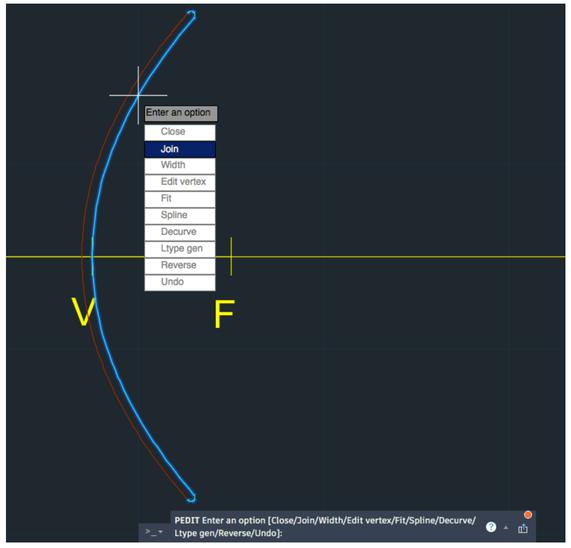


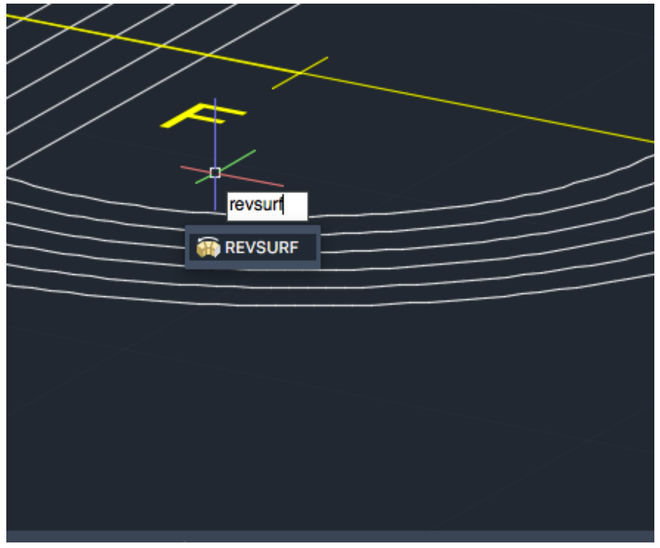
ORBIT – visualizar em prespetiva

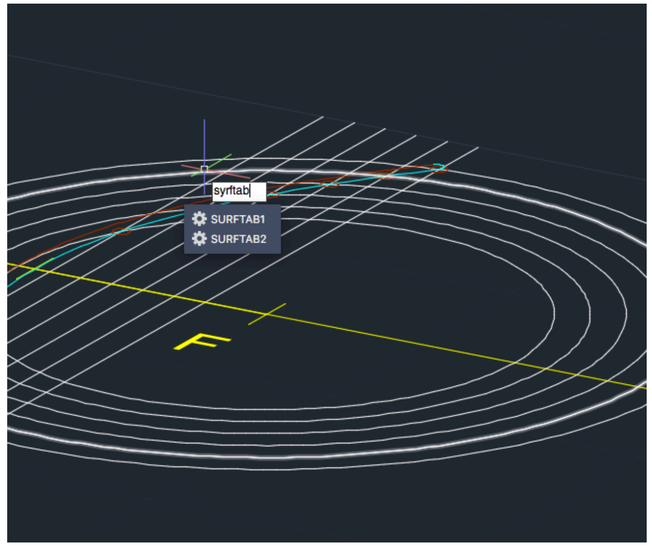




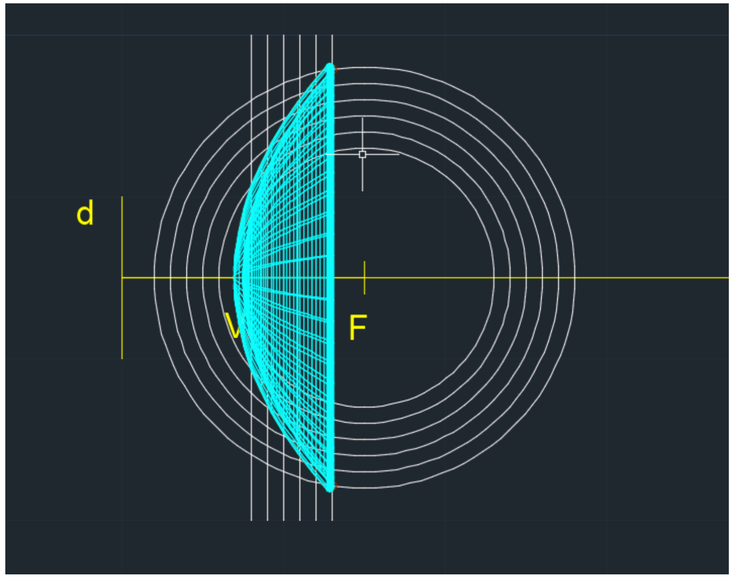
SURFTAB 1 e 2 – numero de linhas das parabolas

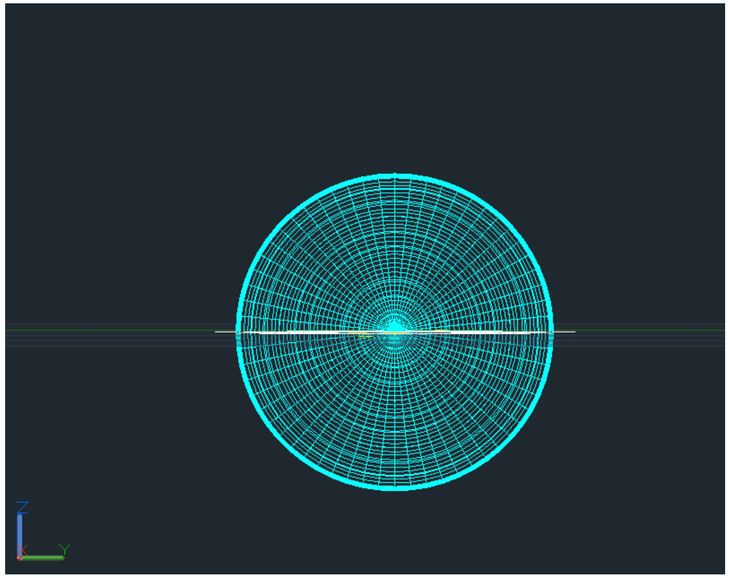


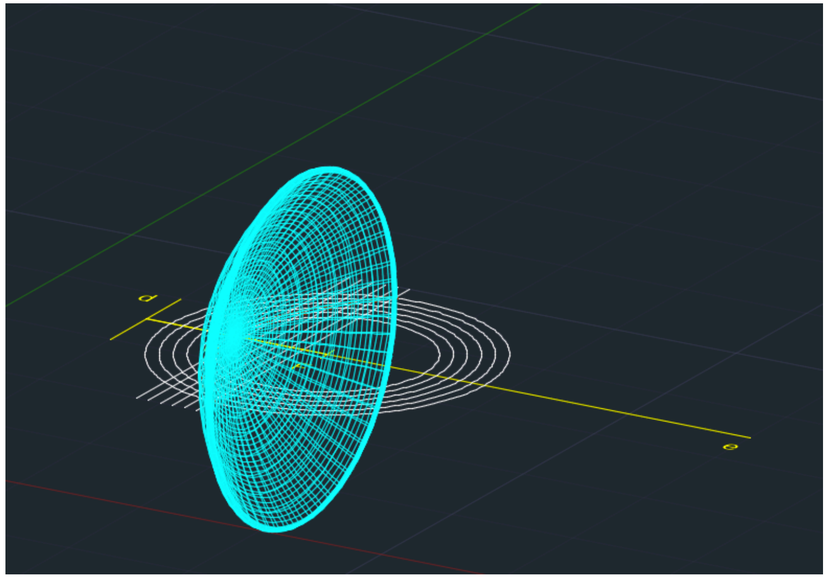




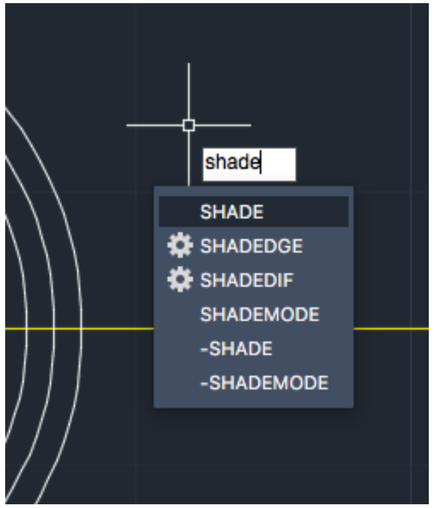
REVSURF – levantar a parábola segundo surftab 1 e 2

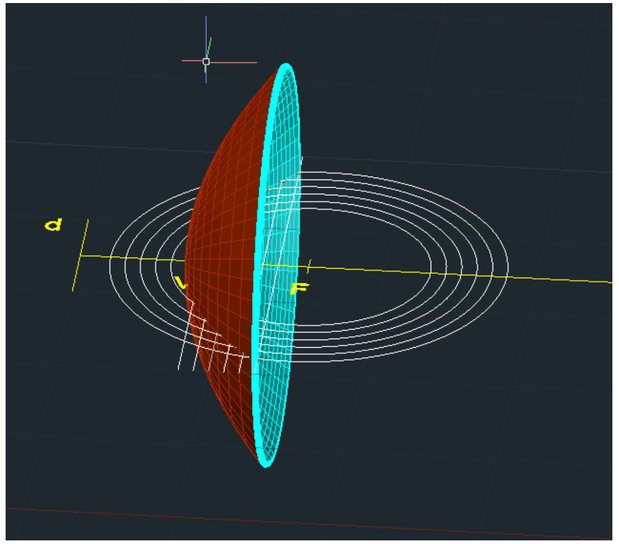


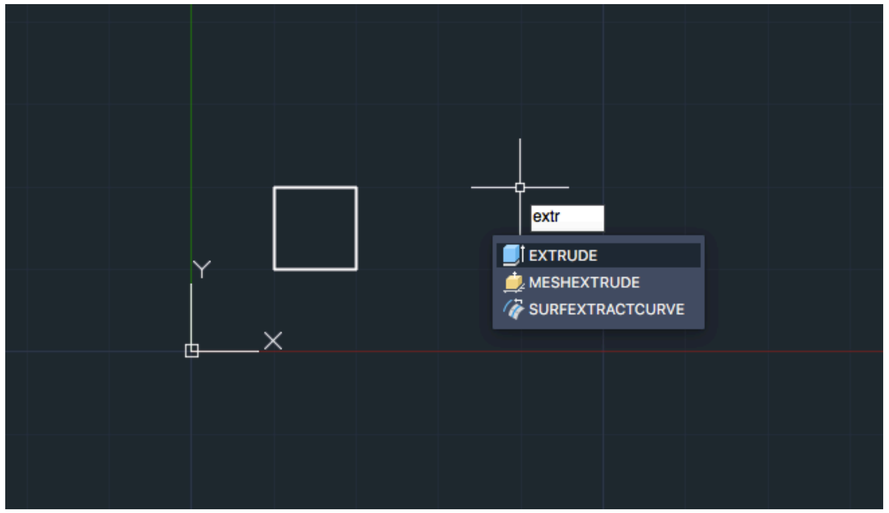


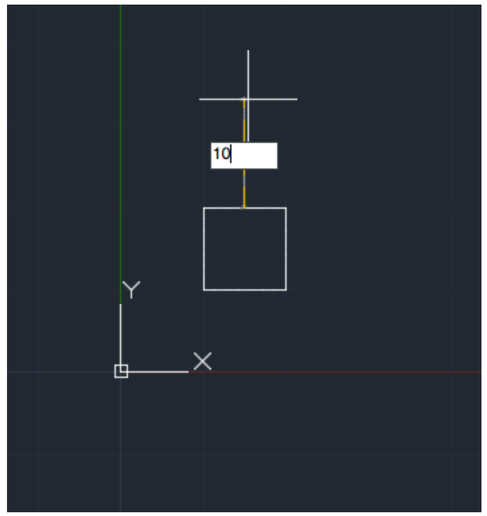


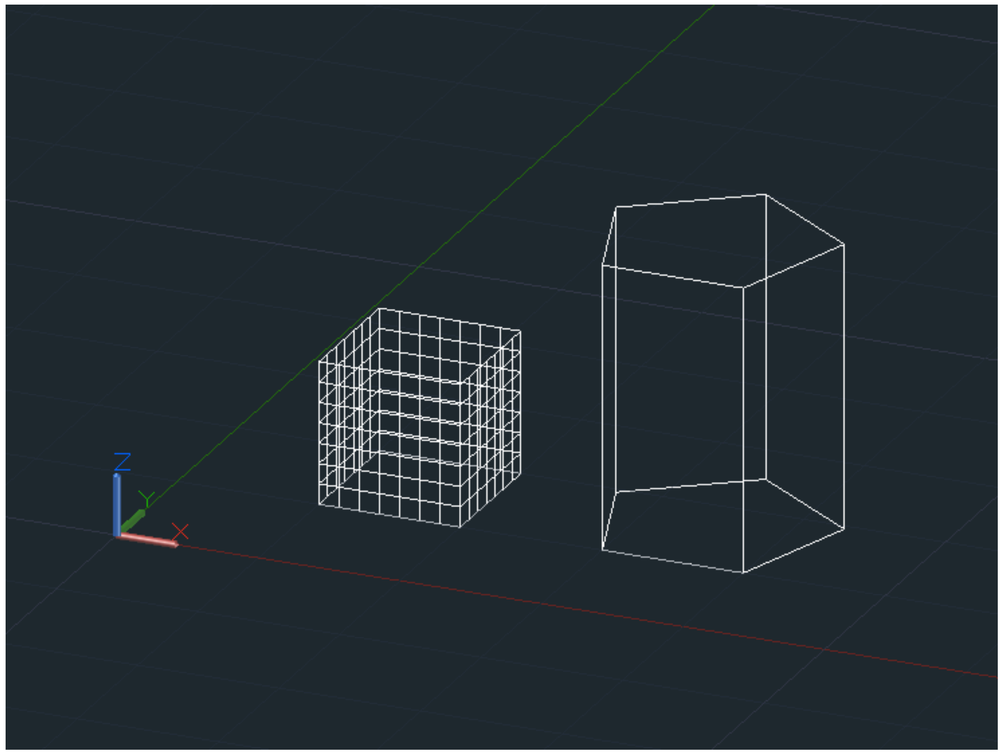
REVSURF
SHADE - preenchimento

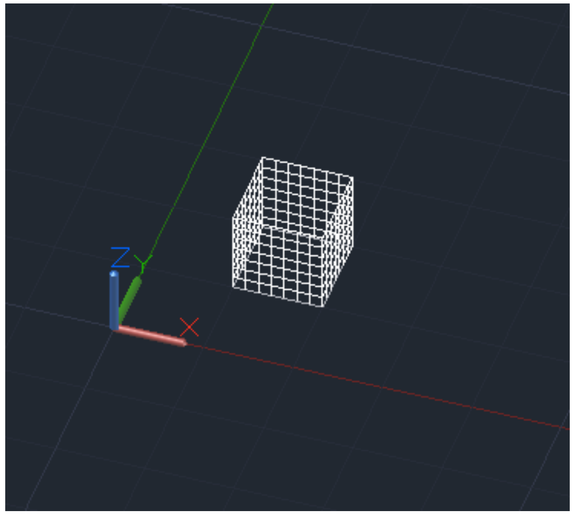


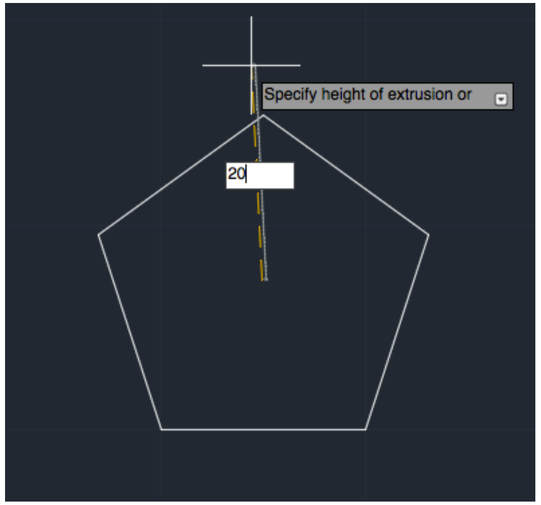


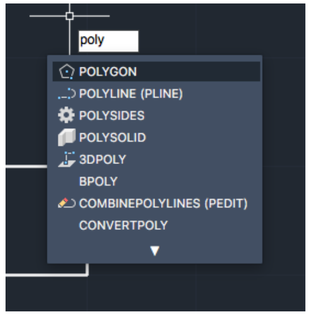






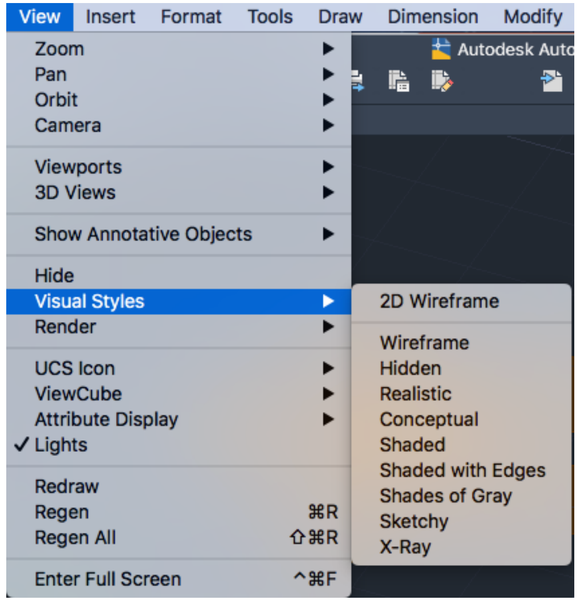


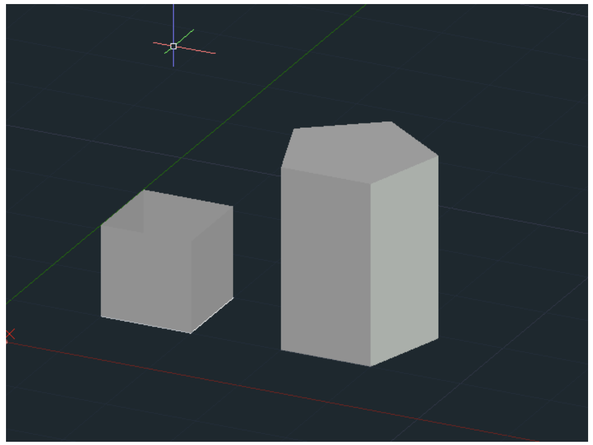


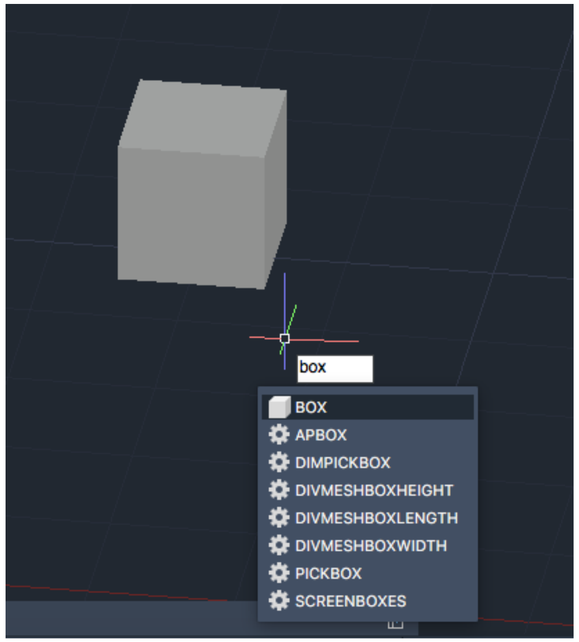


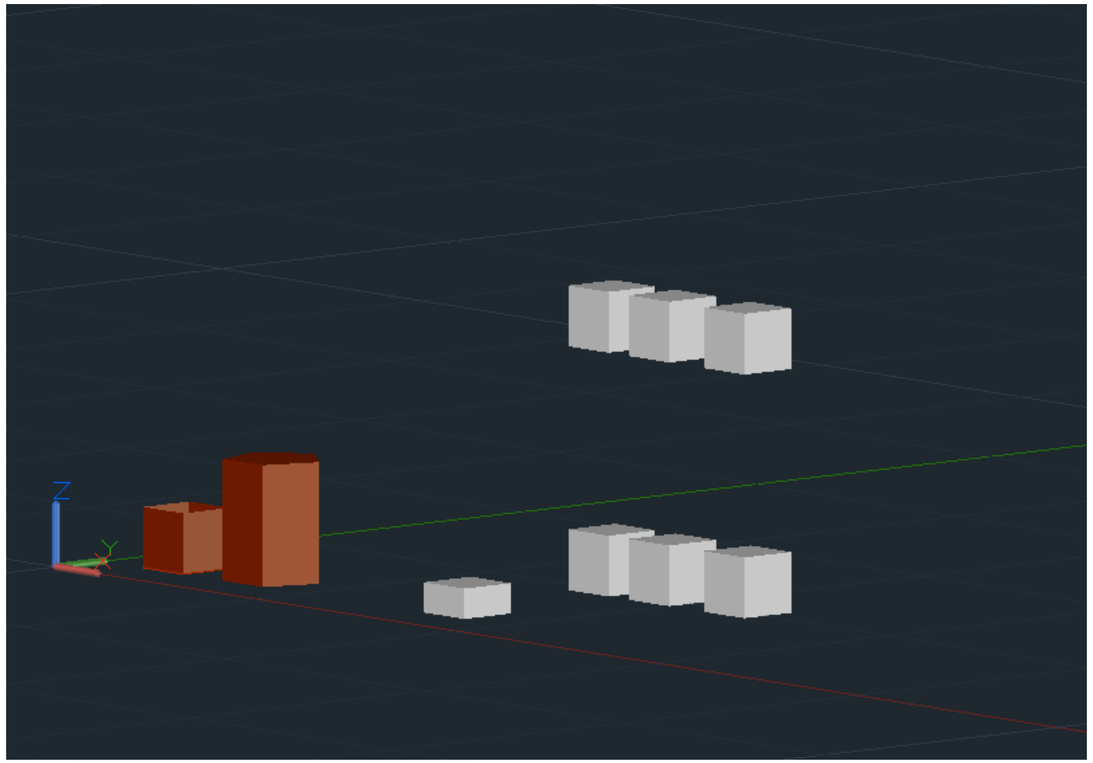
EXTRUDE – modelação 3d - extrusão de uma imagem
POLYGONAL – polígono com x lado

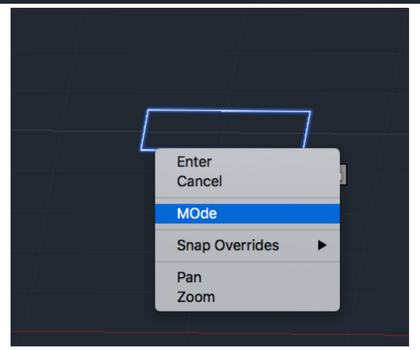
Visualstyles
Alyas - antialyas







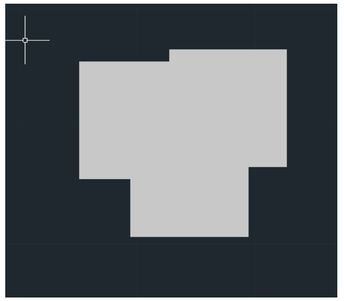


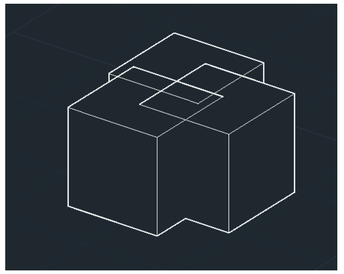


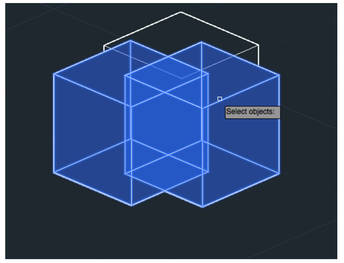
Forma tridimensionais :

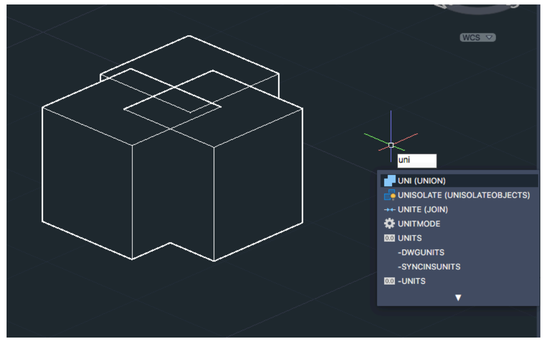
- polyline + extrude
- Box (@10,10 + 10)

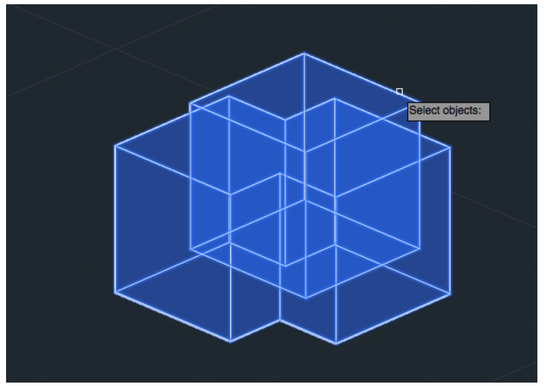
OPERAÇÕES BOOLEANAS



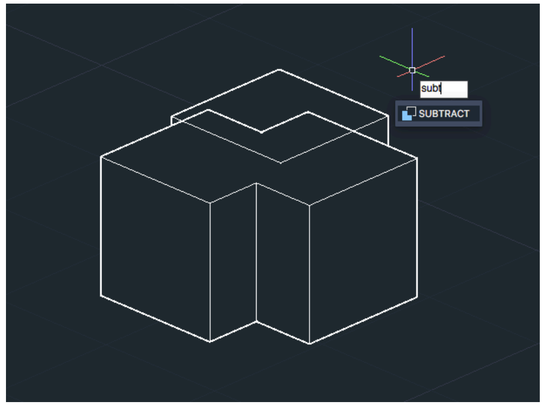


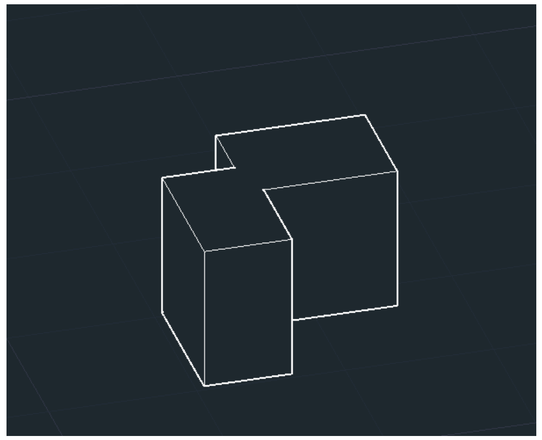




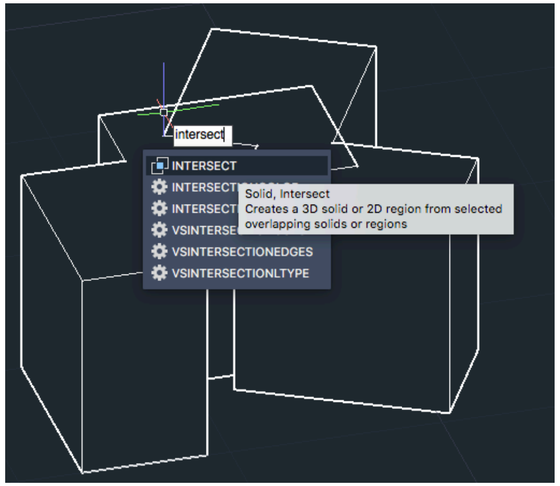


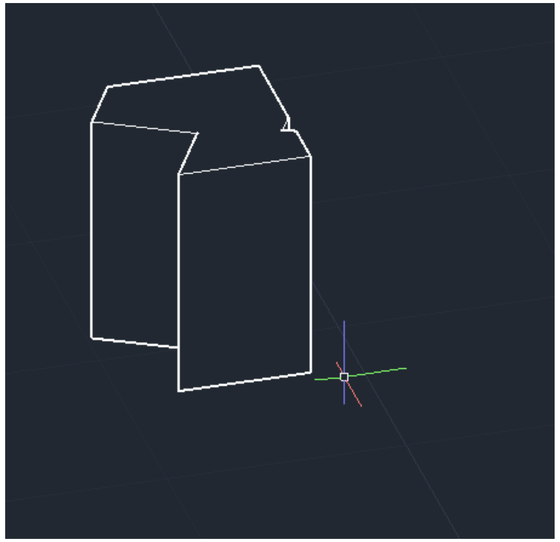
adição – boolean union/ union





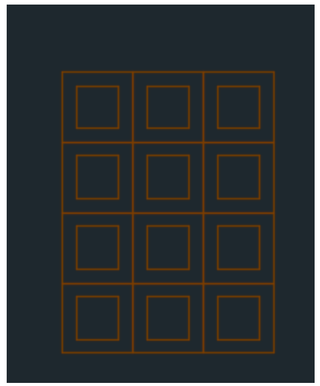
Subtração – subtract

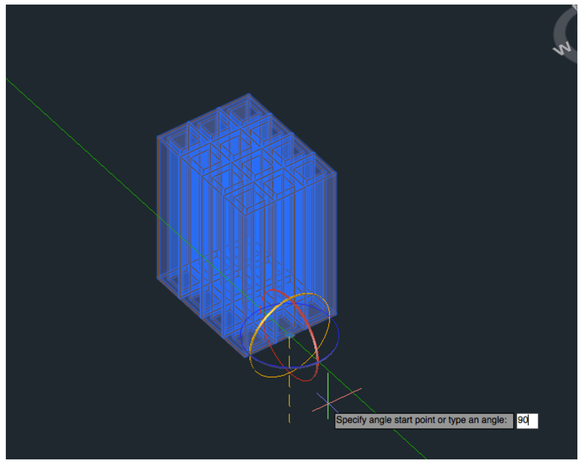


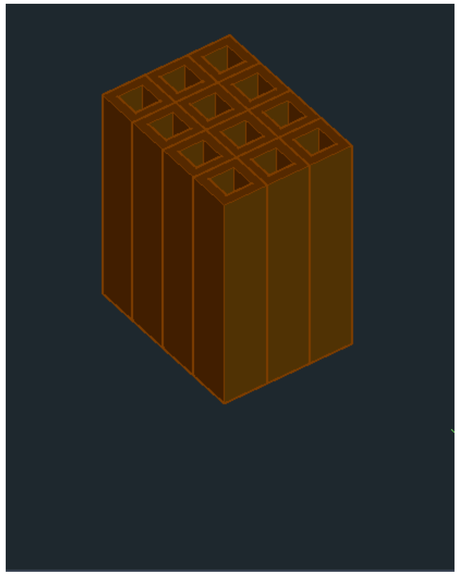


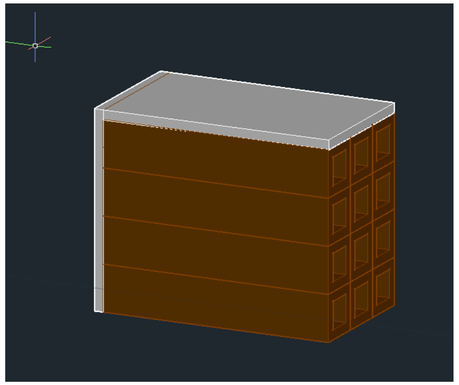
Interseção - intersect

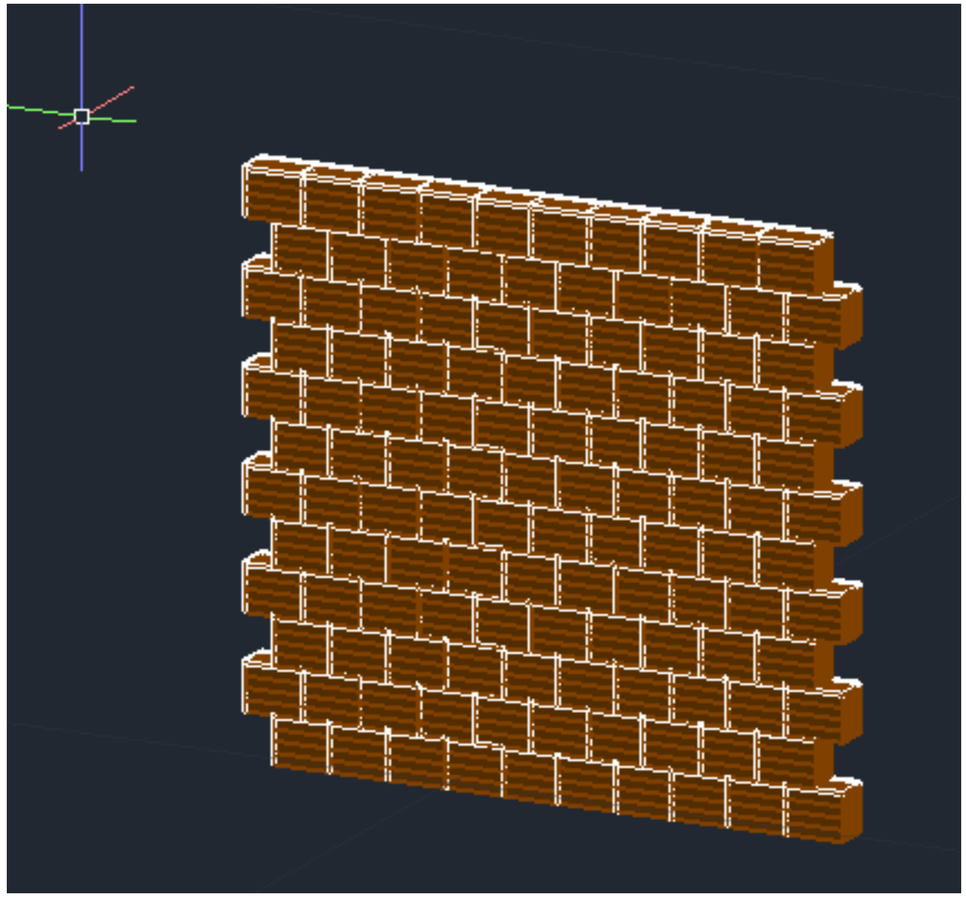
PAREDE DE TIJOLO

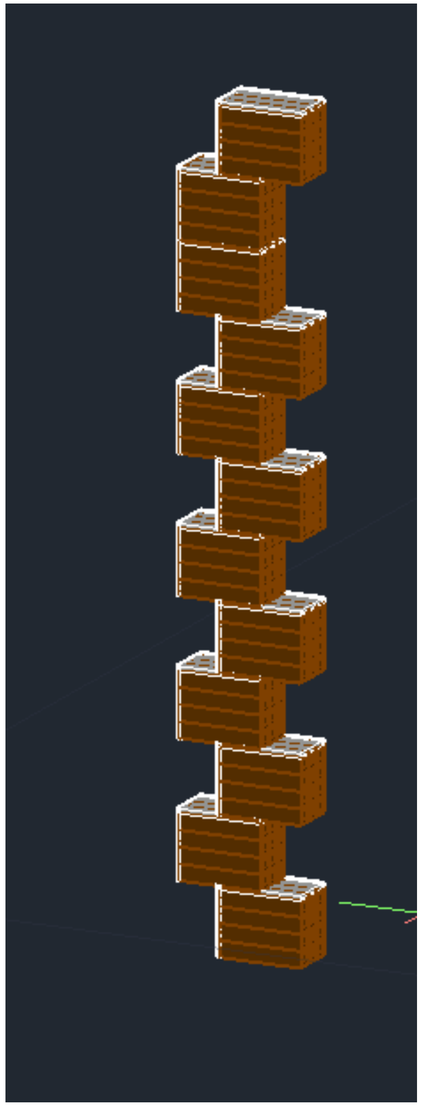












CRIAÇÃO DE UM TERCEIRO HTML + LIGAÇÃO ENTRE HTMLs

Trabalho 1.html — UNREGISTERED

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<a href="http://www.fa.ulisboa.pt/">Faculdade de Arquitetura - ULisboa </a>
</fa>
<br>
</div>
<br>
<br>
2023/2024
<br>
Nuno Al&atilde;o
<br>

<h1><b> TRABALHO 01 </b></h1>
<br>

<br>
<br>

<h3>
<font color="black"> <i>
<br>
<h3>

<br><br><br><br><br><br><br><br><br><br><br><br><br><br>

<hr>
<footer>
<a href="aulas.pdf"> Di&aacuterio Gr&aacutefico </a>
<br><br>
<a href="Entregas.html"> Entregas </a>
<br><br>
<a href="index.html"> Voltar </a>
<br><br>
<a href="mailto: pinto-carolina@edu.ulisboa.pt"> Contacto </a>
</footer>
```

Line 59, Column 9 — Spaces: 4 — HTML

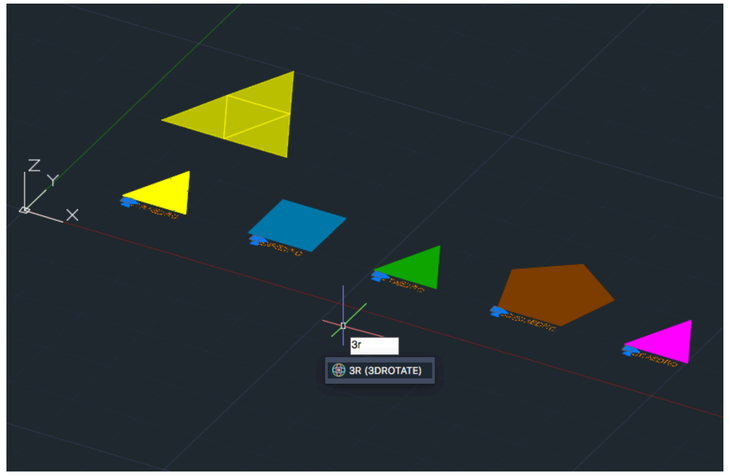

```
}
h2 {
    color: black;
    text-align: center;
    font-family: arial, sans-serif;
    font-size: 20px;
}
```

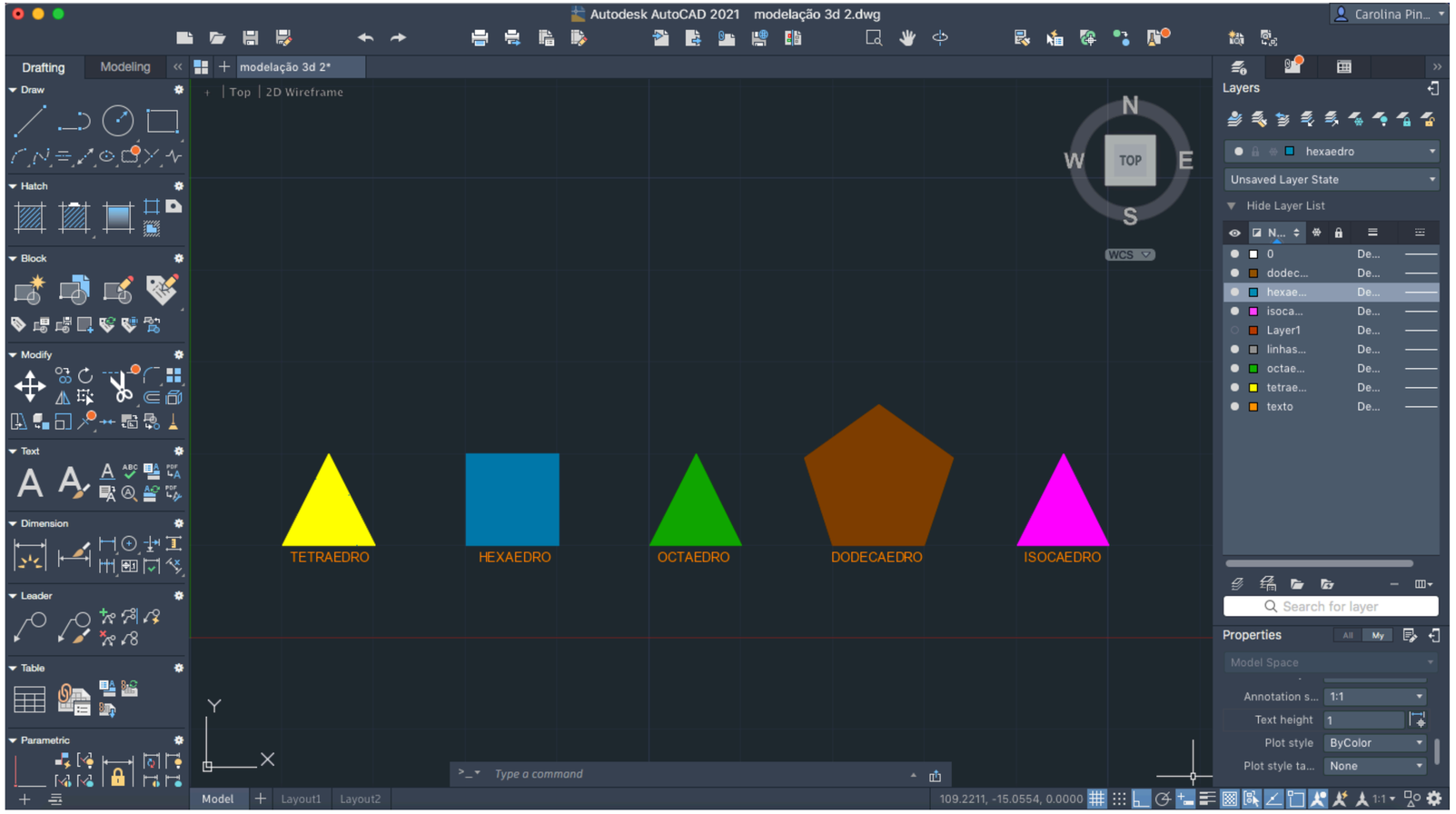
```
<h1><b> ENTREGAS </b></h1>
<br>
<br><br>
<h2><a href="Trabalho 1.html"> TRABALHO 01 </a><h2/>
<br>
<br>
```

Construir polignos regulares _ maquete – planeamente de polígonos – rotate 3d + 3d rotate

POLIGONOS:

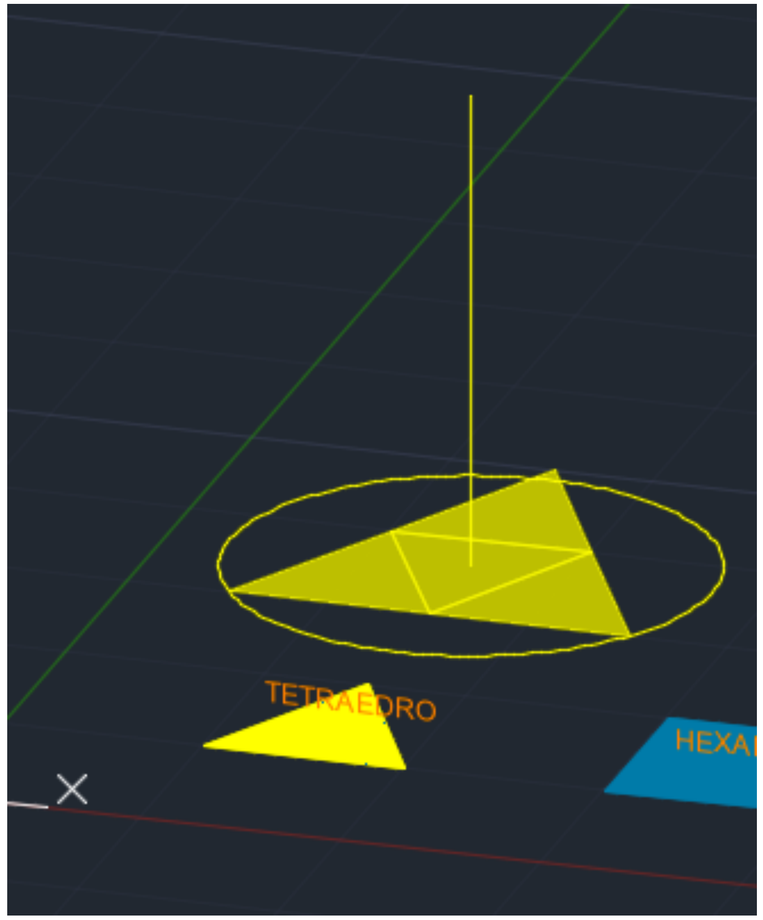
- Tetraedro – 3 triângulos
- Hexaedro – 6 quadrados
- Octaedro – 8 triângulos
- Dodecaedro – 12 pentágonos
- Icosaedro – 20 triângulos

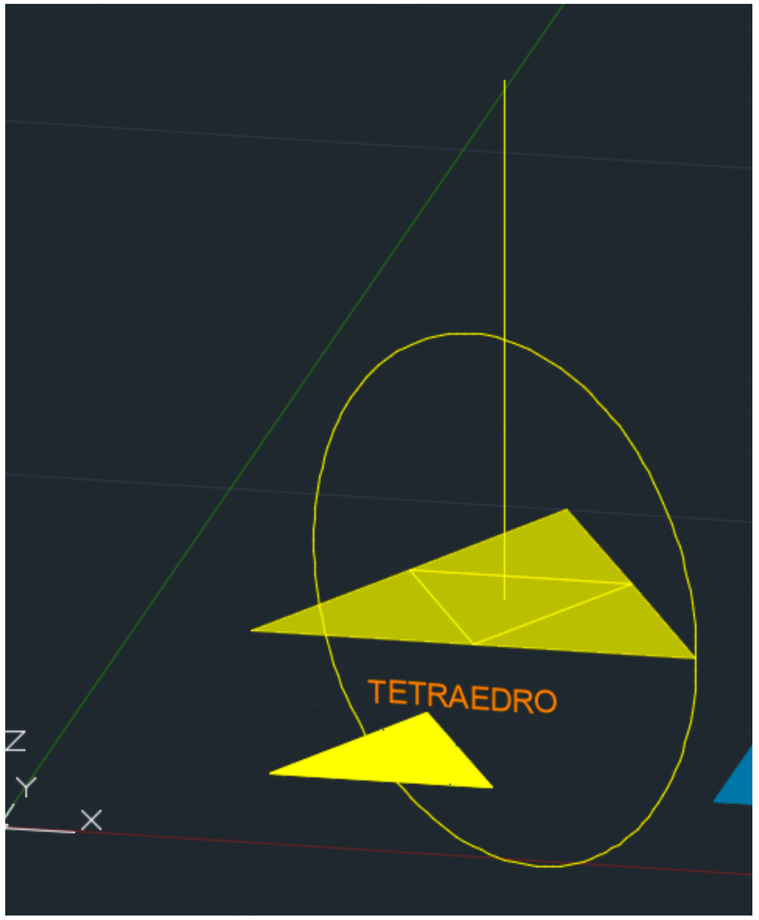


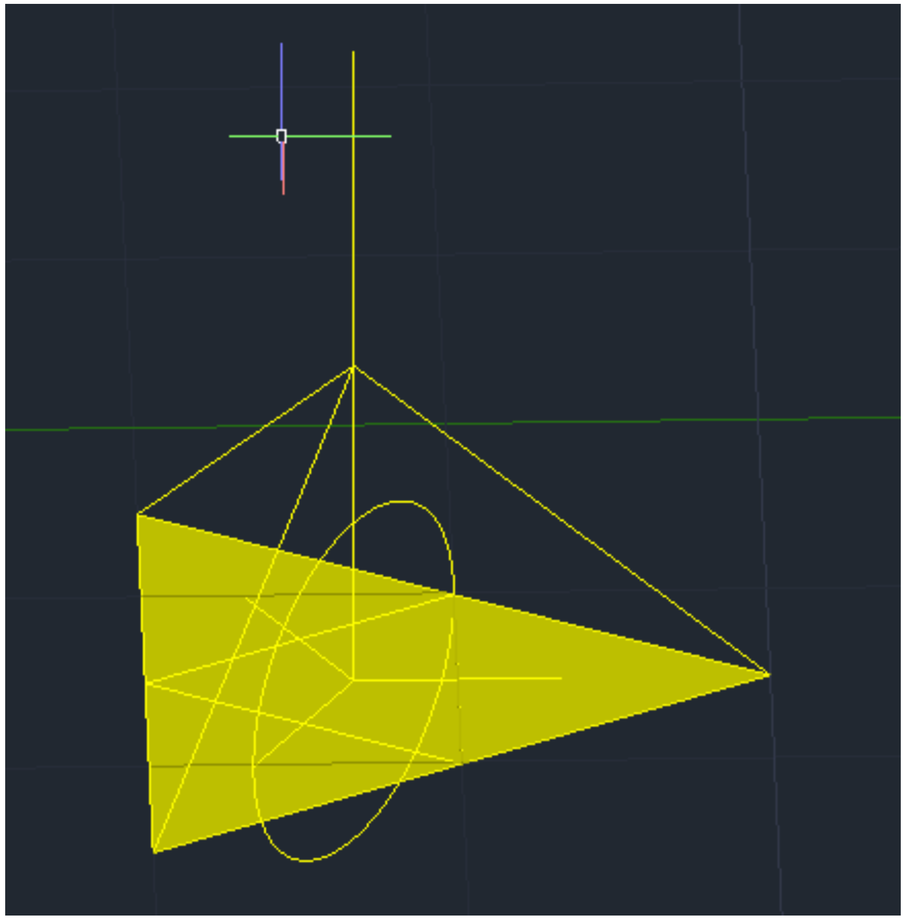


Rotate 3d – rodar segundo um eixo

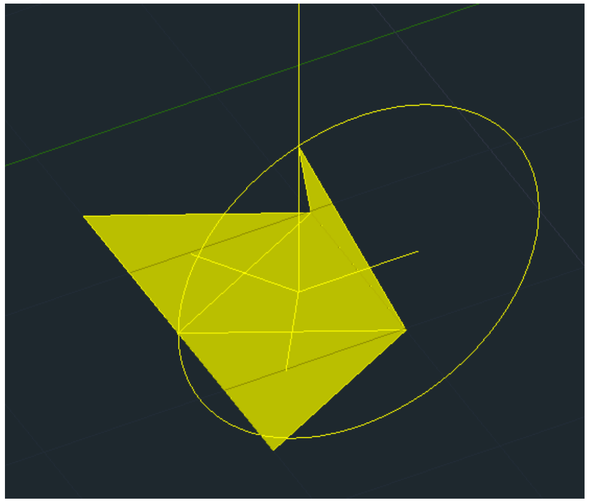
3d Rotate – rodar segund eixos paralelos a x,y e z – esfera armilar/guizmo –posicionamos onde queremos de perferencia num midpoint – escolher o eixo

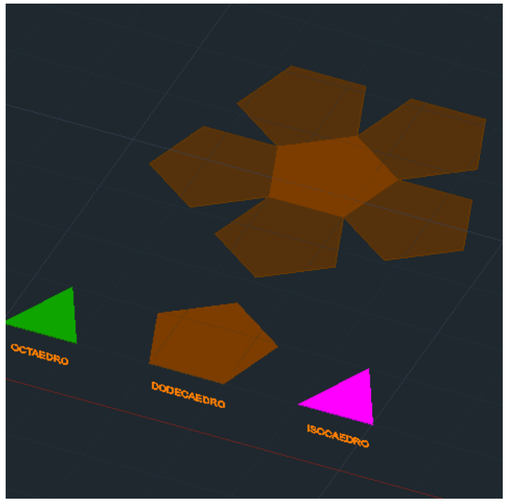




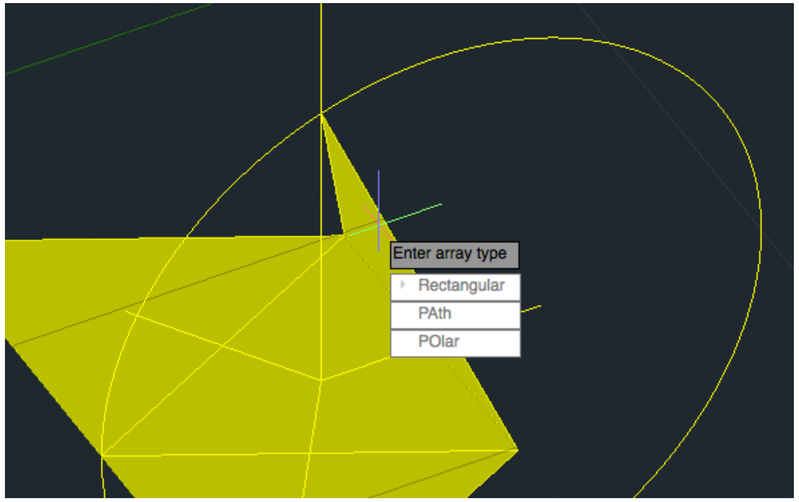


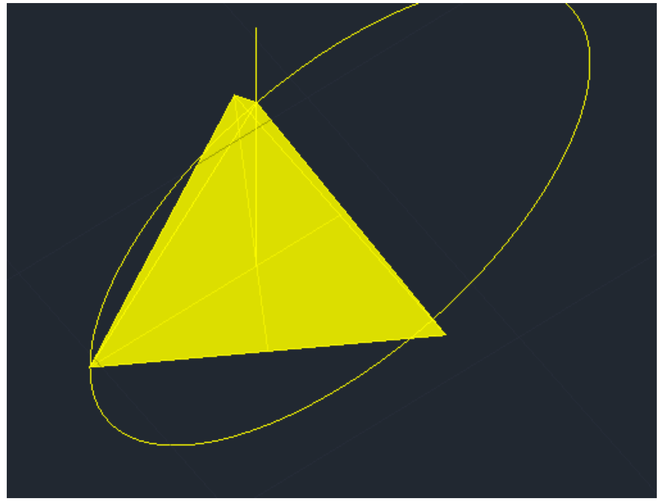
ARRAY com I =3 e centro no centro da base
Array – copiar objeto multiplas vezes
Clicar em I (número de faces do poliedro) depois numero de vezes
3DROTATE – para levantar o triângulo até ao eixo, que corresponde ao eixo da altura do tetraedro

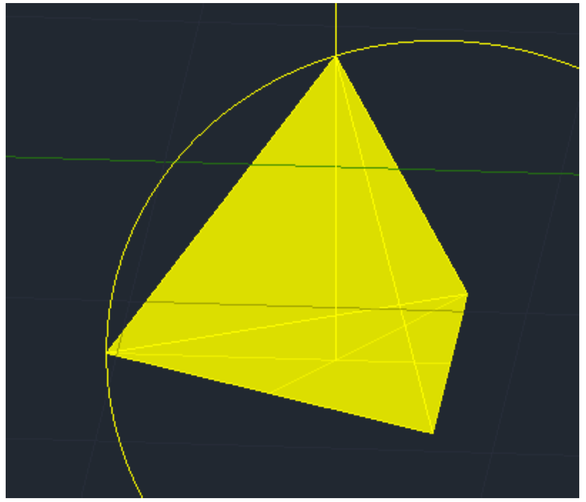


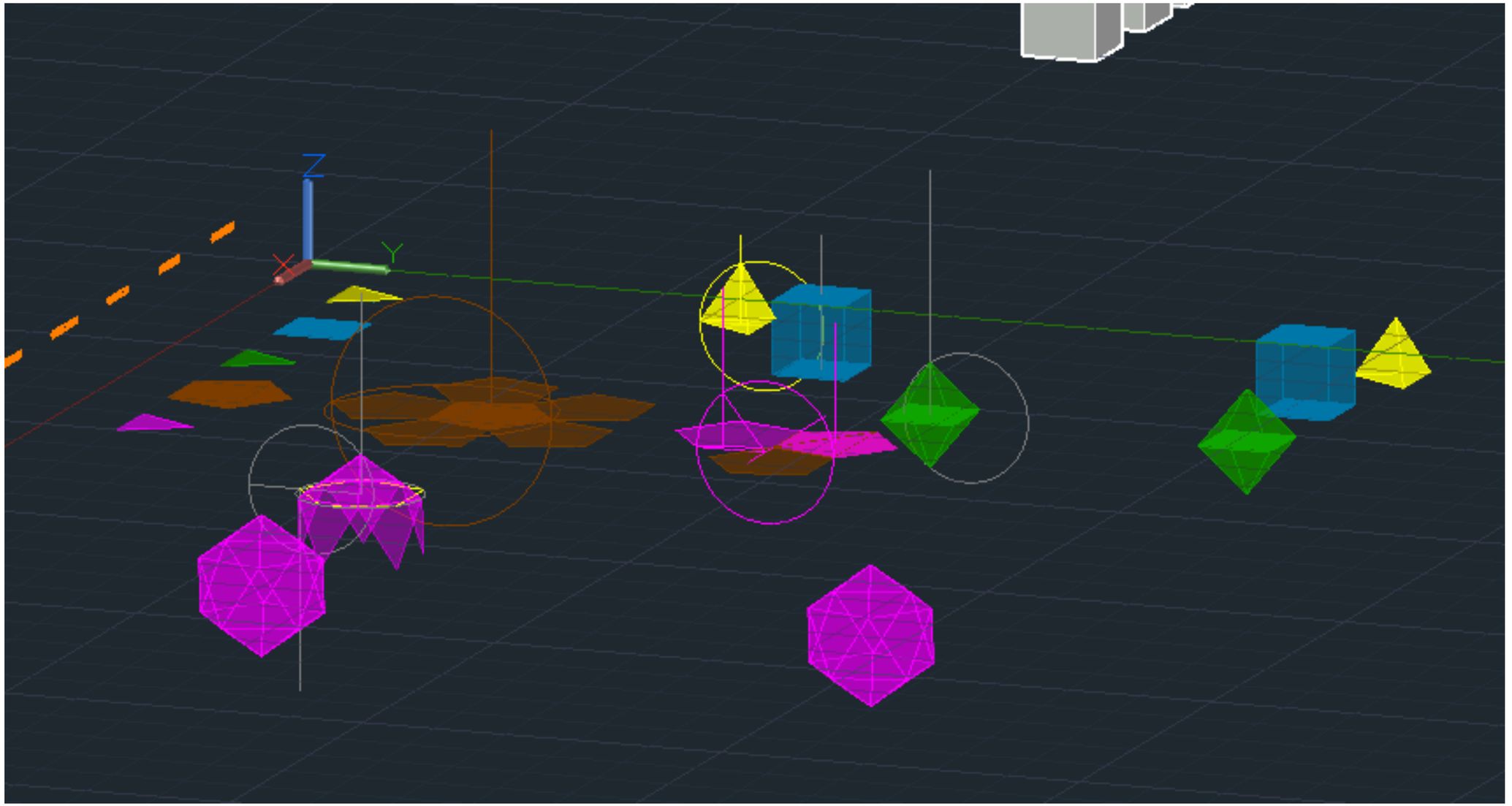

OCTAEDRO
DODECAEDRO
ISOCAEDRO


TOP
S
WCS
Unsaved Layer State
Hide Layer List
0
dodec...
hexae...
isoca...
Layer1
linhas...
octae...
tetrae...
texto
Search for layer
Properties
All (8)
Color ByLayer
Layer tetraedro
Linetype ByLayer
Linetype scale 1
Plot style ByColor
Lineweight ByLayer
Transparency 30
TETRAEDRO
HEXAEDRO
OCTAEDRO
DODECAEDRO
ISOCAEDRO


Enter array type
Rectangular
PAth
POlar






Z
Y
X

ENTREGA DOS TRABALHOS

Faculdade de Arquitetura - ULisboa
Geometria Descritiva e Conceptual I

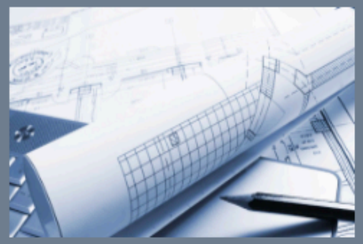
2023/2024
Nuno Alão

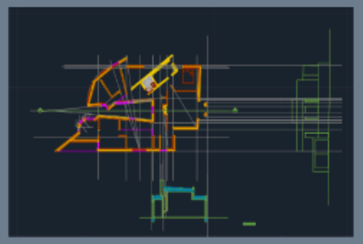
Carolina Pinto
20221314

ARQ 2º Turma E

FACULDADE DE ARQUITETURA
LISBON SCHOOL OF ARCHITECTURE
UNIVERSIDADE DE LISBOA

LISBOA





Diário Gráfico

Entregas

Contacto

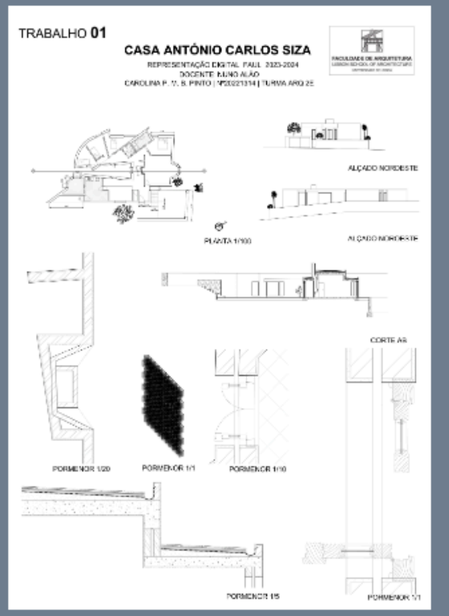
ENTREGA DOS TRABALHOS

Faculdade de Arquitetura - ULisboa

2023/2024
Nuno Alão

TRABALHO 01

DWG
LAYOUT



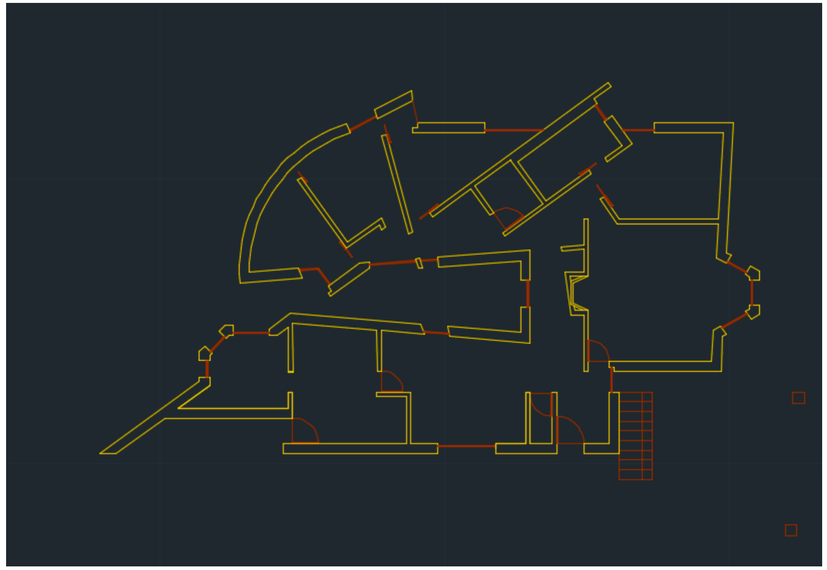
Diário Gráfico

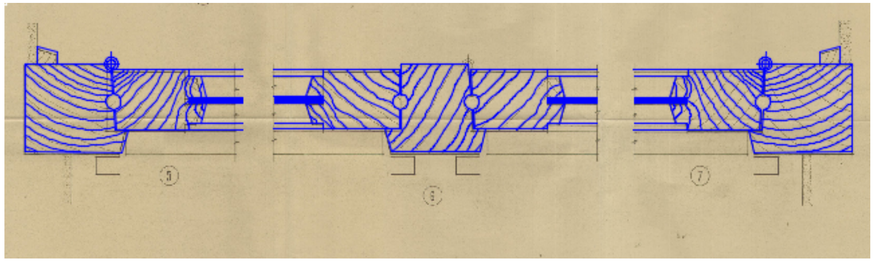
Entregas

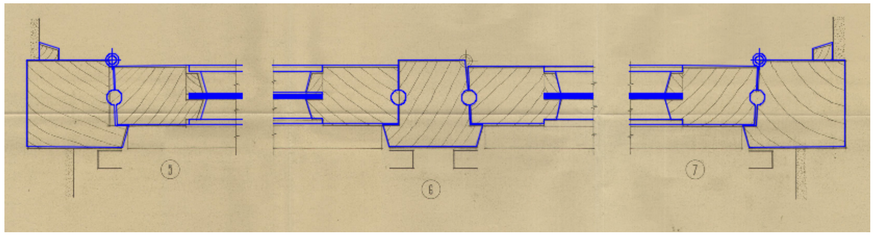
Voltar

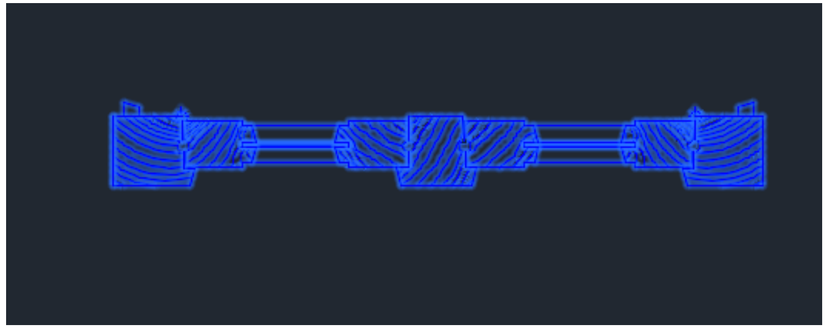
Contacto

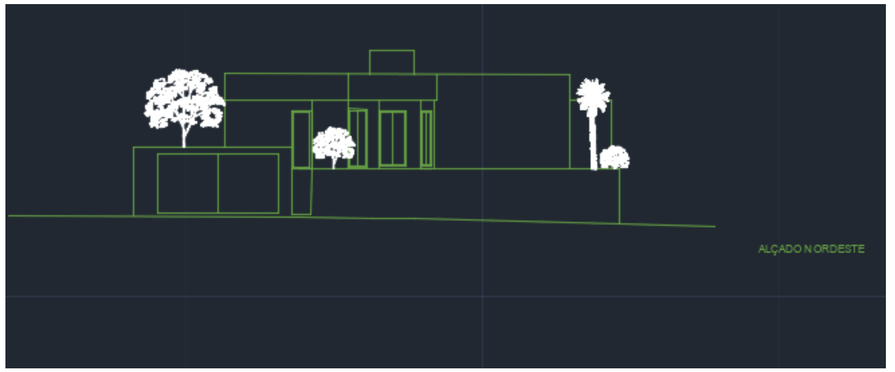
ENTREGA DOS TRABALHOS

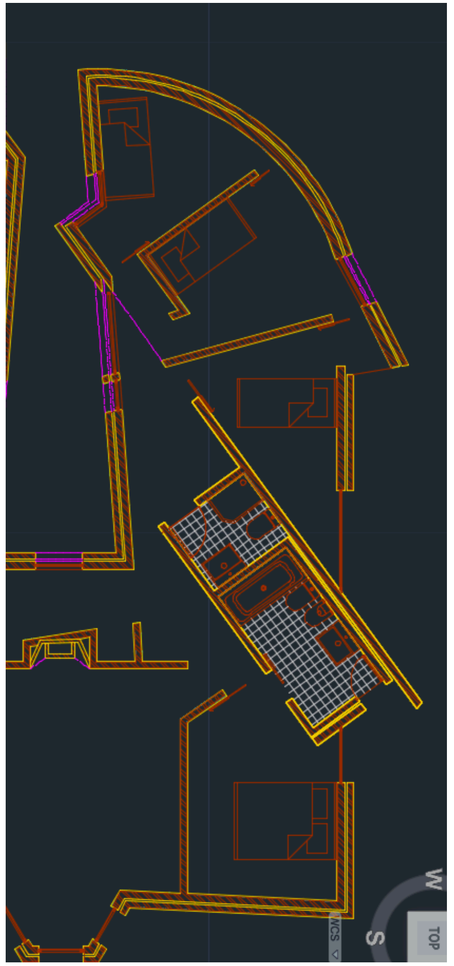












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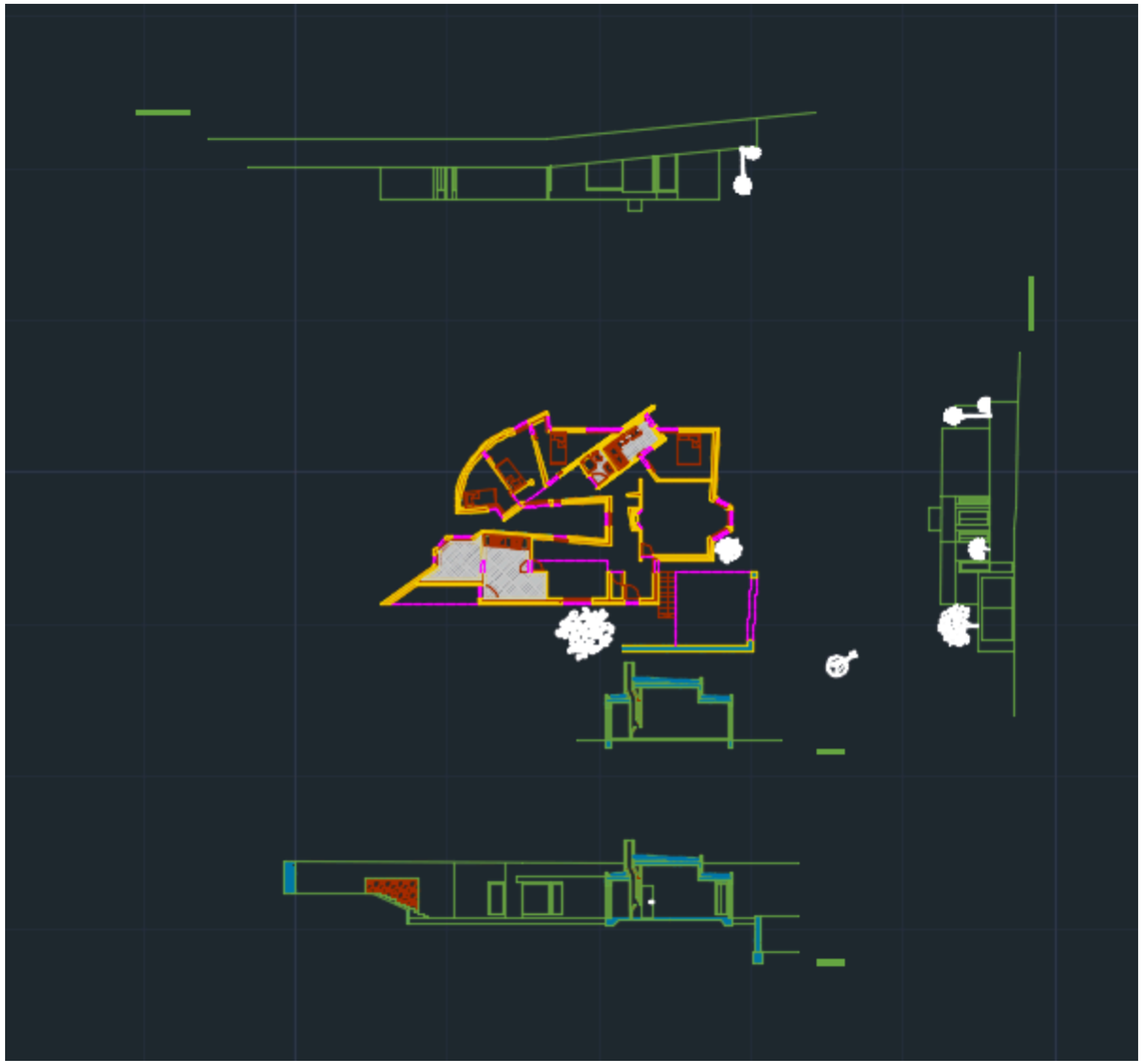


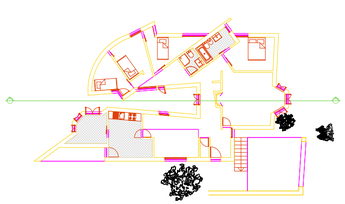
ENTREGA DOS TRABALHOS

TRABALHO **01**

CASA ANTÓNIO CARLOS SIZA

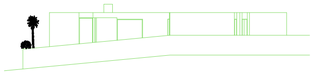
REPRESENTAÇÃO DIGITAL FAUL 2023-2024
DOCENTE: NUNO ALÃO
CAROLINA P. M. B. PINTO | Nº20221314 | TURMA ARQ 2E

FACULDADE DE ARQUITETURA
LISBON SCHOOL OF ARCHITECTURE
UNIVERSIDADE DE LISBOA



PLANTA 1/100

ALÇADO NORDESTE



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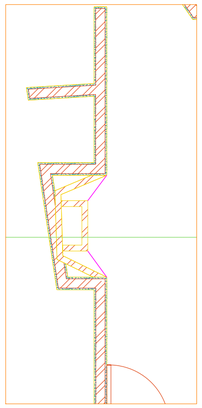
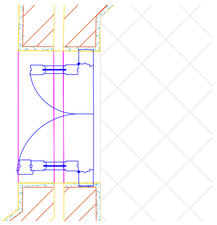
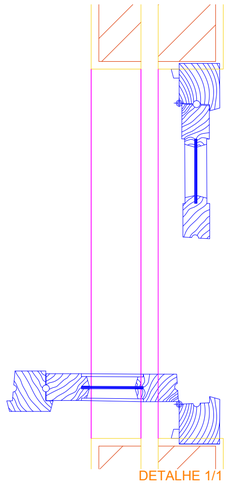


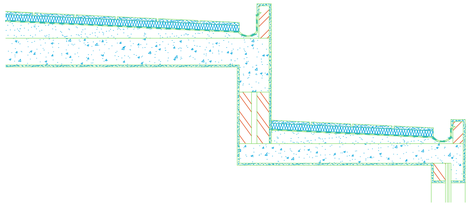
DETALHE 1/20



DETALHE 1/10

CORTE AB





DETALHE 1/5

DETALHE 1/1

TRABALHO **01**

CASA ANTÓNIO CARLOS SIZA

REPRESENTAÇÃO DIGITAL FAUL 2023-2024
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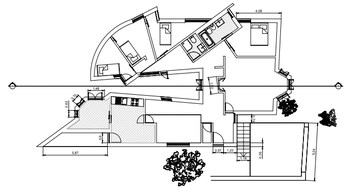
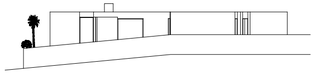


PLANTA 1/100

ALÇADO NORDESTE



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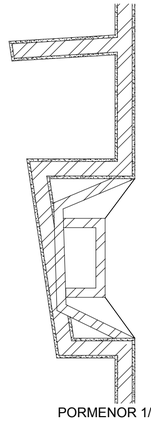
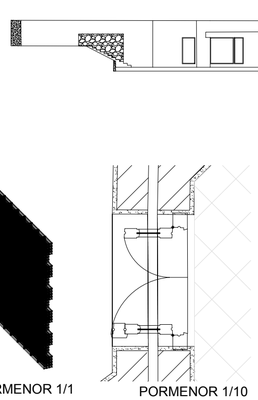


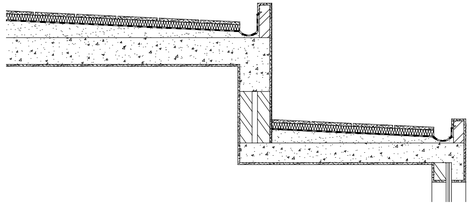
PORMENOR 1/20

PORMENOR 1/1

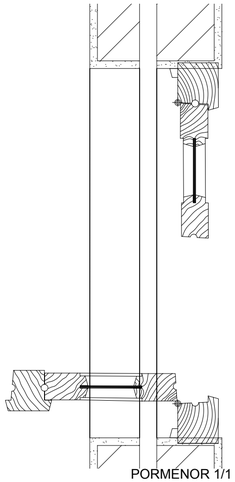


PORMENOR 1/10

CORTE AB



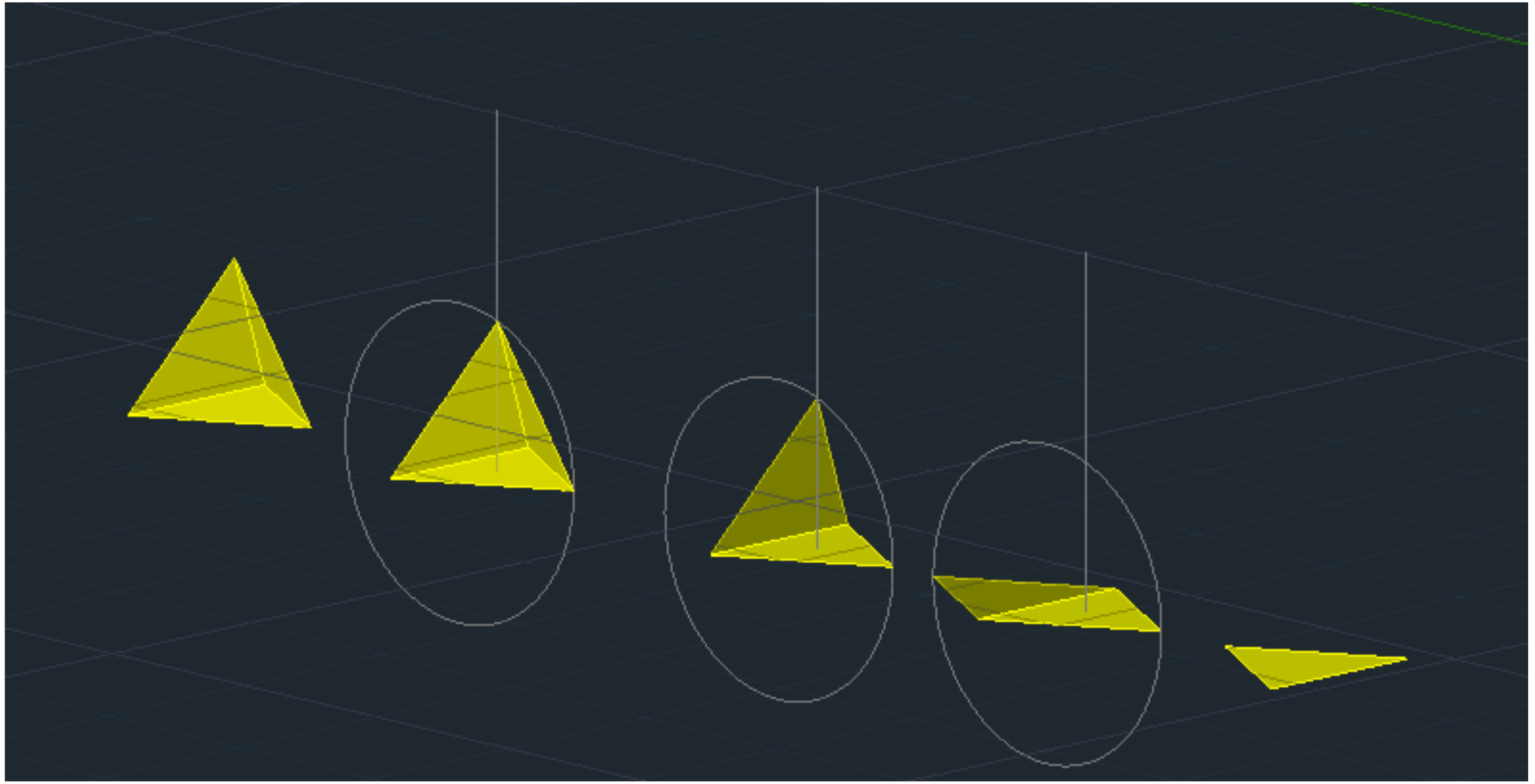
PORMENOR 1/5



PORMENOR 1/1

ReDig

SEMANA 8

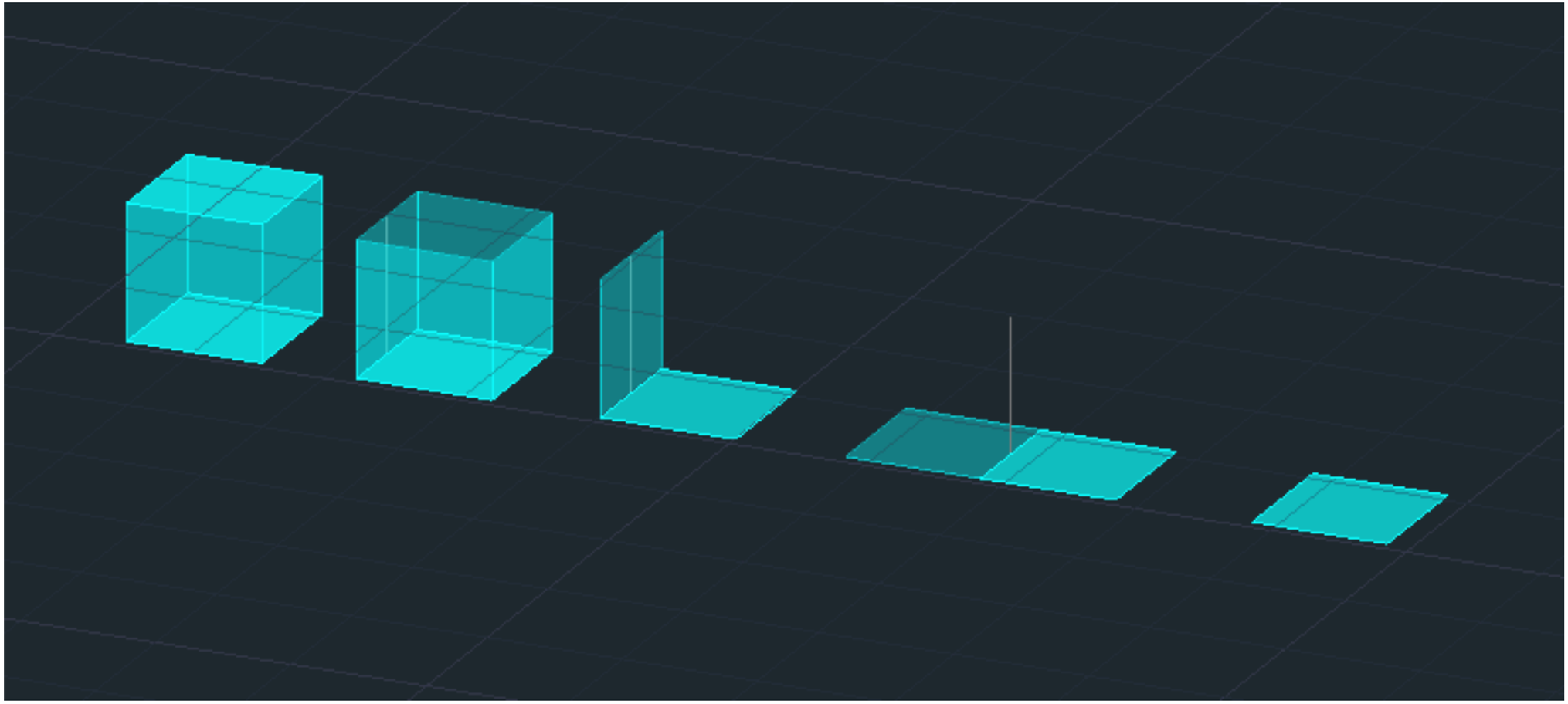


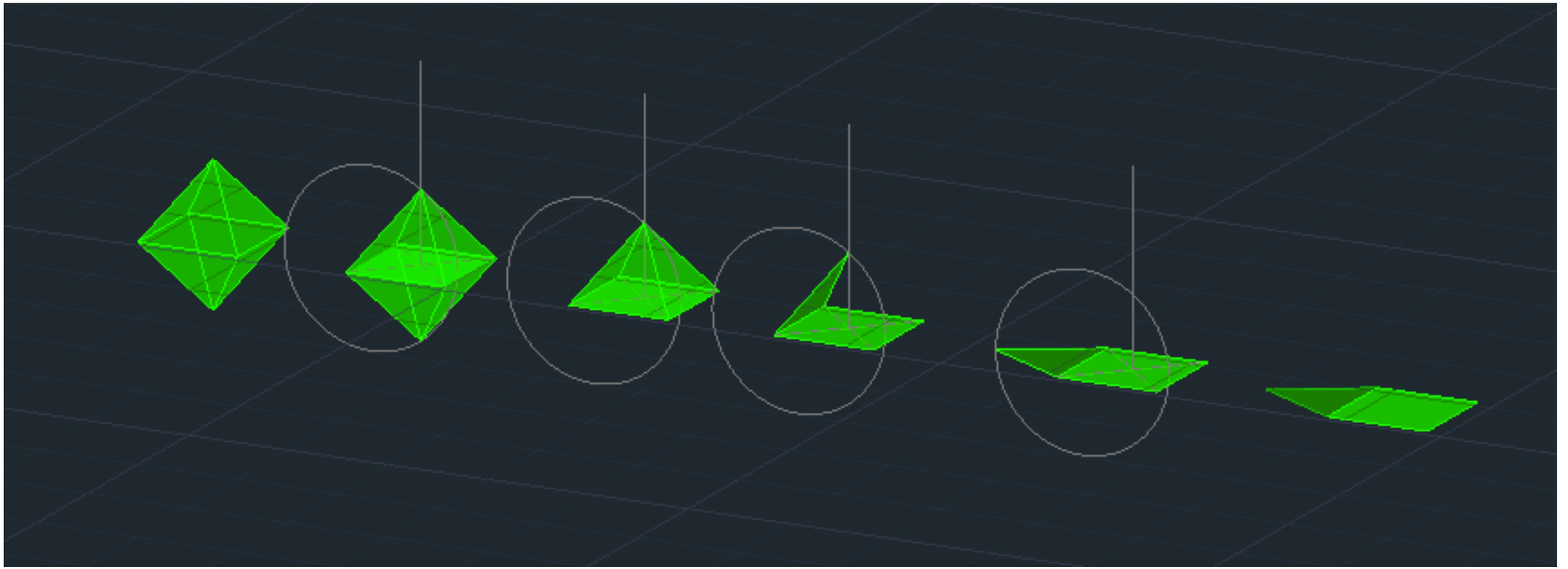
TETRAEDRO

- Base e Faces: triangulares
- MIRROR para criar uma das faces do sólido
- 3DROTATE (eixo x e y), tanto para rodar a circunferência que, posteriormente nos dá o ponto de interseção (vértice do solido) com a reta vertical que passa pelo centro geométrico da base, como para rodar o triângulo ao ponto de interseção
- ARRAY (I=3) serve para multiplicar a face já rodada pela base triangular

HEXAEDRO

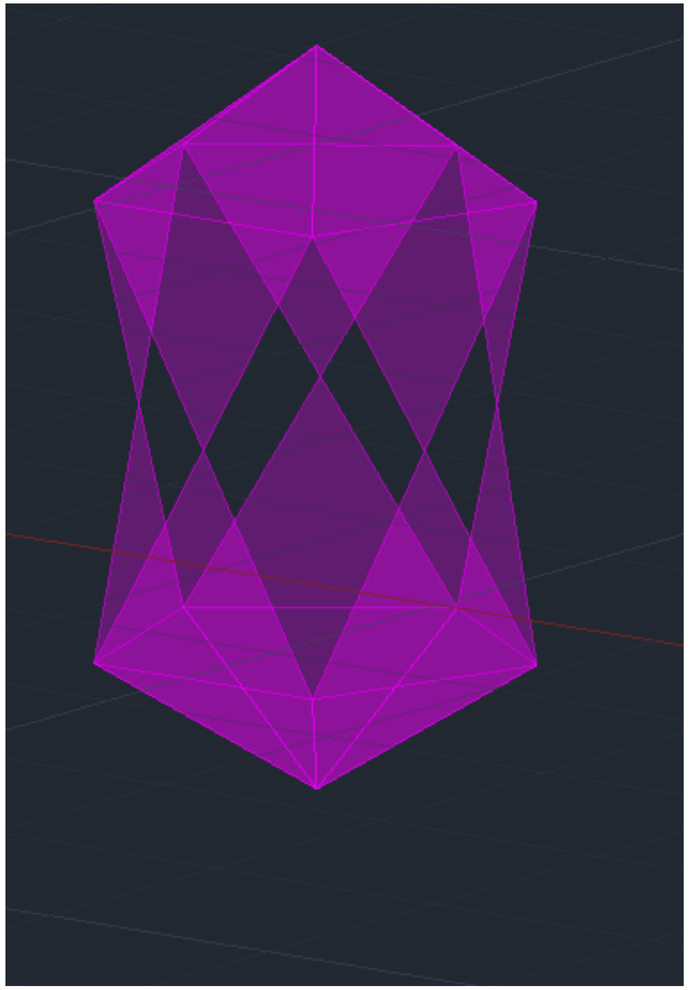
- Base e Faces: quadrado
- COPY (copiar o quadrado para criara uma face e um topo)
- 3DROTATE (eixo x, para rodar o quadrado segundo a linha vertical originada pelo seu centro do ponto médio de um dos lados do quadrado
- 3DARRAY (faces=4; 360º) serve para multiplicar a face já rodada pela base quadrangular



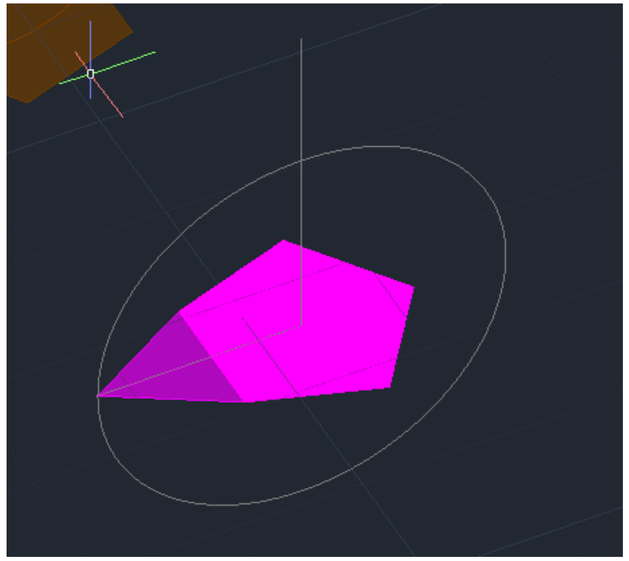


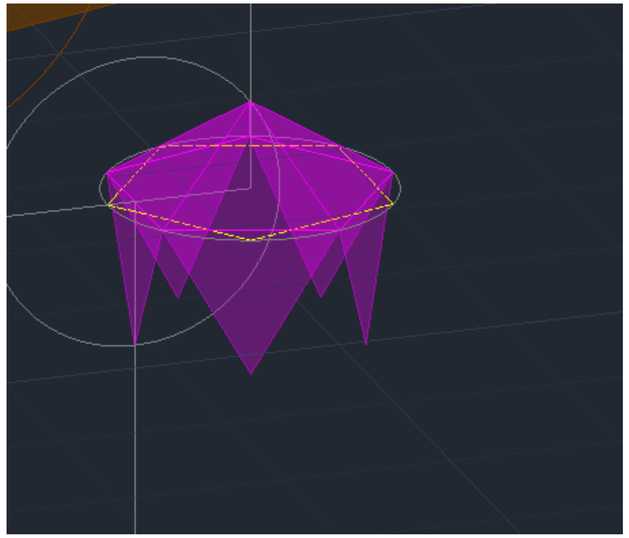
OCTAEDRO

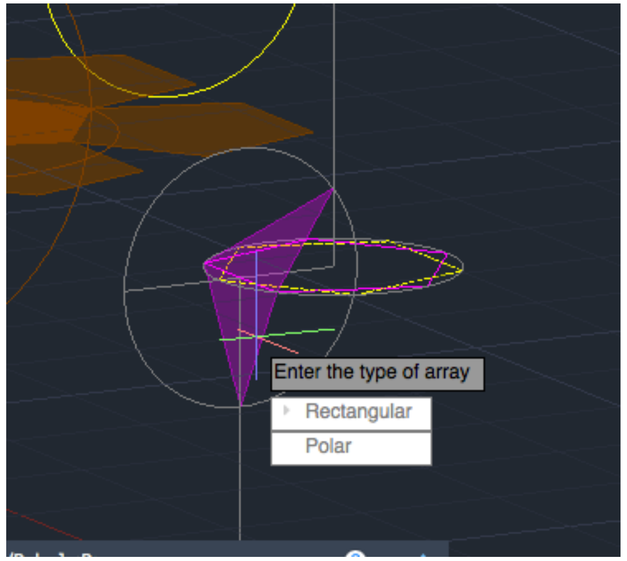
- Base: quadrado e Faces: triangulo
- 3DROTATE (eixo x e y), tanto para rodar a circunferência que, posteriormente nos dá o ponto de interseção (vértice do solido) com a reta vertical que passa pelo centro geométrico da base, como para rodar o triângulo ao ponto de interseção
- ARRAY (face=4; 360º) serve para multiplicar a face já rodada pela base quadrangular
- 3DMIRROR para copiar a pirâmide quadrangular e inverte-la

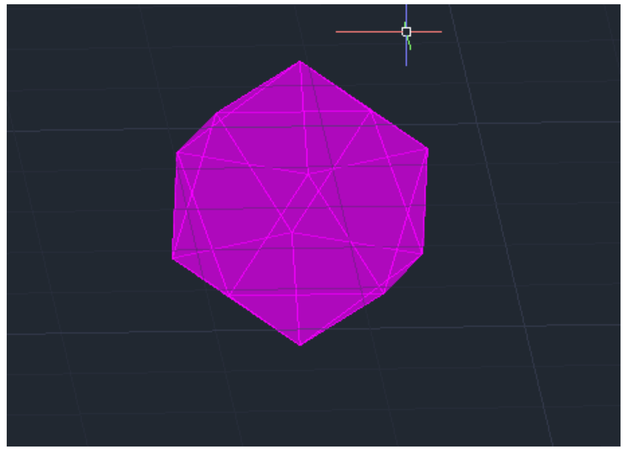


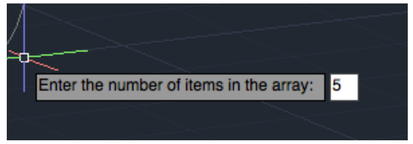
ICOSAEDRO

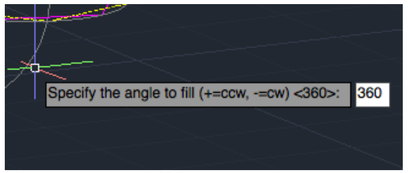










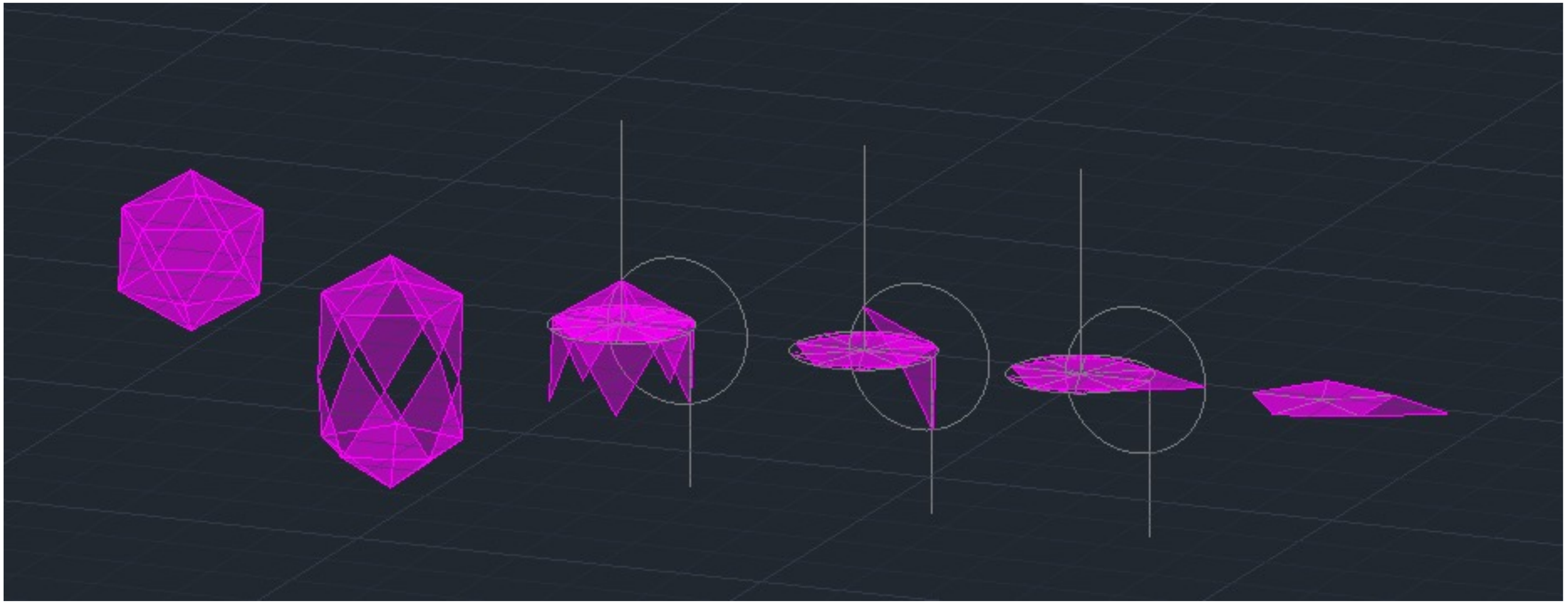


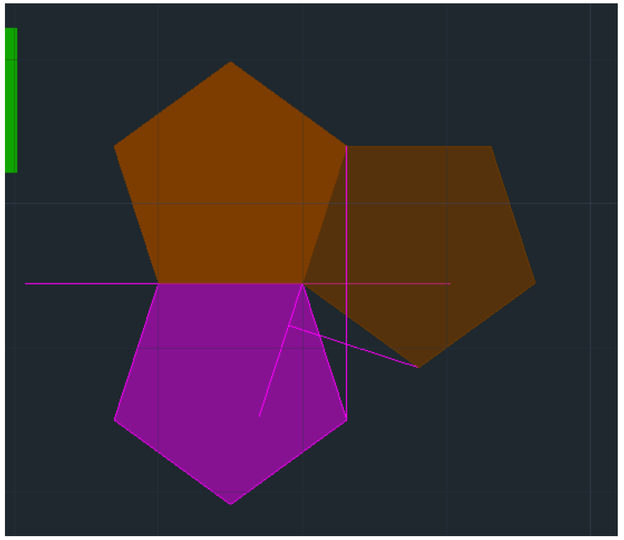
ANTI-PRISMA

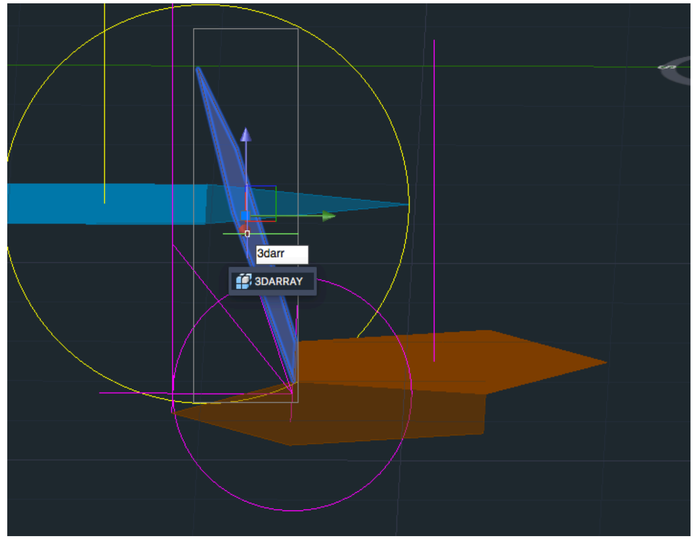
3D ARRAY
(copia múltipla)
I =3
Colunas =4
Distancia entre linhas =15
Distancias entre coluna=15
Distancia de níveis =15

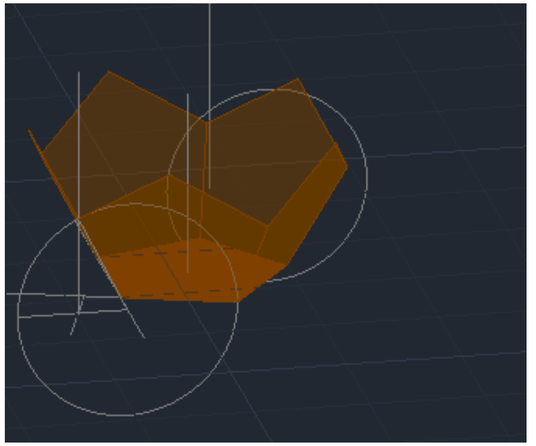
3DMIRROR: espelhar um objeto em 3d

Rotate de 36º para os semi-objetos se encaixarem

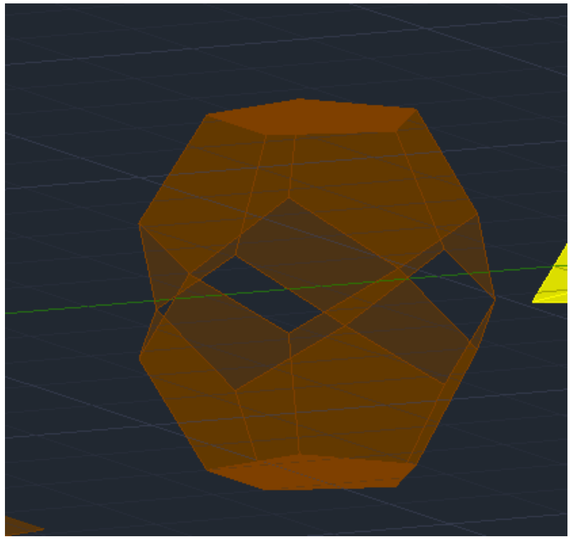


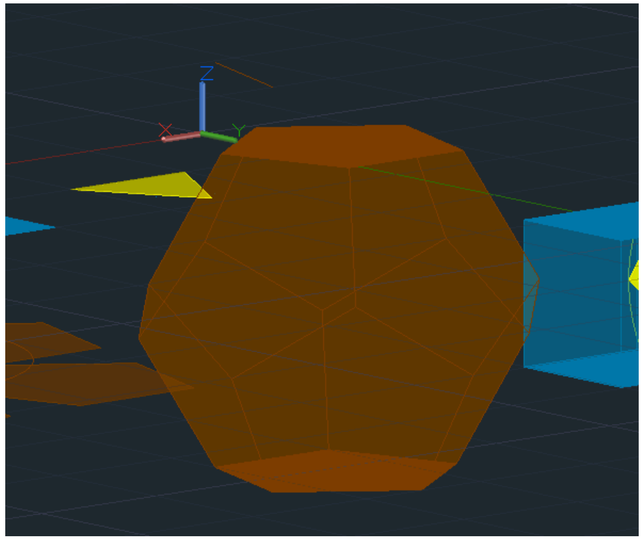






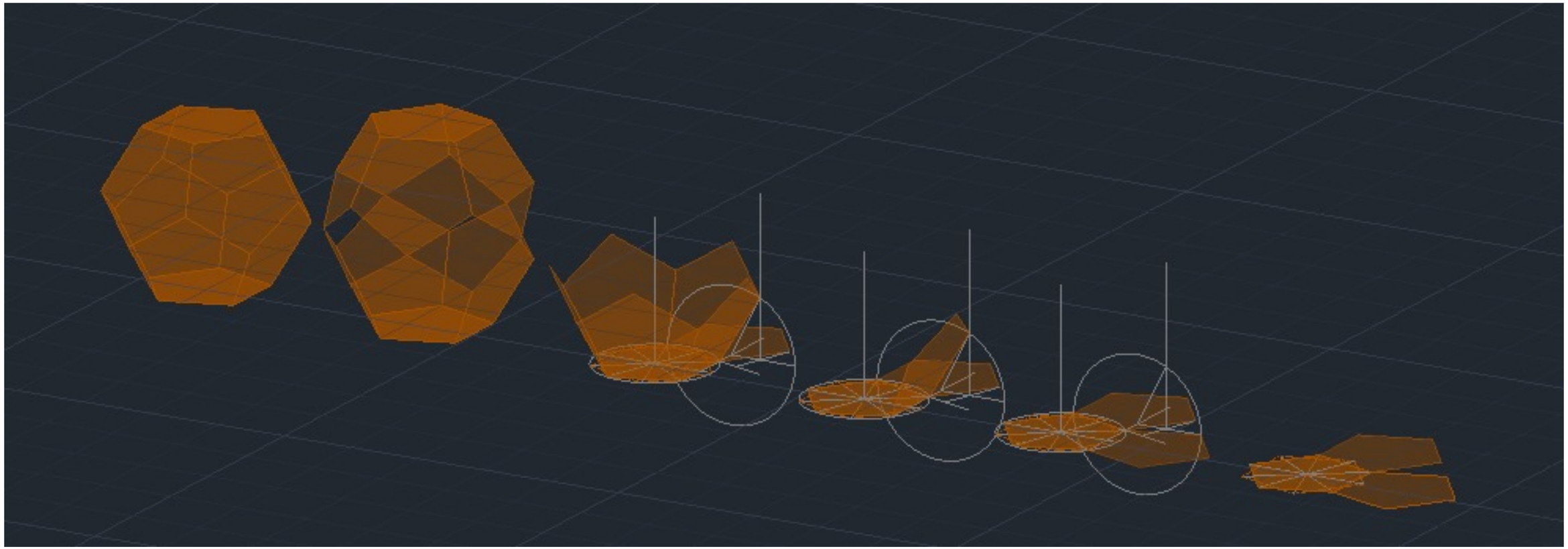
DODECAEDRO





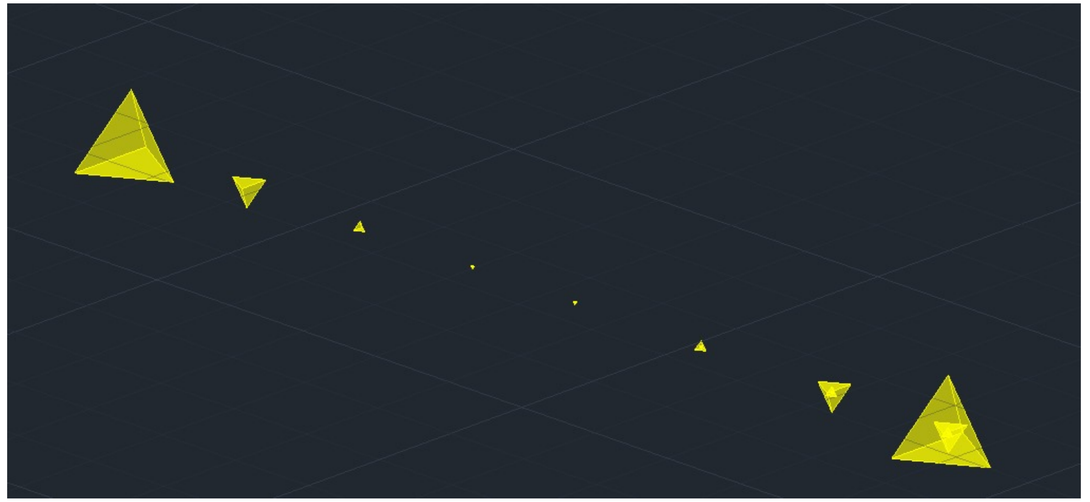
MODO DE CONSTRUIR:

- Encontrar os eixos para a rotação do primeiro lado;
- Passar uma linha perpendicular aos lados, respetivamente, do pentágono base pelos dois vértices dos pentágonos não centrais;
- Utilizar o 3DROTATE, de modo a rodar o pentágono até ao ponto de intersecção da circunferência com a linha vertical originada pela intersecção das linhas feitas no ponto anterior;
- 3DARRAY para realizar uma copia múltipla de um objetos segundo x lados do polígono relativos a um ponto que corresponde ao centro geométrico do sólido;
- Utilizar o 3DMIRROR para repetir em espelho o objeto originado até ao ponto anterior
- ROTATE para rodar o objeto 36º de modo a eu os dois objetos se encaixem na perfeição.

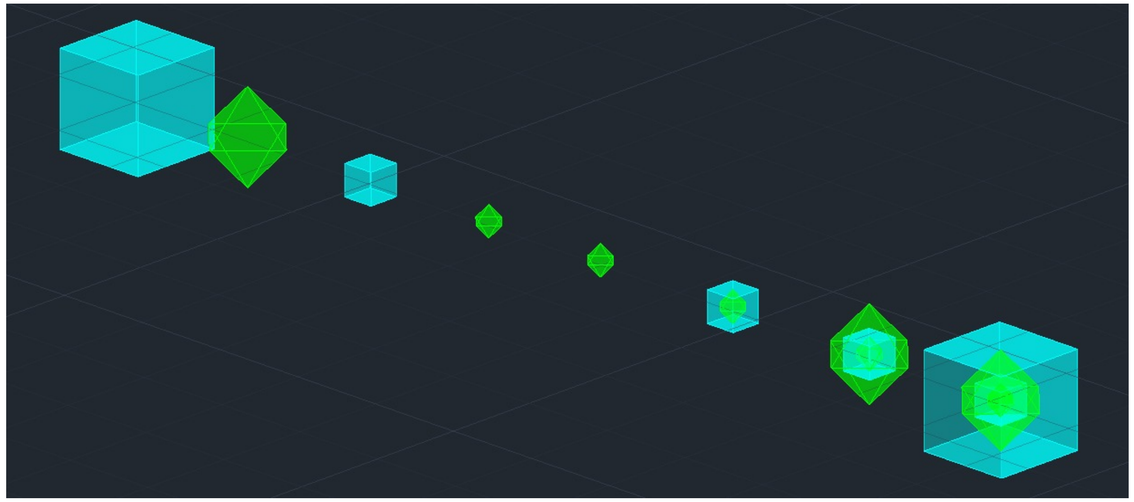


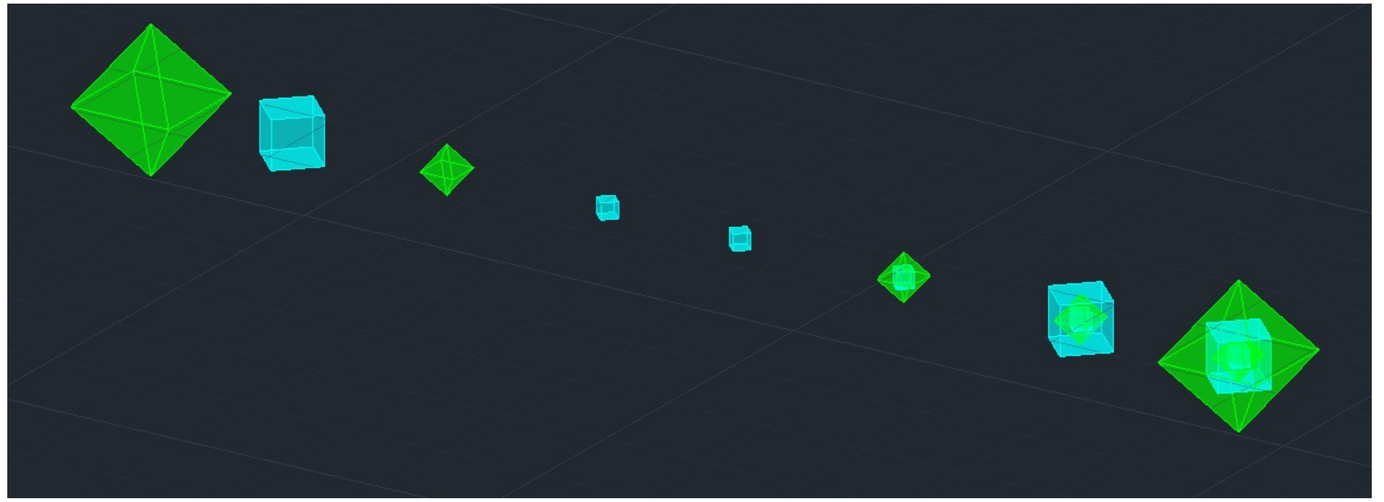
SÓLIDOS / POLIEDROS DUAIS

TETRAEDRO

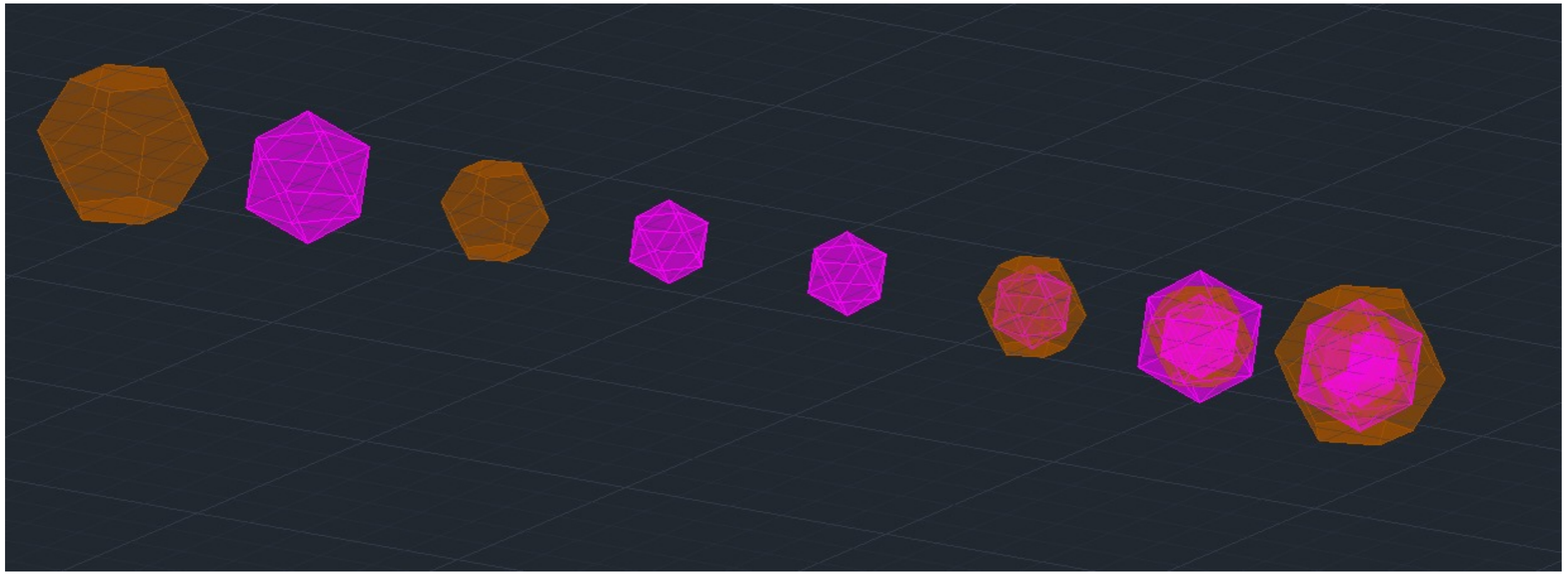


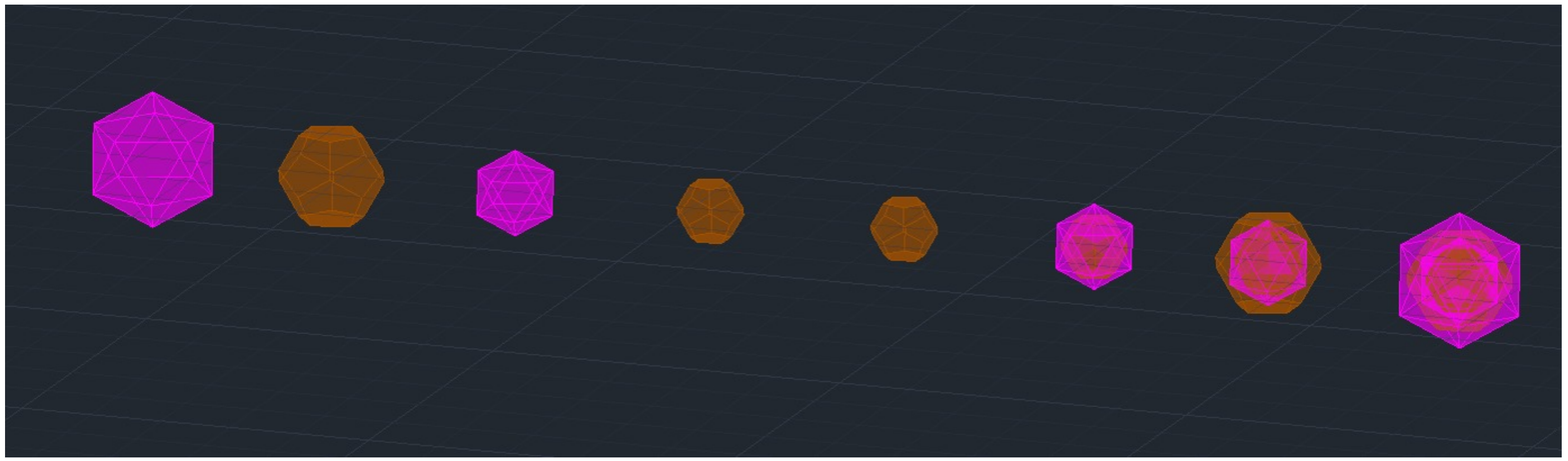
HEXAEDRO E OCTAEDRO





DODECAEDRO E ICOSAEDRO



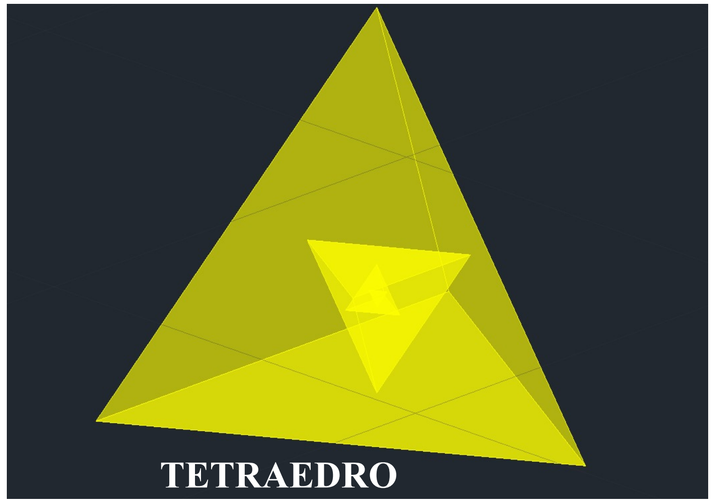


Os comando utilizado para a criação dos diferentes duais foram, respetivamente:

- Tetraedro – 3dmirror; scale; move; group;
- Hexaedro e Octaedro e Octaedro e Hexaedro – rotate 45º, scale; move; group;
- Dodecaedro e Icosaedro e Icosaedro e Dodecaedro – scale; move; group;

PROCESSO DE ESTRUTURAÇÃO DOS DUAIS

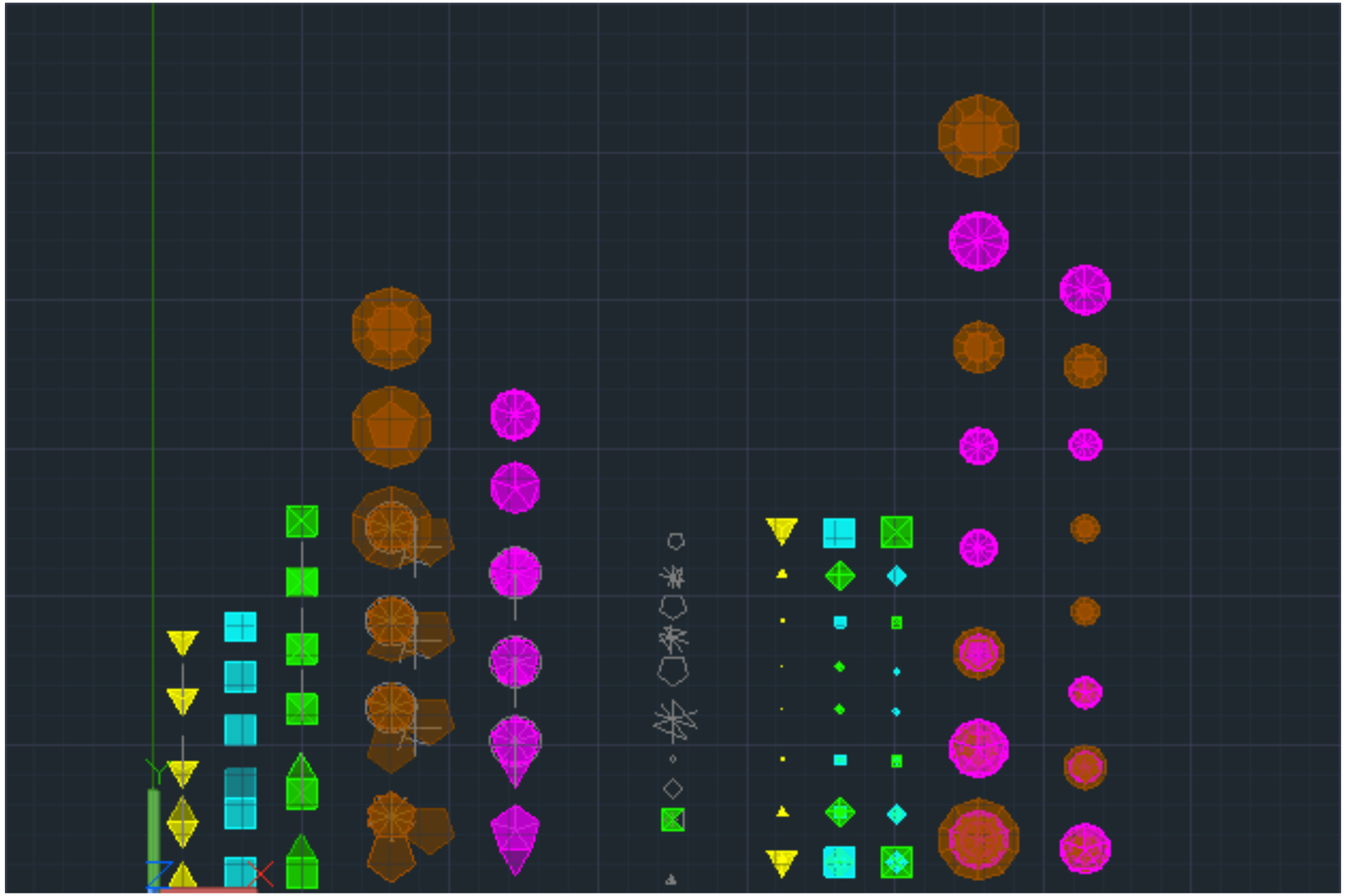
SÓLIDOS / POLIEDROS DUAIS

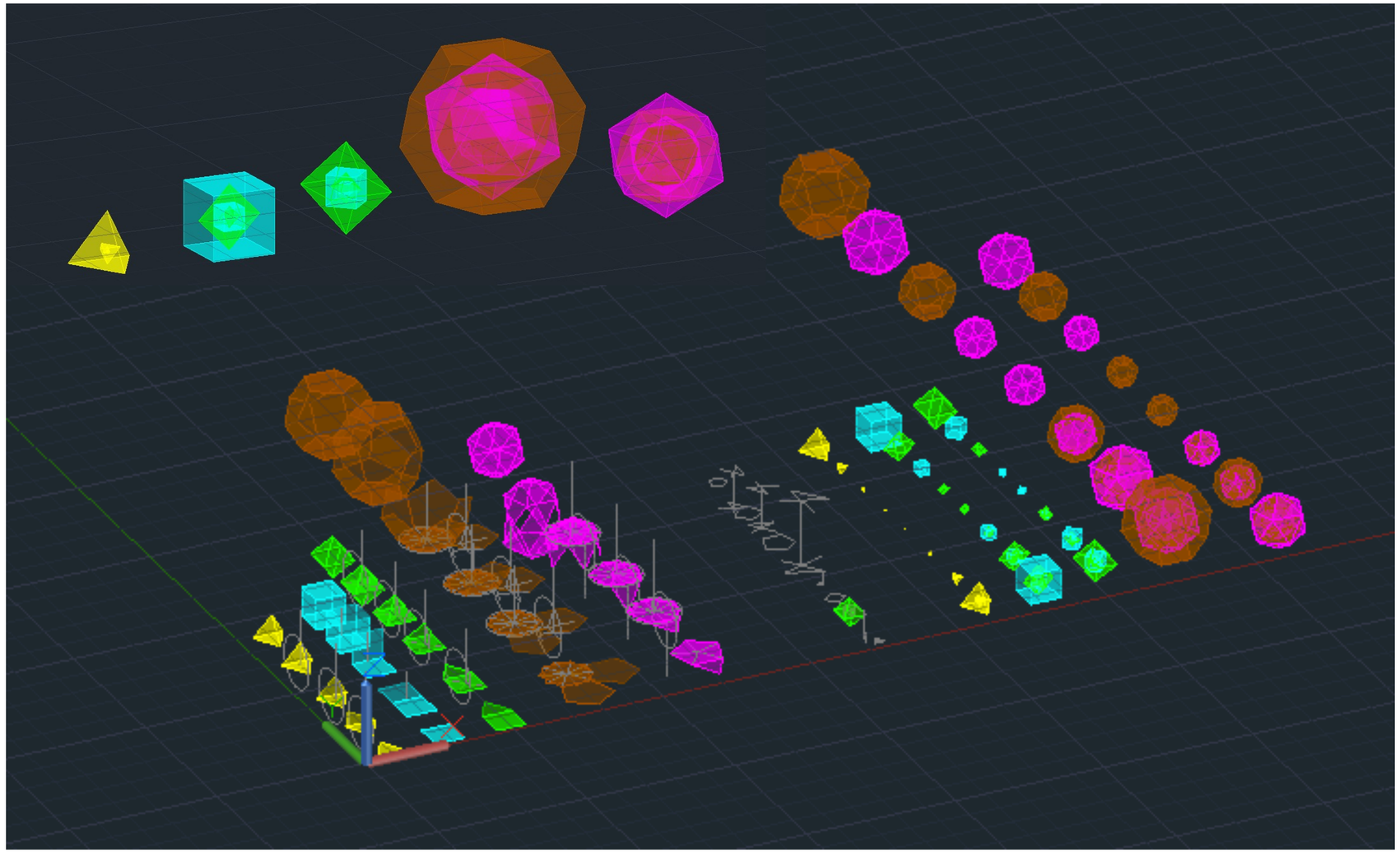


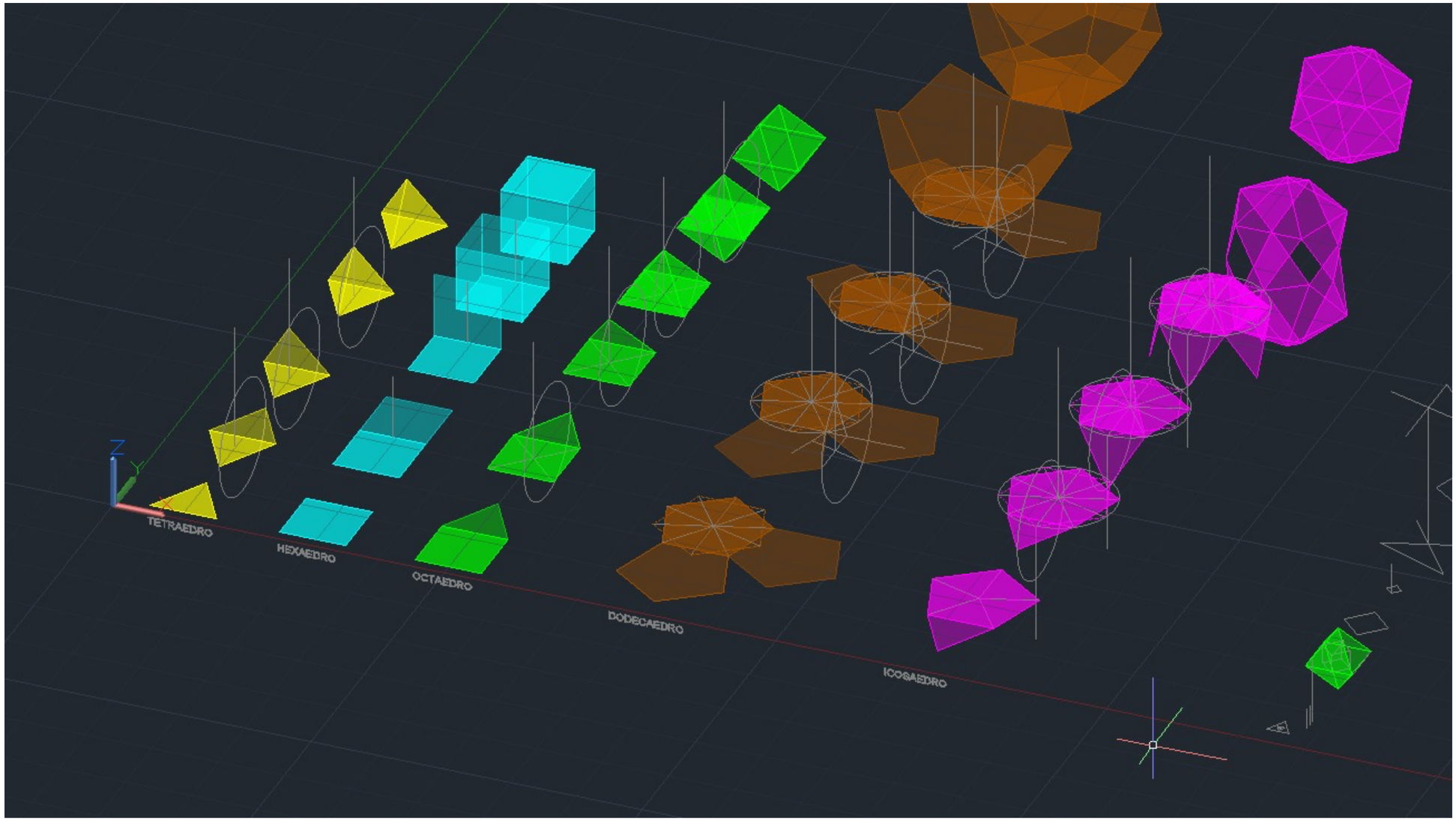
SÓLIDO DUAL

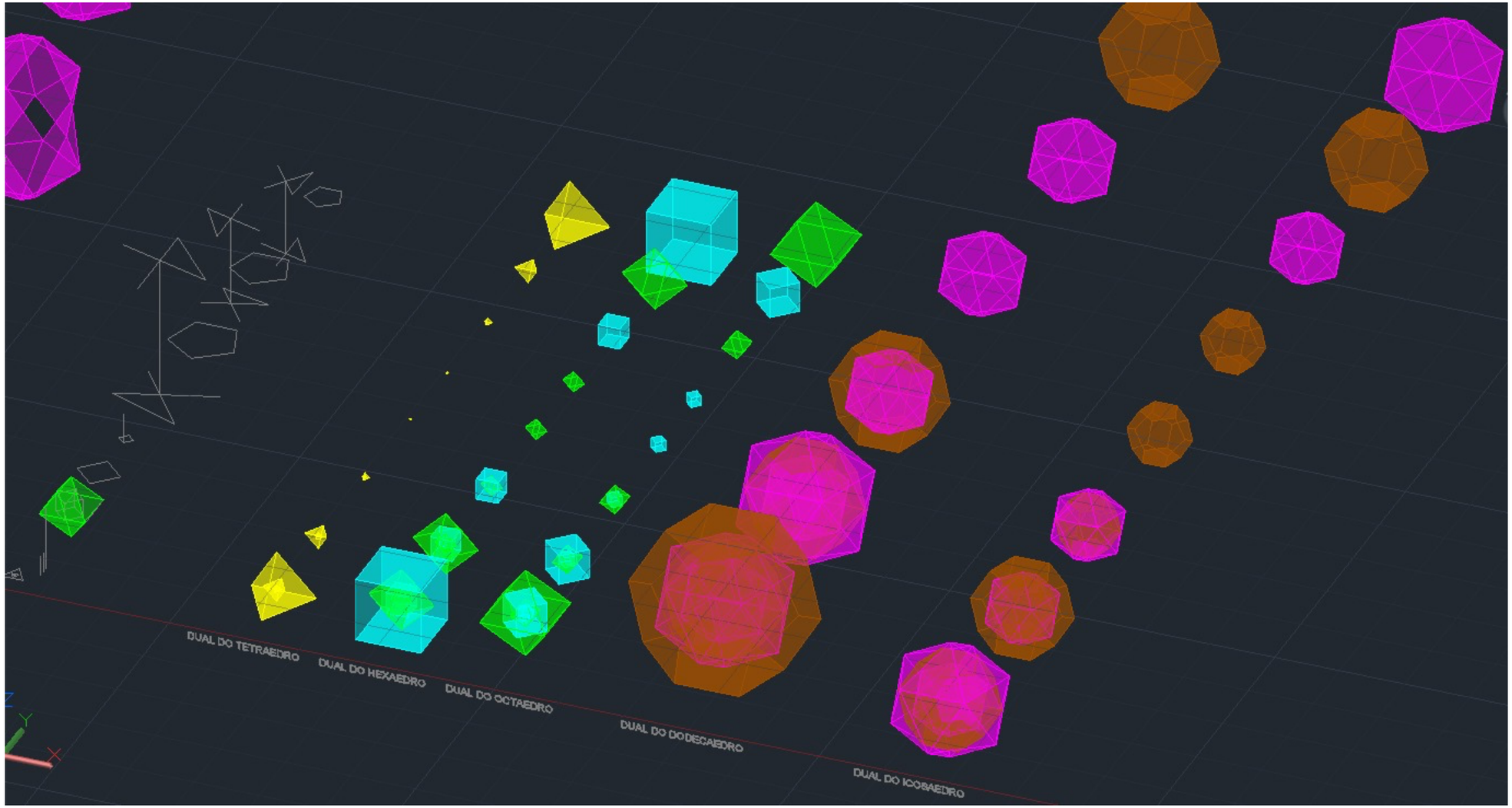
Obtido através da ligação dos centros de todas as faces de um sólido, que posteriormente origina um mais pequeno... A este fenómeno de designa-se de dual, isto é, um sólido obtido através do primeiro.

Assim, o dual do tetraedro é o tetraedro, do hexaedro é o octaedro, do octaedro é o hexaedro, do dodecaedro é o icosaedro e do icosaedro é o dodecaedro.






Z
TETRAEDRO
HEXAEDRO
OCTAEDRO
DODECAEDRO
ICOSAEDRO


DUAL DO TETRAEDRO
DUAL DO HEXAEDRO
DUAL DO OCTAEDRO
DUAL DO DODECAEDRO
DUAL DO ICOSAEDRO

Considere os elementos gráficos, resultantes do seu trabalho anterior – Desenho da casa António Carlos Siza , projecto de autoria do arquitecto Álvaro Siza Vieira - entregues em formato *.dwg, e constituídos pela planta da casa, corte e alçado.

1 – Partindo da planta realizada na fase anterior deste trabalho, construa um modelo tridimensional da Casa António Carlos Siza, utilizando para o efeito a operação de extrusão das paredes e modelando os restantes elementos que façam parte do seu modelo. A informação relativa às alturas dos elementos modelados (paredes, lajes de cobertura, muretes, janelas, etc.) serão recolhidas no corte que apresentou na fase anterior do trabalho.

Os modelos devem ser diferentes, de aluno para aluno, podendo escolher-se diversos modos de abordagem, tal como: realizar o modelo integral da casa com destaque para os elementos vistos do exterior; modelo de parte da casa mostrando o interior através da secção de um corte vertical; modelo resultante de um corte horizontal, mostrando todo o interior da casa; ou outras abordagens.

Para que o seu modelo seja correctamente trabalhado no 3DStudiomax, construa objectos independentes em layeres independentes, nomeadamente no que diz respeito aos materiais que vai usar em cada um desses objectos, porque "layers" no Autocad são objectos quando importados pelo 3DStudio max.

O seu modelo será realizado à escala natural (esc. 1/1), ,pelo que poderá pensar nos pormenores de construção, logo à partida, considerando os níveis de detalhe das partes que entender desenvolver, dentro do seu desenho

Entrega :

1 - apresente um layout no formato A2 ou A1 que contenha, em diferentes janelas, os elementos relativos a:

Planta à escala 1/100; **corte** à escala 1/100; **alçado** à escala 1/100;

Quatro imagens do seu modelo, devidamente rendarizadas;

2 - Apresente o seu ficheiro de trabalho no formato dwg.

No presente trabalho, todas as imagens entregues deverão ter uma definição igual ou superior a **200 ppp** (ou dpi) e dimensões reais livres mas suficientemente grandes para serem bem observadas e analisadas.

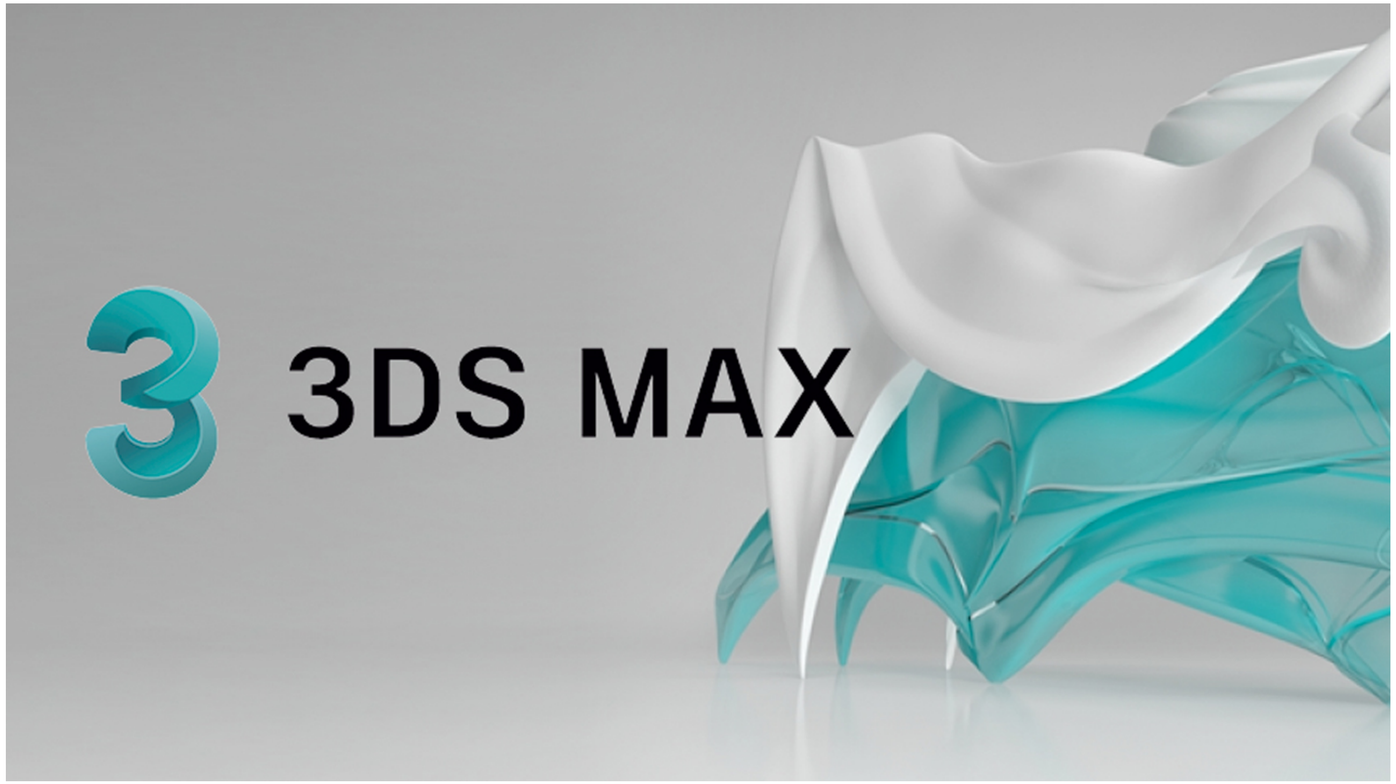
Identifique o seu painel correctamente e tal como identificou o painel da fase anterior.

Fim

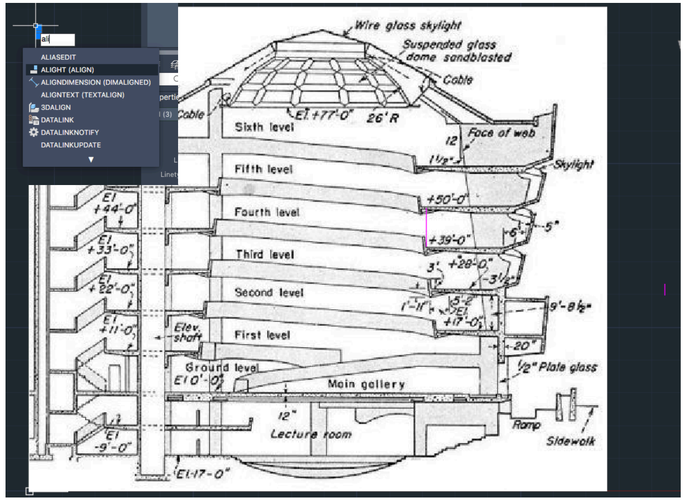
AUTOCAD → 3DMAX

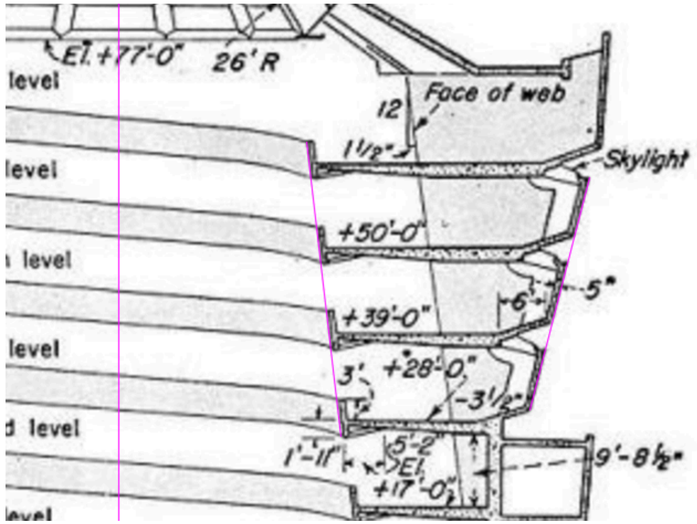
LAYER → OBJETO

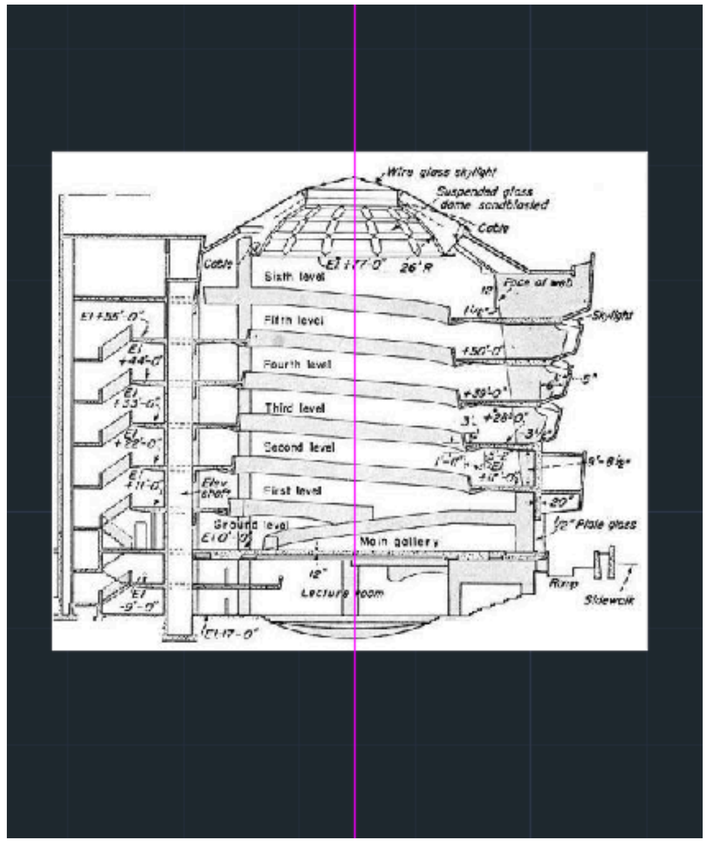
Devemos separar as paredes segundo camadas tendo em conta as diferenças de materiais



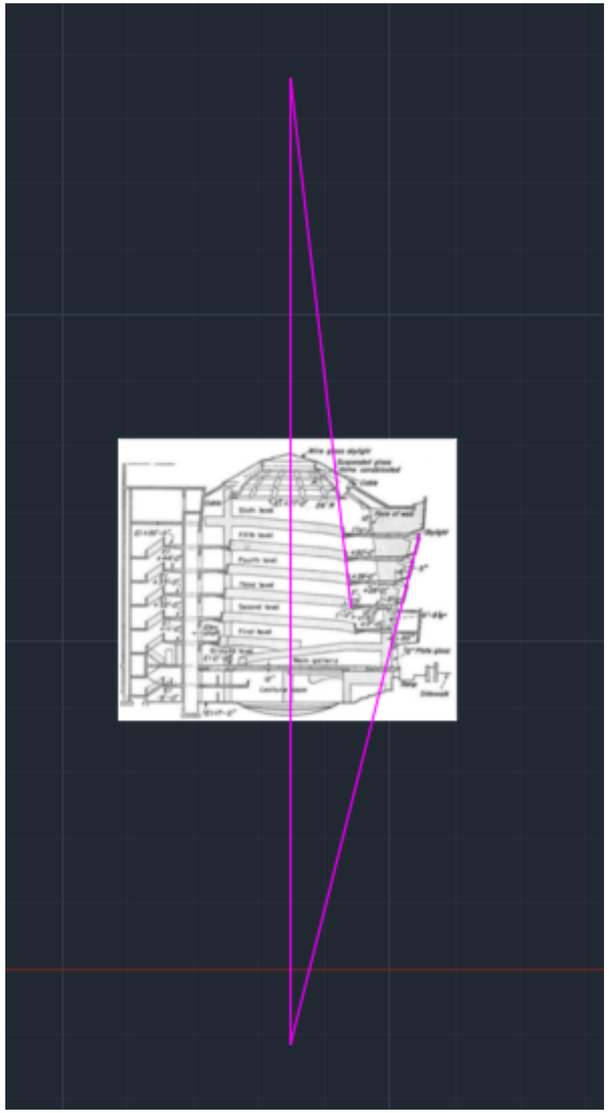
RAMPA HELICOIDAL DO GUGGENHEIM



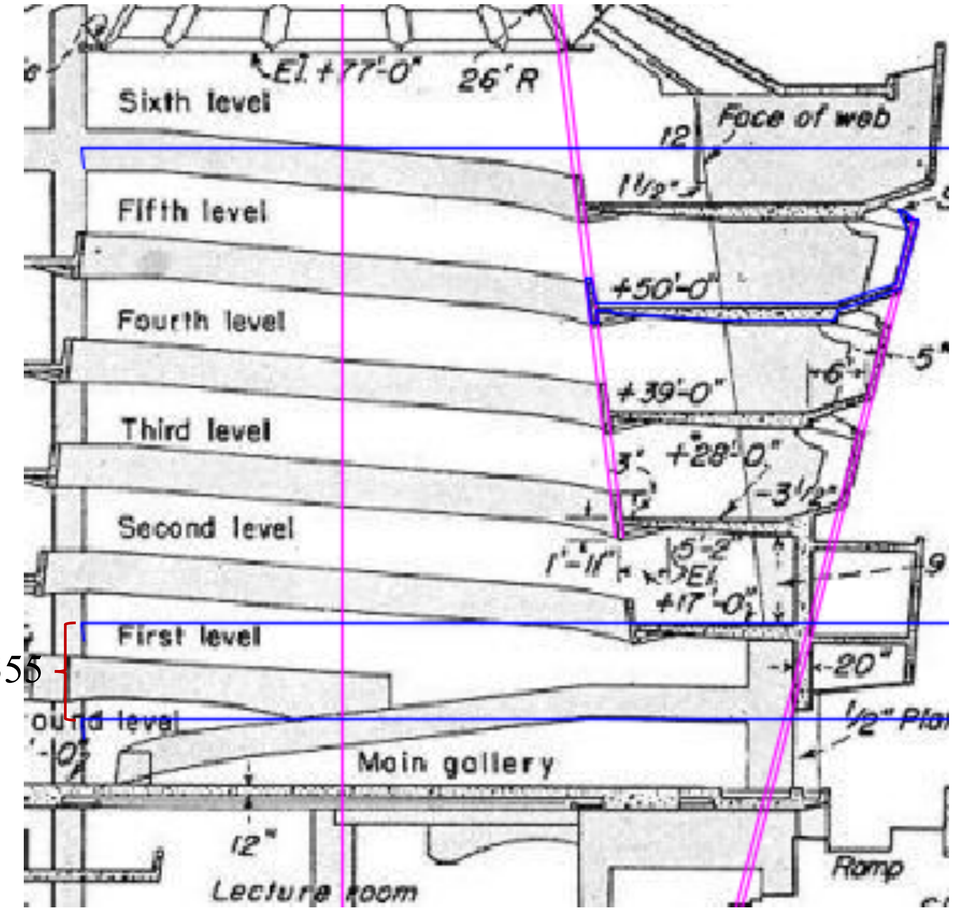




Duas rampas: uma 1/2 interior e outra ½ exterior

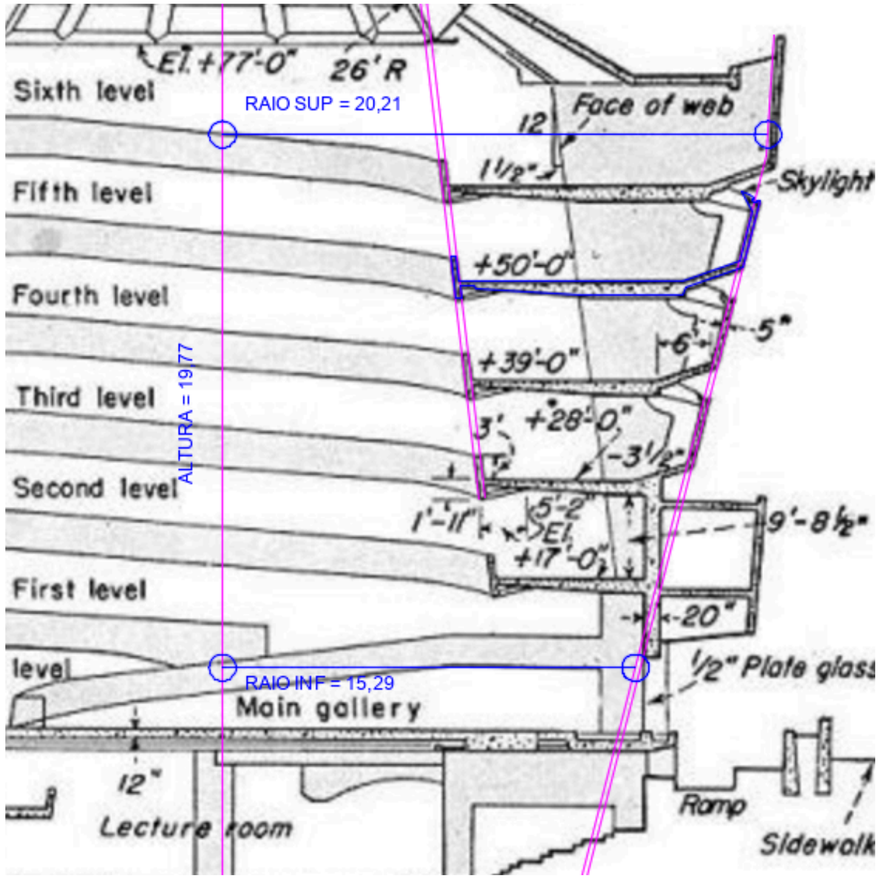


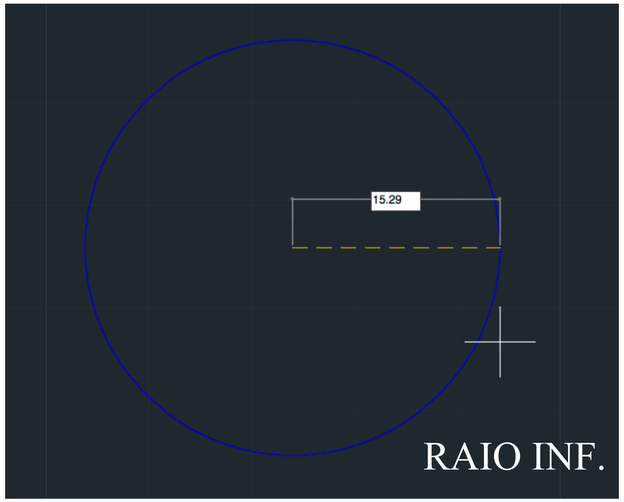
5 voltas + ¼ de volta

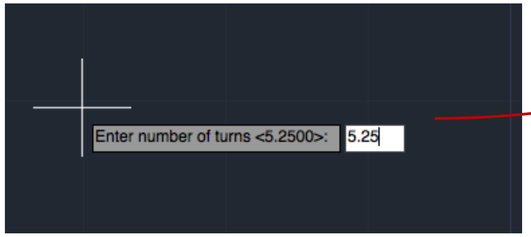


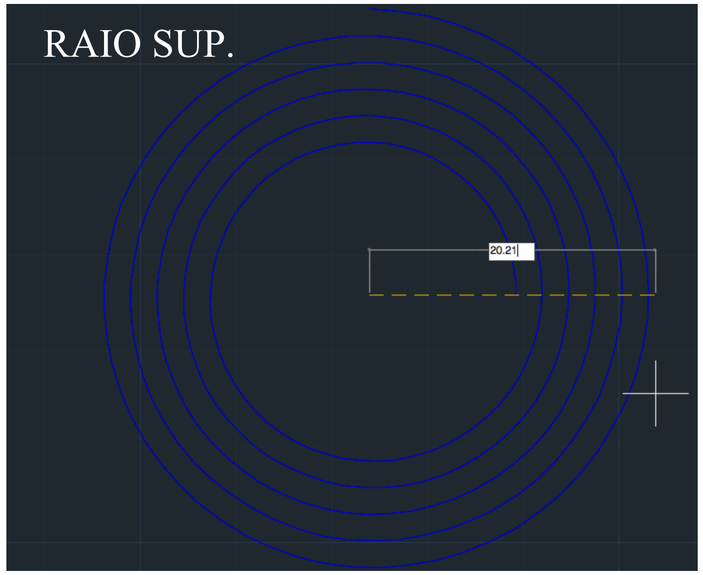
3.355

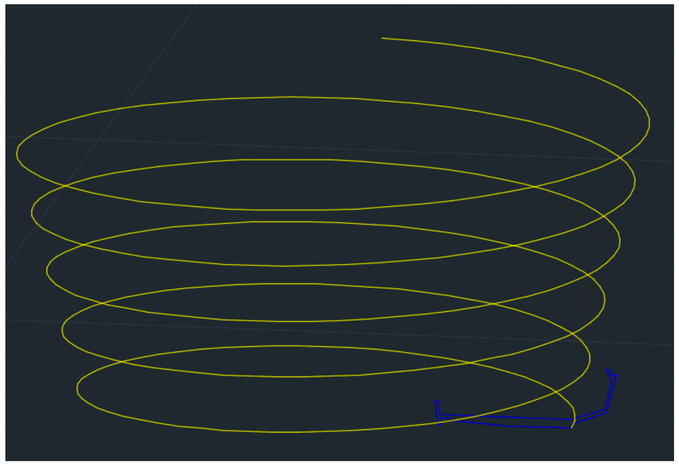
HELIX - helicoidal

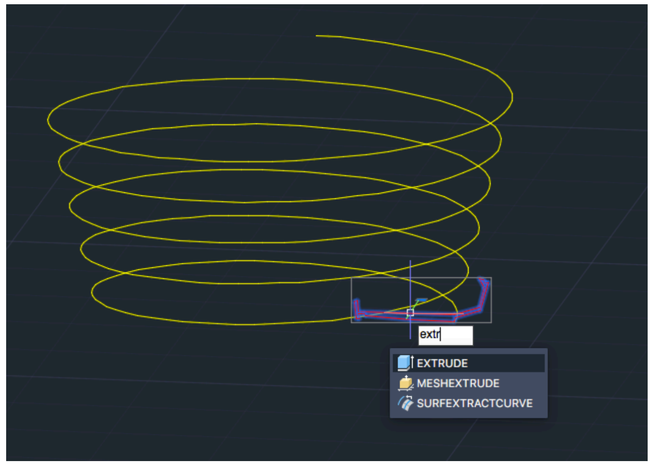


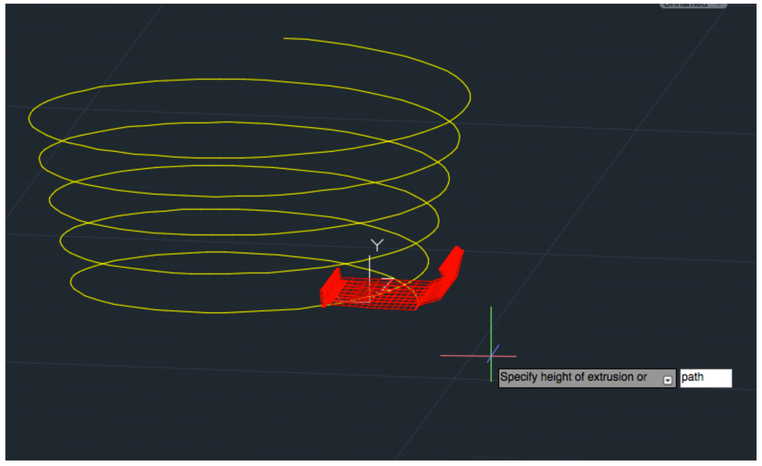


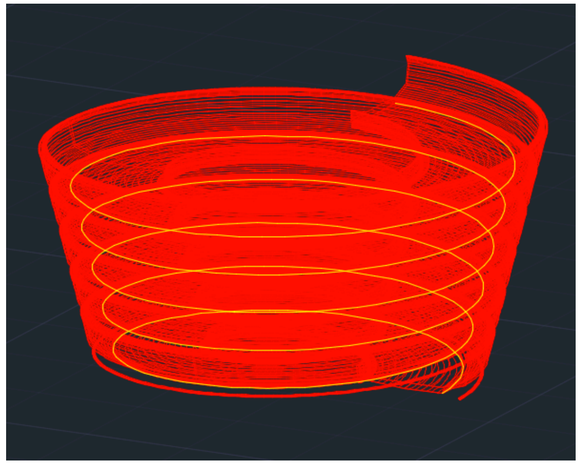


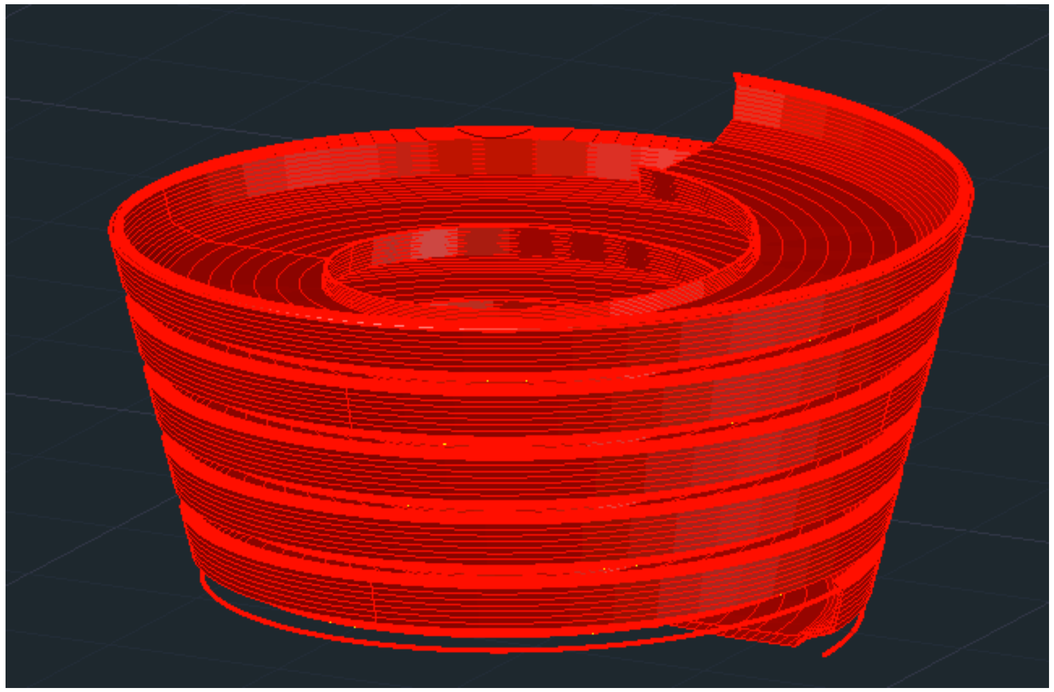








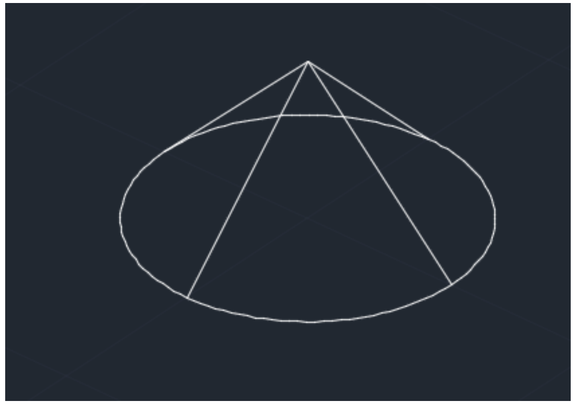


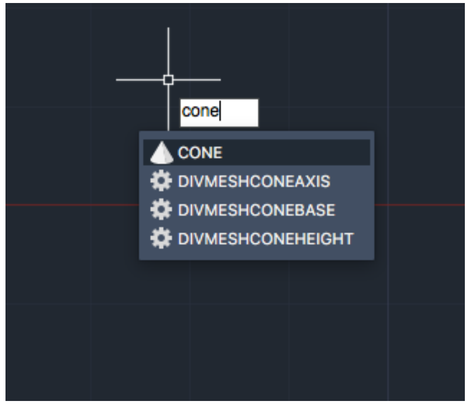


EXTRUDE

mode – path - selecionar linha da helix

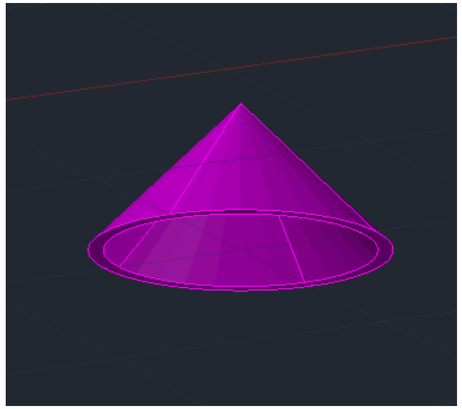
SECÇÃO PLANA DE UM CONE

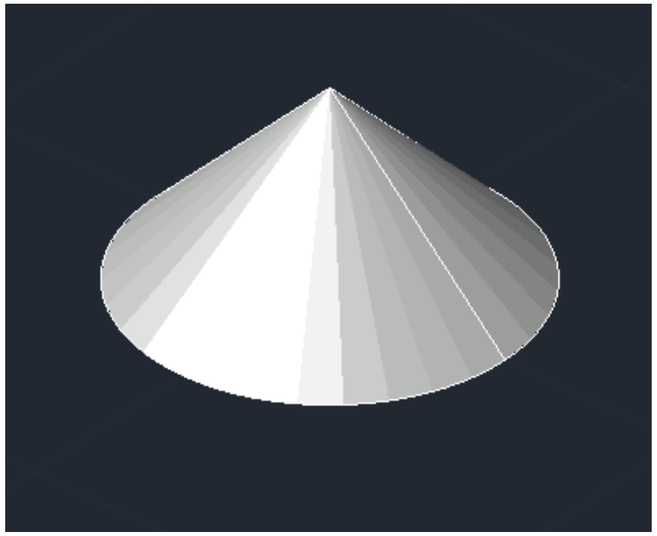


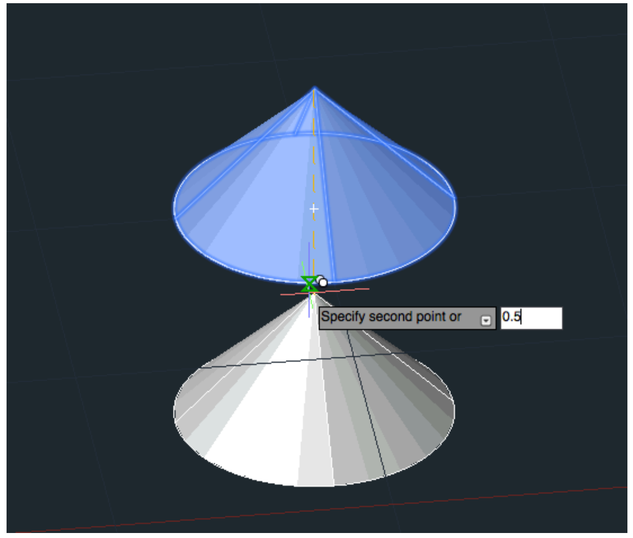


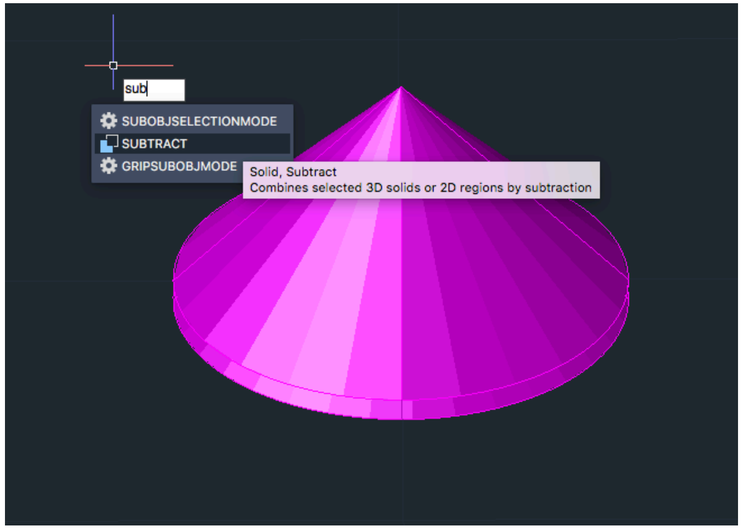
CENTRO BASE: #20,20
Raio:5
Altura: 5

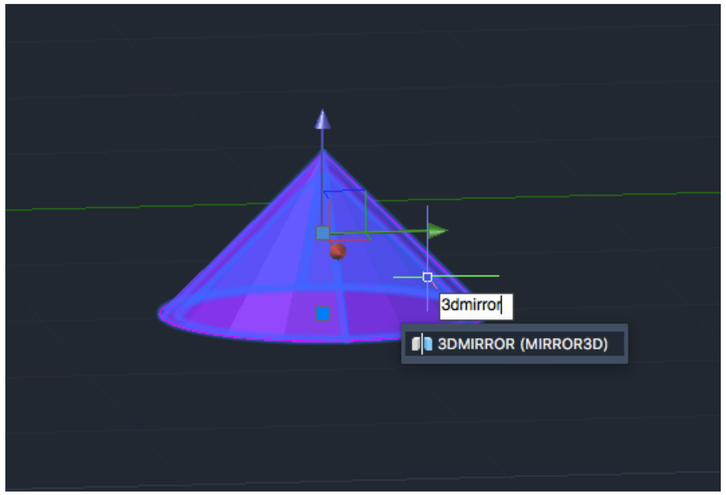
SUBTRACT

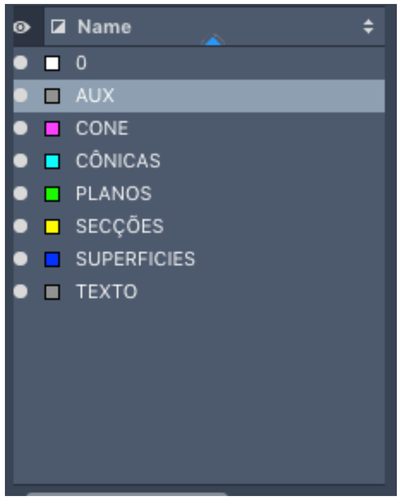




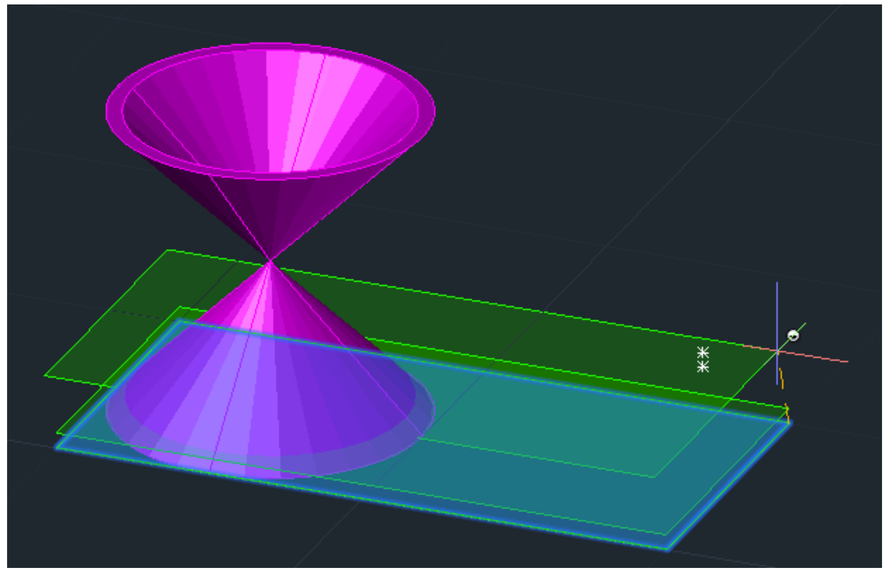


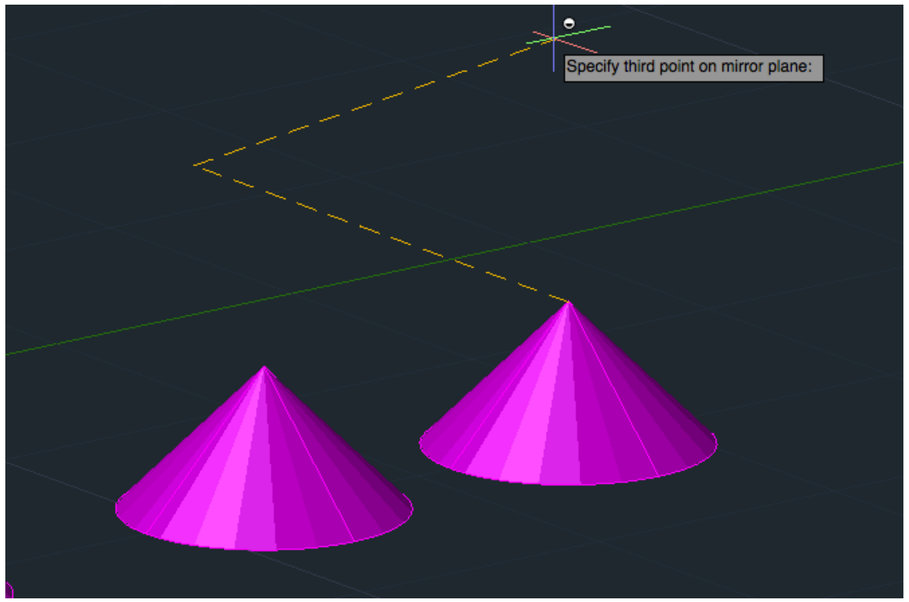


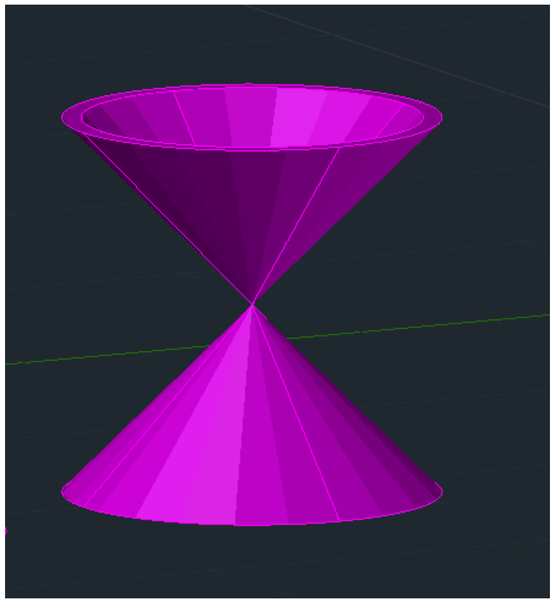

3dmirror
3DMIRROR (MIRROR3D)

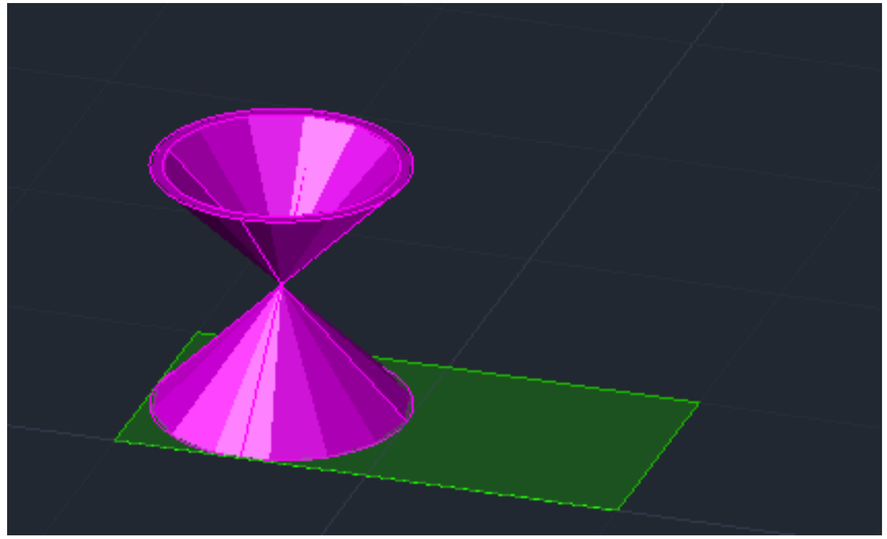

Name
0
AUX
CONE
CÔNICAS
PLANOS
SECÇÕES
SUPERFICIES
TEXTO

3DMIRROR

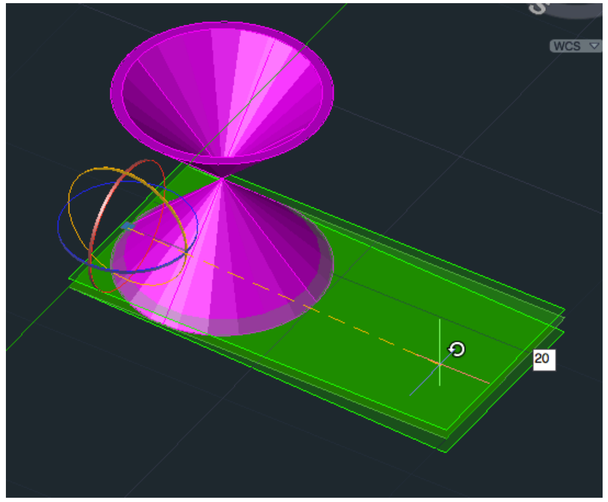


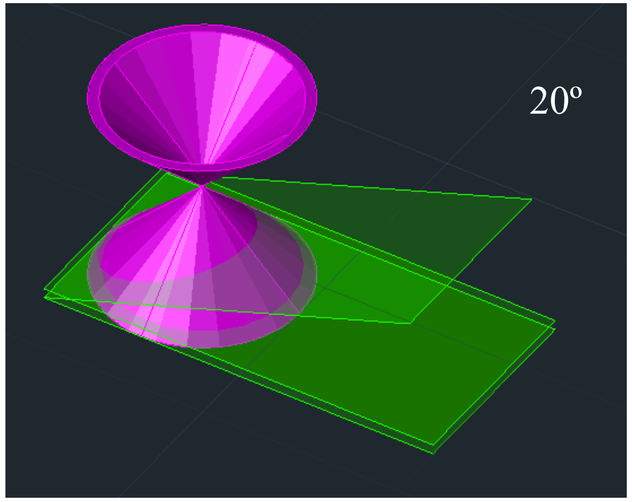

Specify third point on mirror plane:

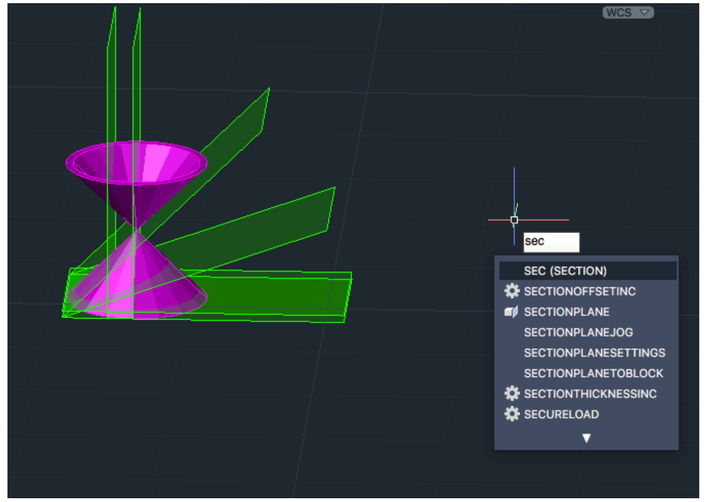


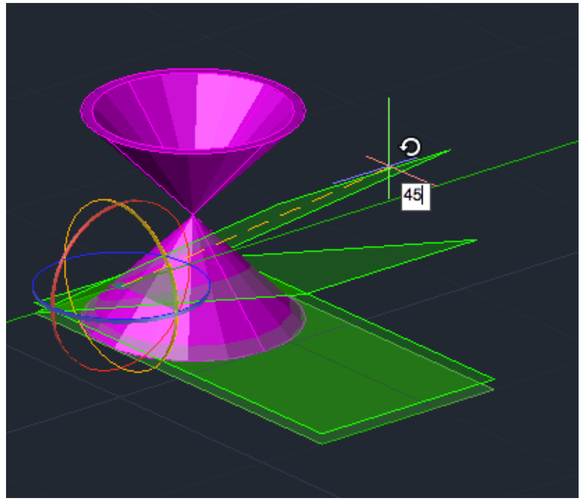


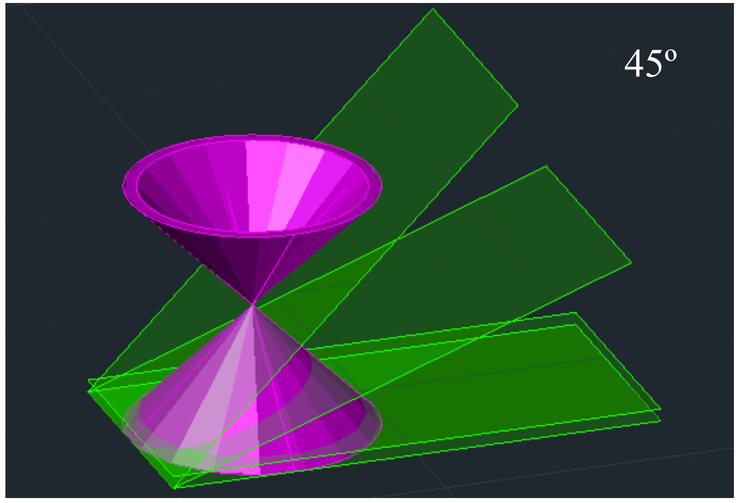
SECCTION

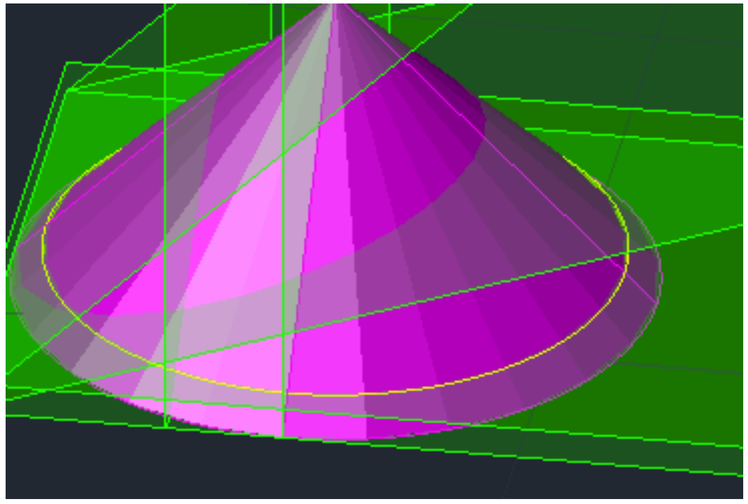

WCS
20

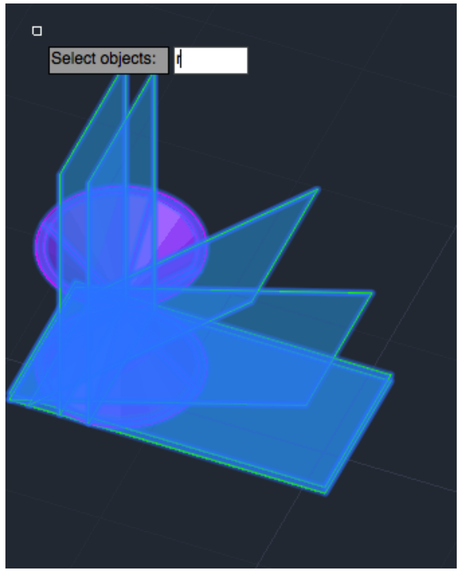

20º


WCS
sec
SEC (SECTION)
SECTIONOFFSETINC
SECTIONPLANE
SECTIONPLANEJOG
SECTIONPLANESETTINGS
SECTIONPLANETOBLOCK
SECTIONTHICKNESSINC
SECURELOAD

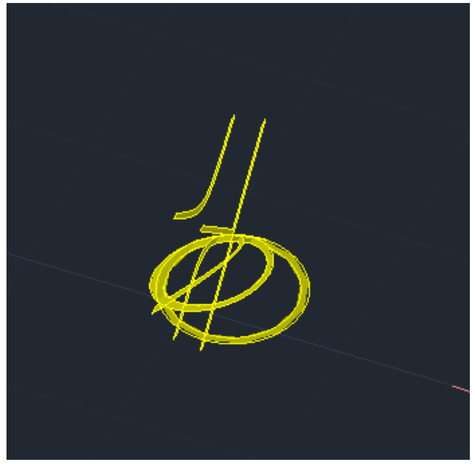

45


45º





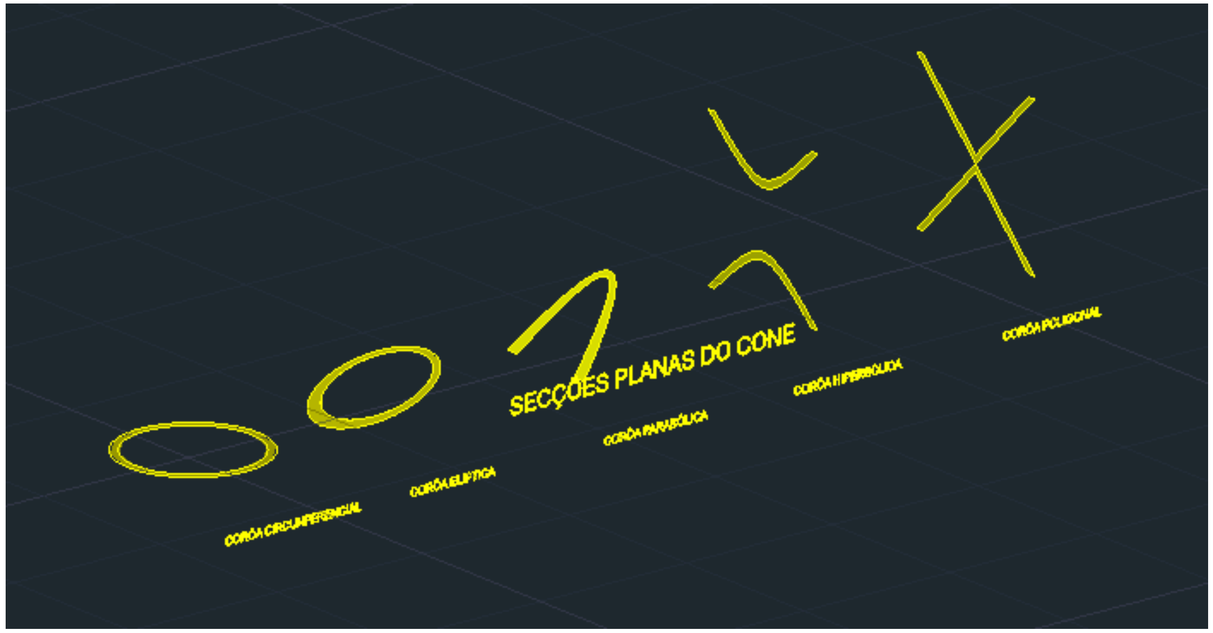
MOVE – **r** (remove) – desseleccionar os planos secantes e o sólido

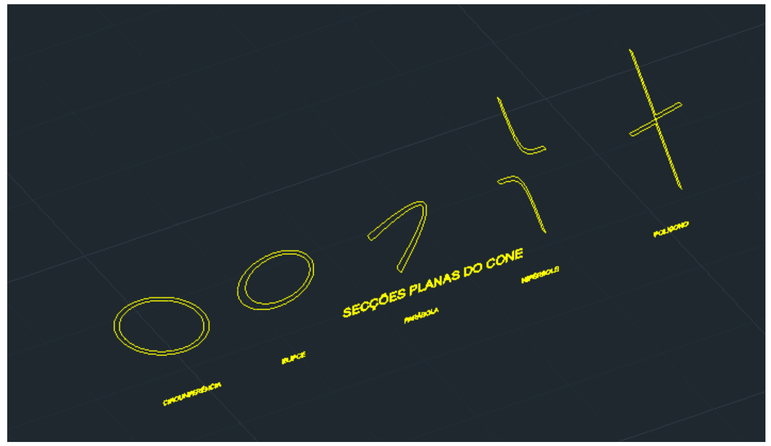


Dtext – identificar cada tipo de secção

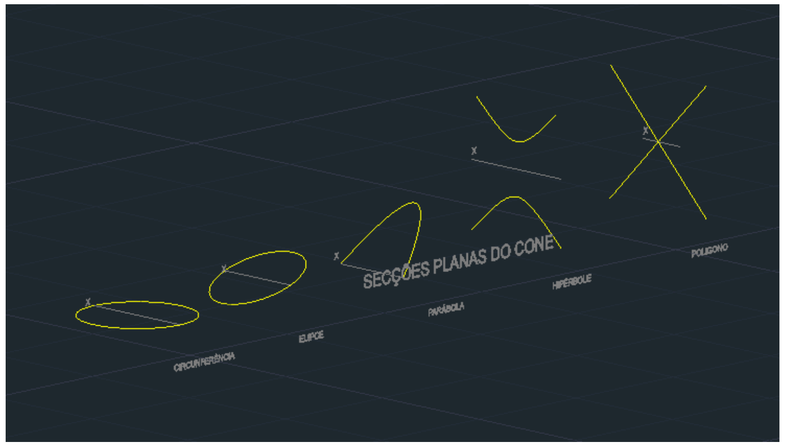
3D rotate – rodar o texto 90 para cima segundo o eixo x

Move – para separar todas as secções

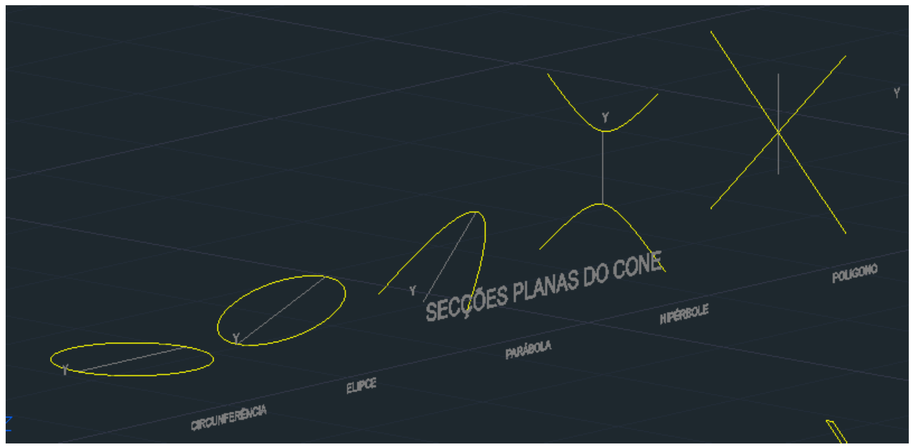




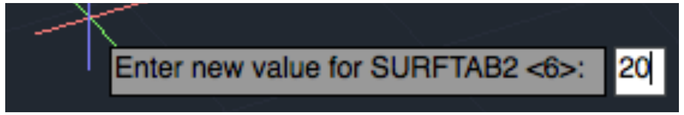
RETIRAR o hatch e as linhas de dentro de cada secção

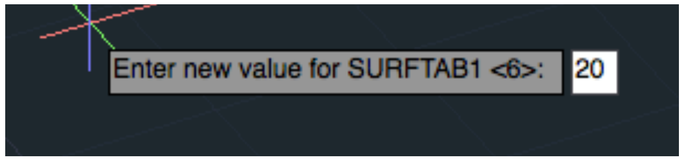


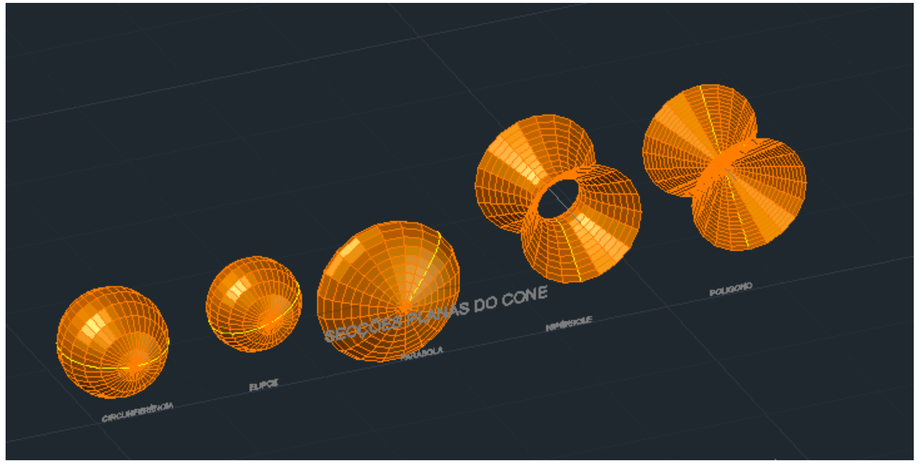
EIXO X

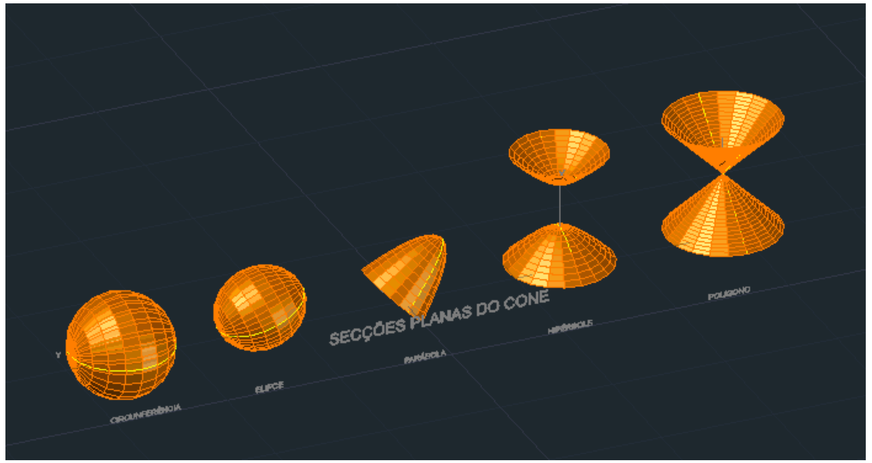


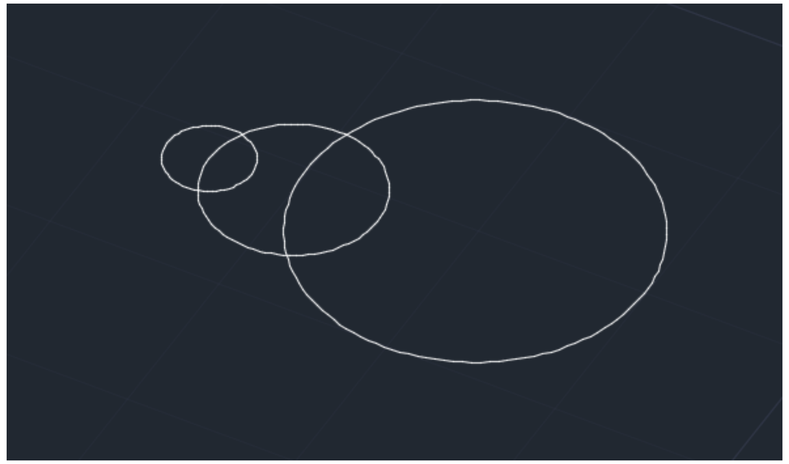
EIXO Y

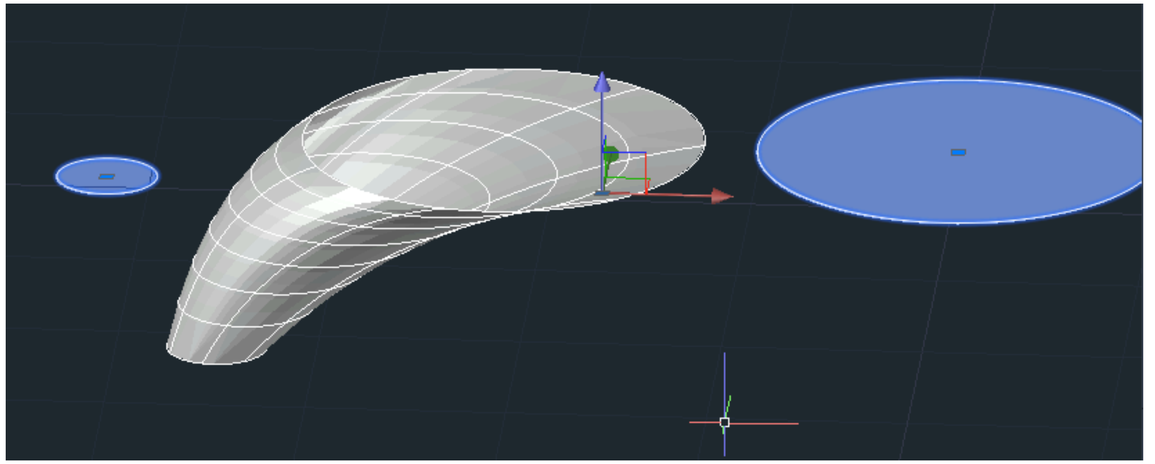


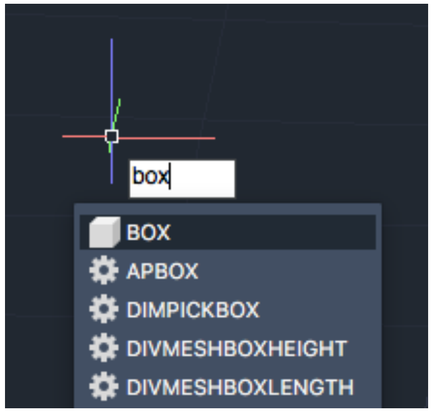




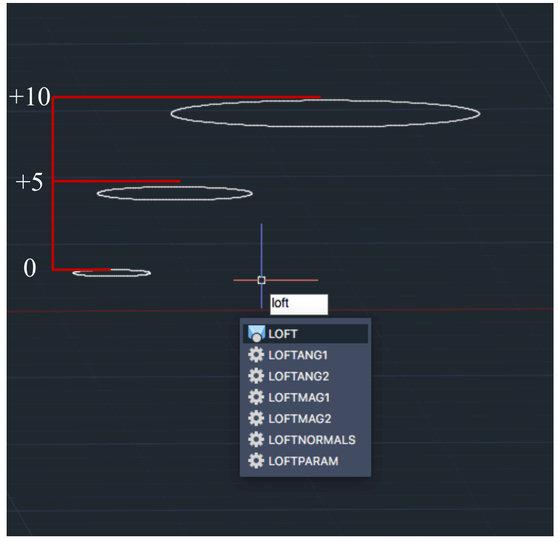


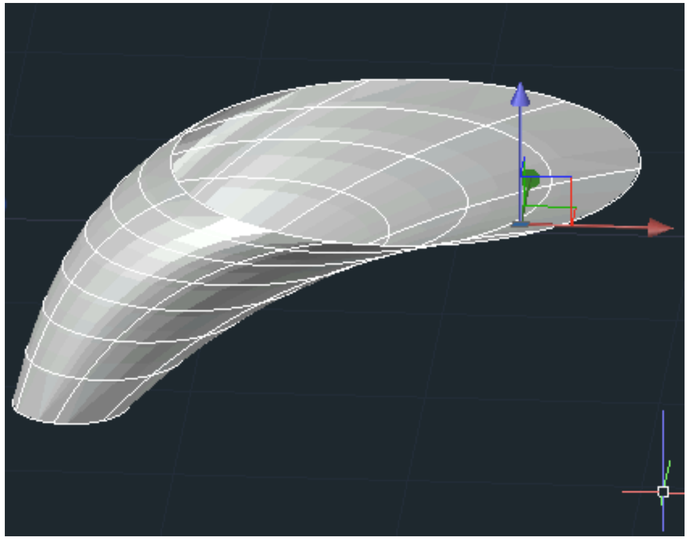


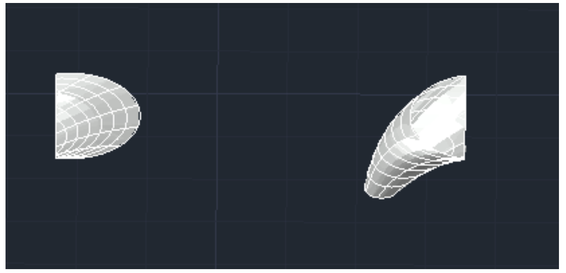


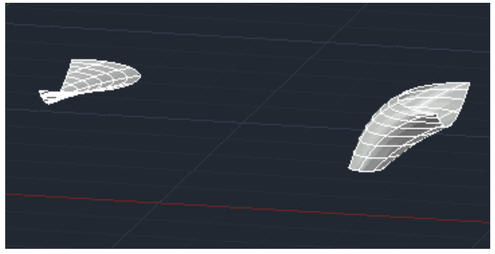


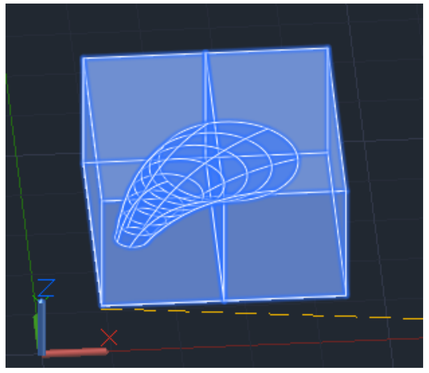
- Duas box , que juntas formam uma espécie de cofragem
- Copy e depois apagar uma metade diferente em cada conjunto

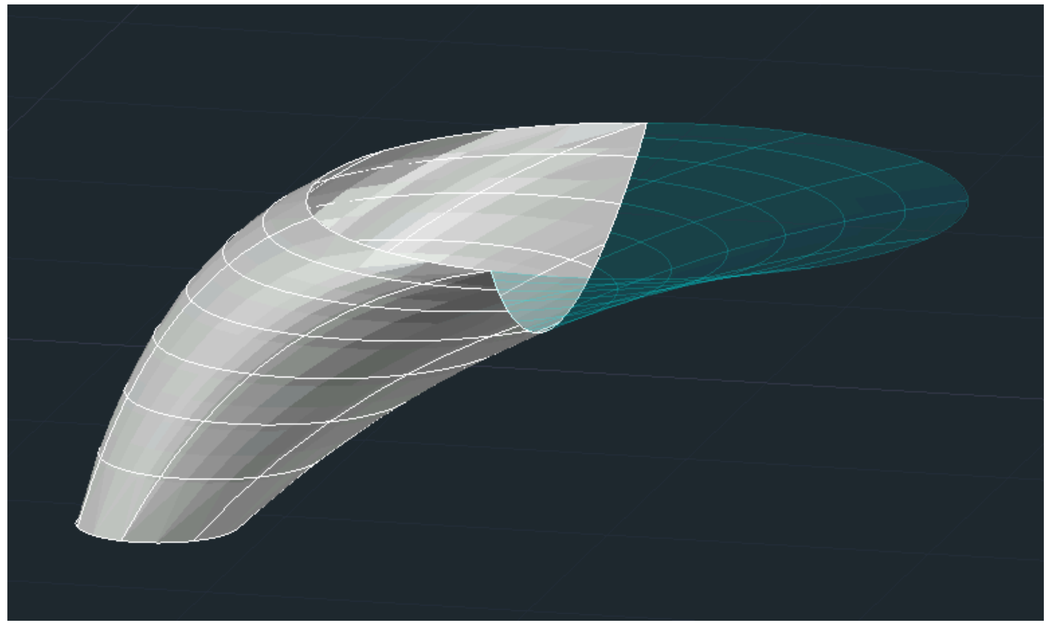


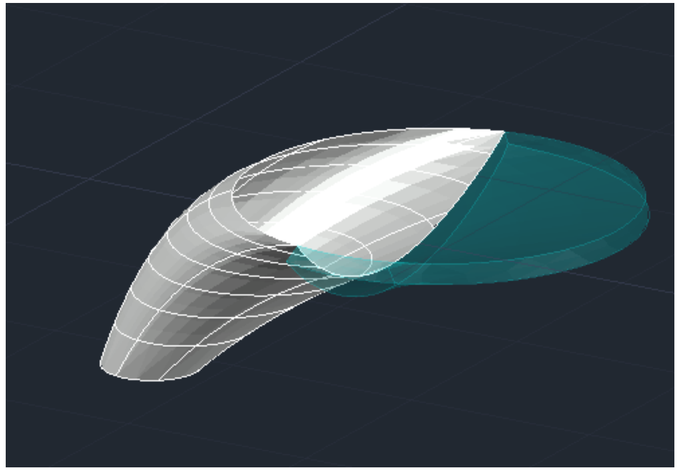




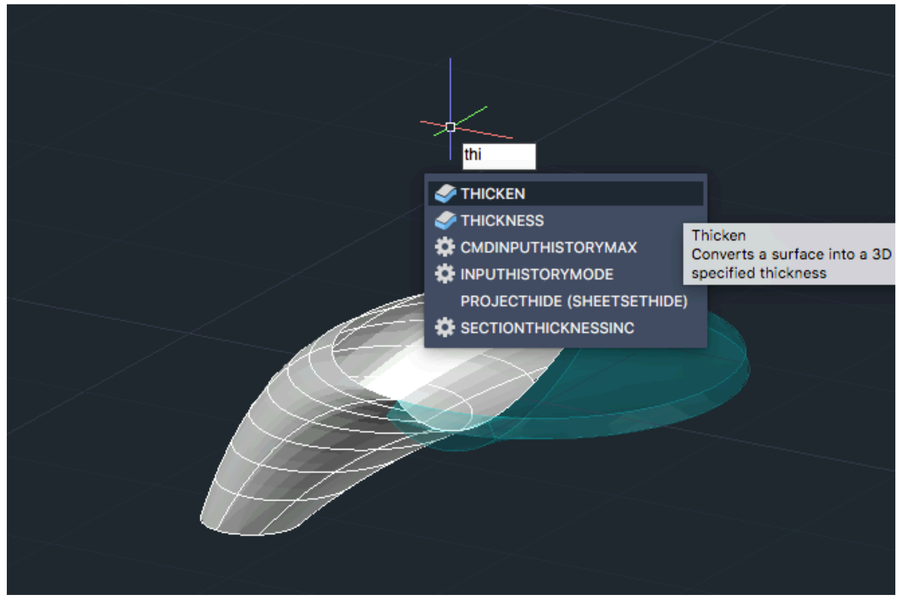








Depois de termos o objeto dividido em dois voltamos a juntá-los
escolhemos um e modificamos a cor e a transparência
A seguir através do comando **THICKEN** conseguimos dar espessura

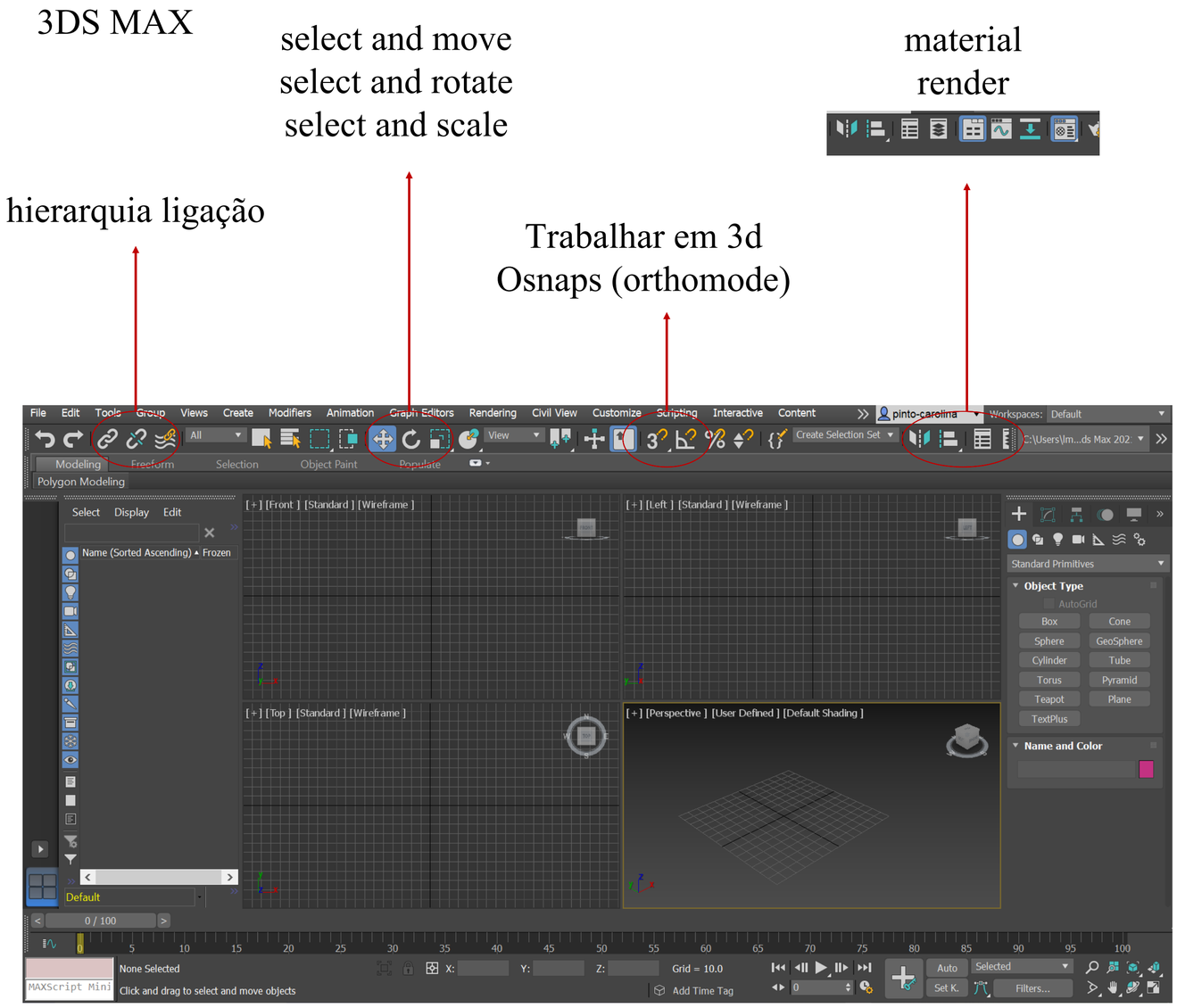


3dsmax – idêntico ao autocad com mais comandos
Visualizar o “projeto”
Default – materiais

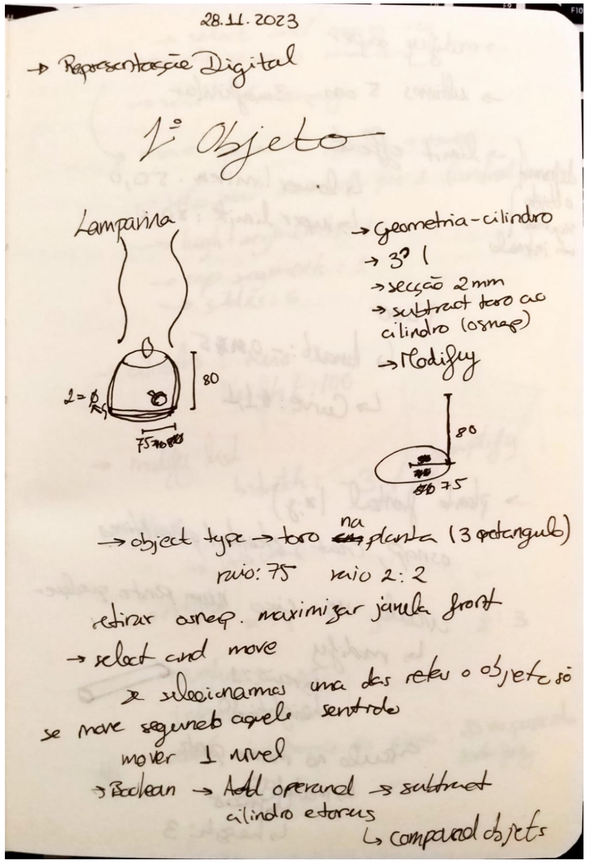
Maximizar – “+” ou canto inferior direito
mudar vistas – botao “top” : front, left, top perspetive (isometria)
Menu :
- Lado direito – janela de operações
- Lado esquerdo - ”layers” – ligar e desligar visualização

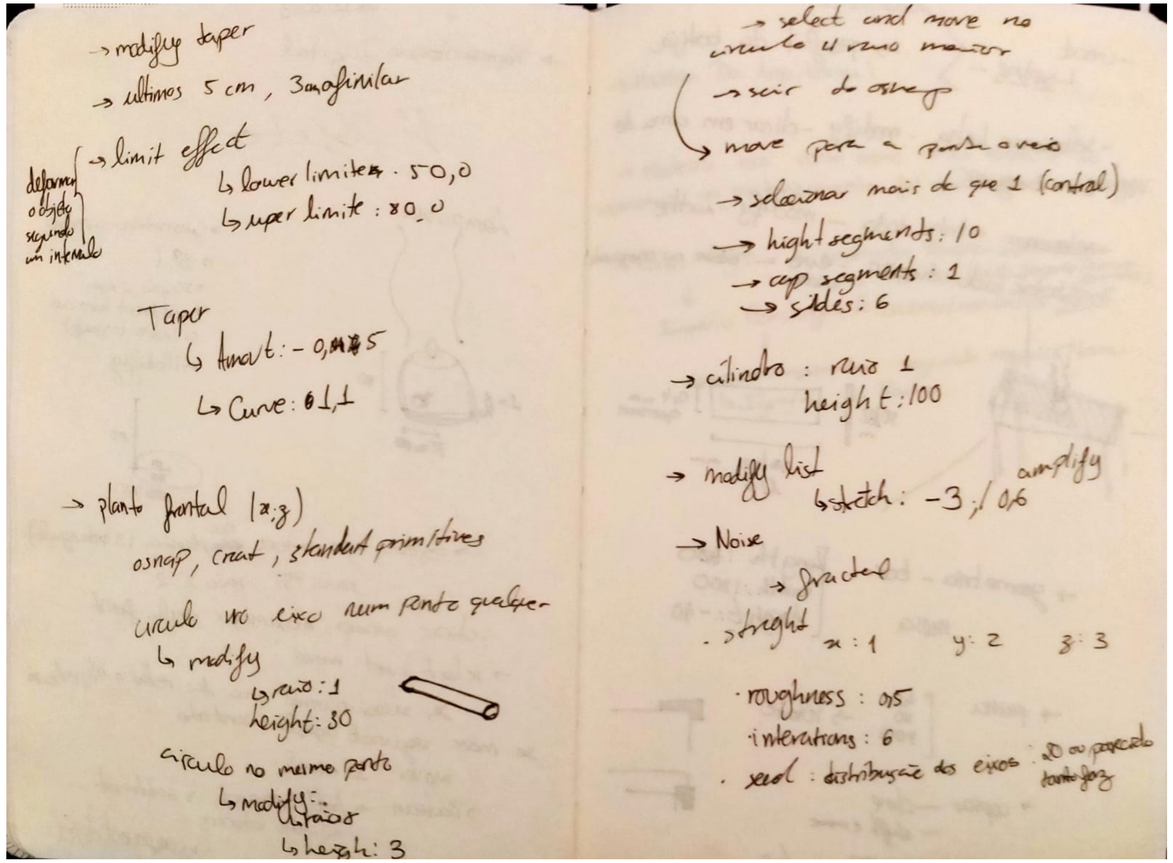
- Select and move ou select and rotate ou select and scale
- Criar objetos e depois – Modify
- Unidade é mm

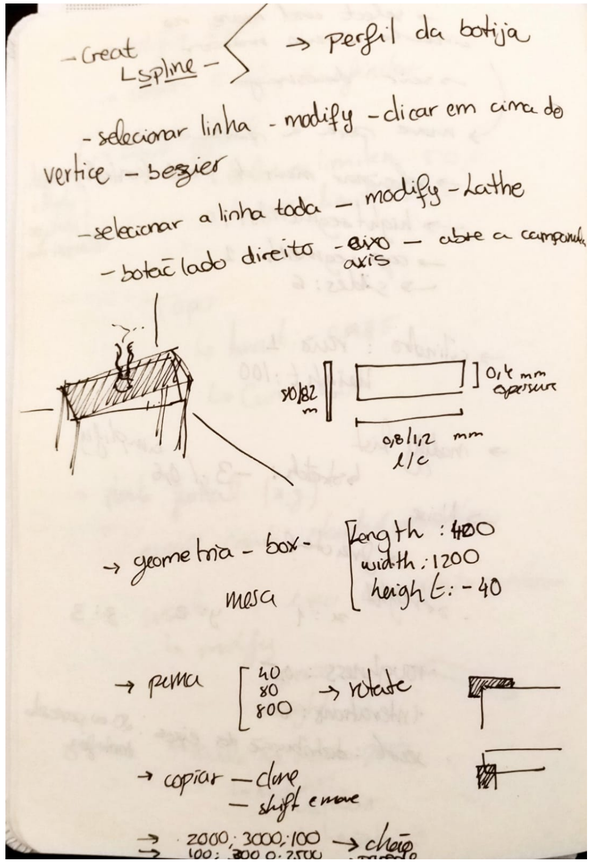
CREAT :
Compound object – boolean (unir)
Shape – linha formas tridimensionais
MODIFY:
Apenas quando o objeto está criado
Hight segments: numero de fatias
Sides: faces do prisma
Smooth (atenuar as faces)
Modify list : taper

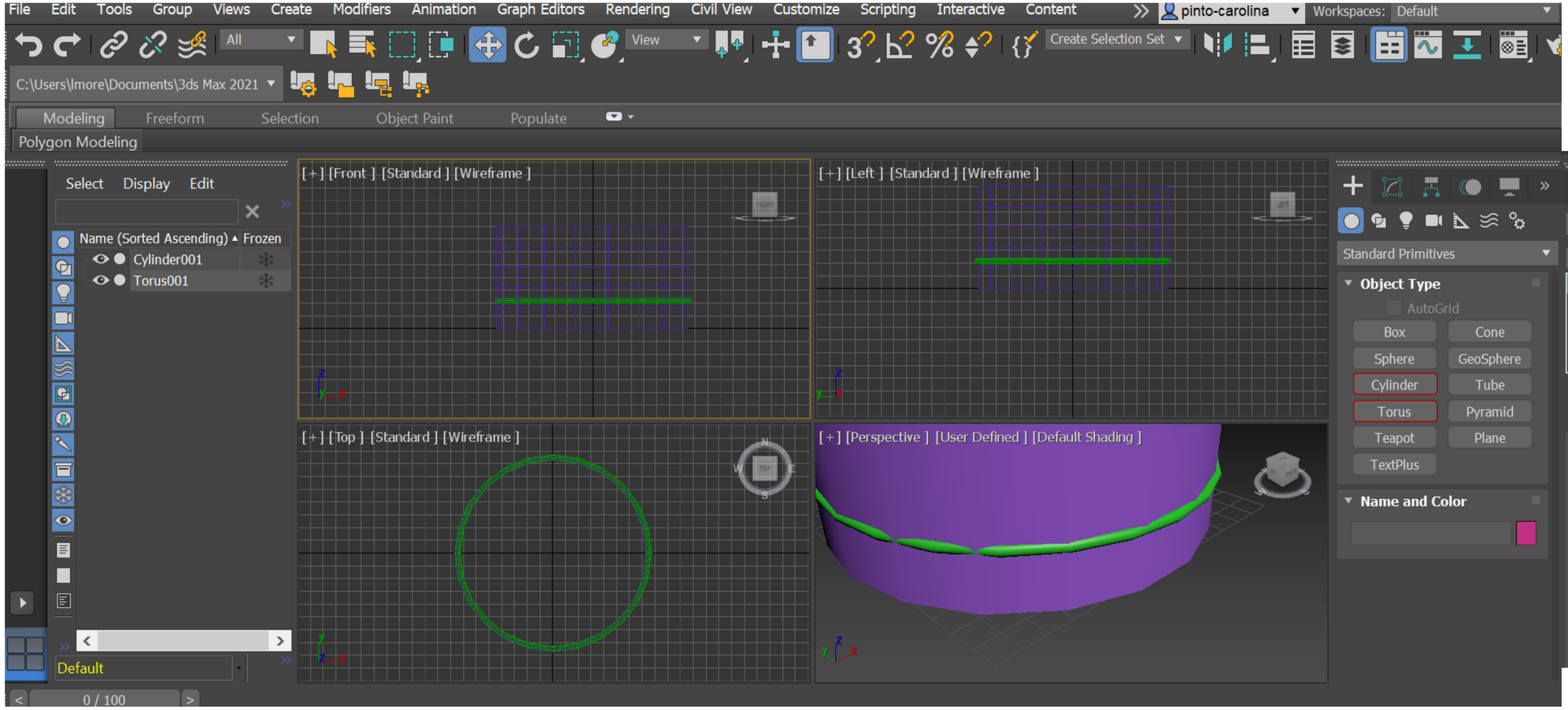


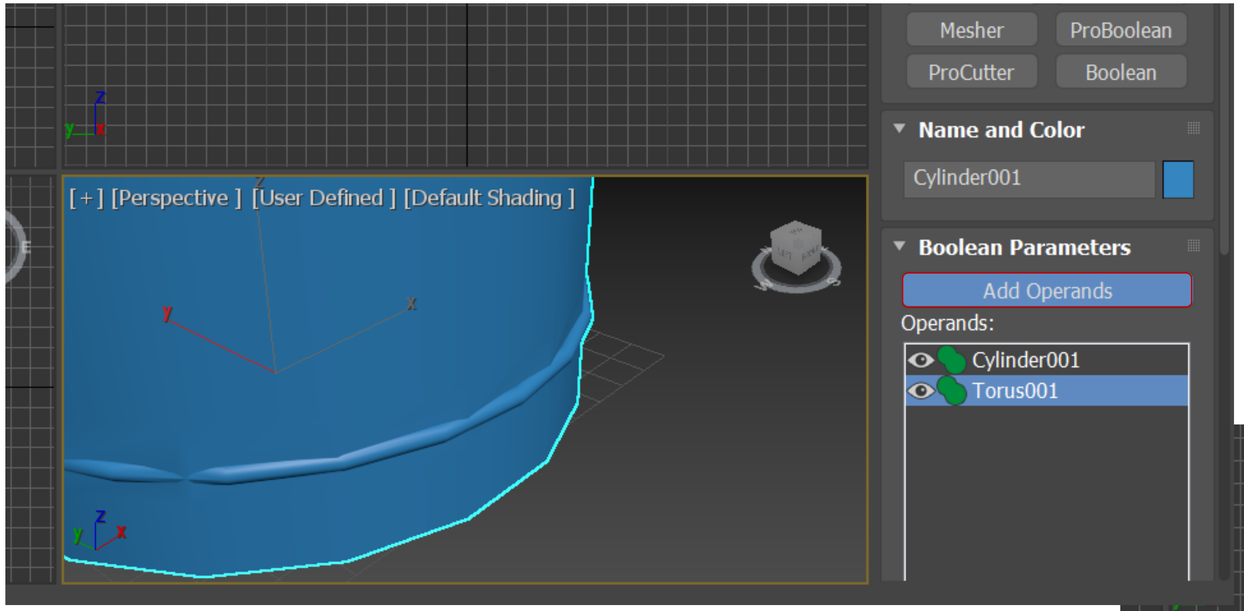
CRIAR UMA LAMPARINA





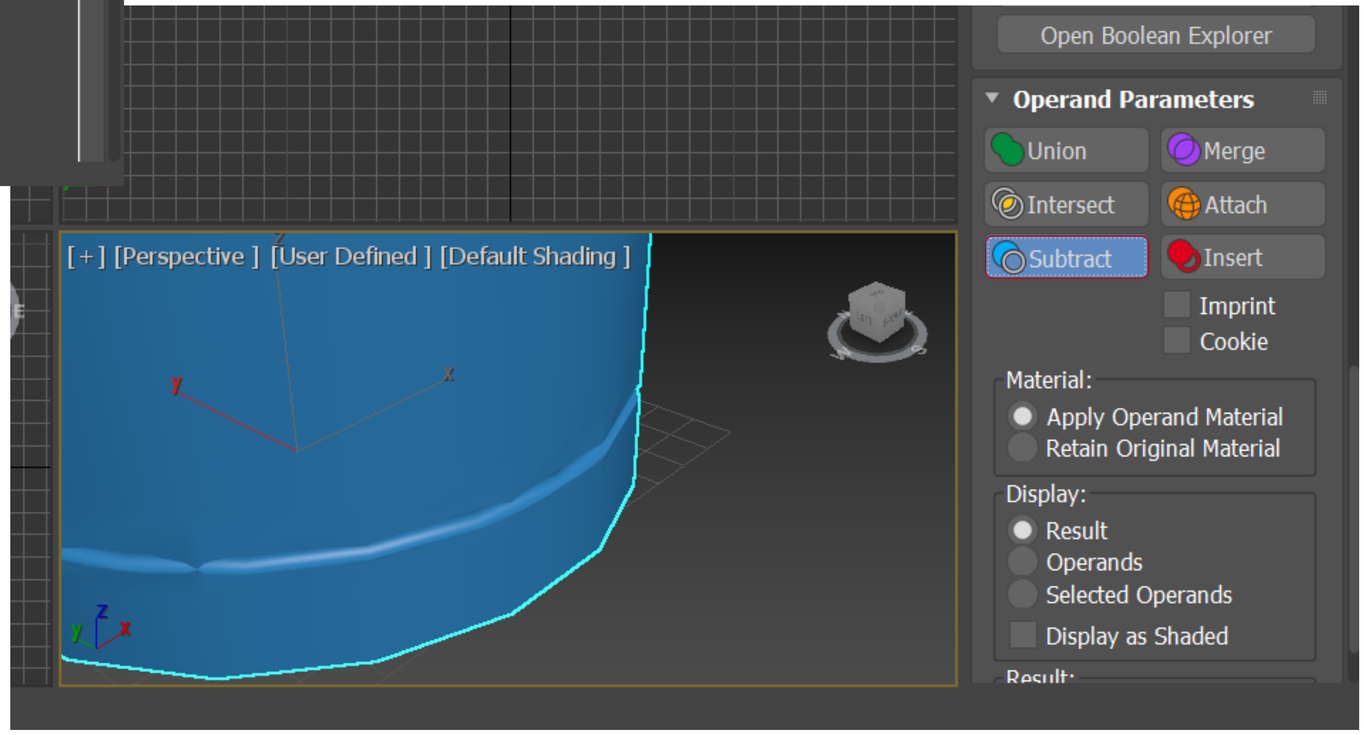



File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Civil View Customize Scripting Interactive Content
pinto-carolina
Workspaces: Default
C:\Users\lmore\Documents\3ds Max 2021
Modeling Freeform Selection Object Paint Populate
Polygon Modeling
Select Display Edit
Name (Sorted Ascending) Frozen
Cylinder001
Torus001
[+] [Front] [Standard] [Wireframe]
[+] [Left] [Standard] [Wireframe]
[+] [Top] [Standard] [Wireframe]
[+] [Perspective] [User Defined] [Default Shading]
Default
0 / 100
Standard Primitives
Object Type
AutoGrid
Box Cone
Sphere GeoSphere
Cylinder Tube
Torus Pyramid
Teapot Plane
TextPlus
Name and Color
Torus001
Cylinder001
Modifier List
Torus
Cylinder
Parameters
Radius 1: 75.0
Radius 2: 2.0
Rotation: 0.0
Twist: 0.0
Segments: 24
Sides: 12
Smooth:
All Sides
Radius: 75.0
Height: 80.0
Height Segments: 5
Cap Segments: 1
Sides: 18
Smooth
Slice On
Slice From: 0.0

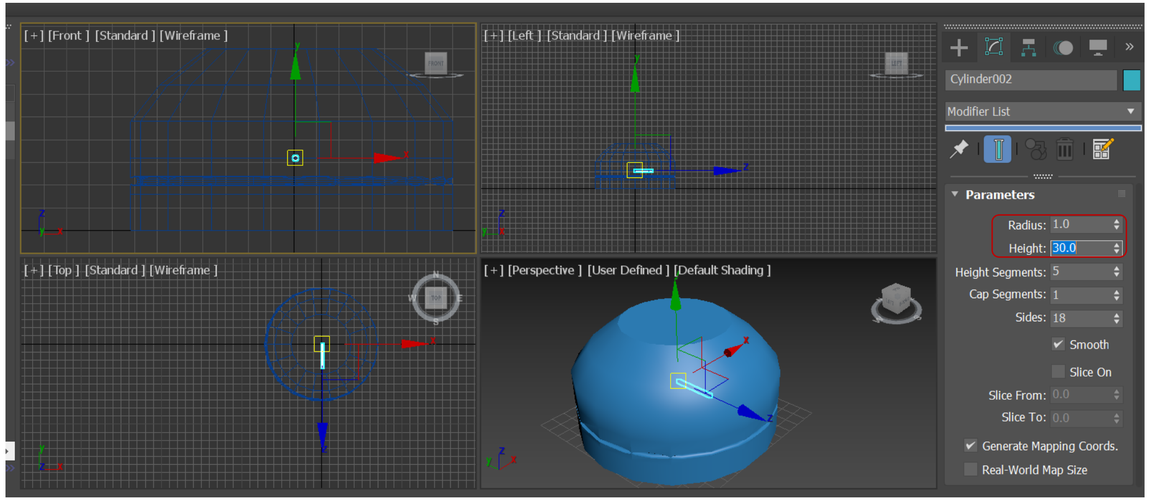


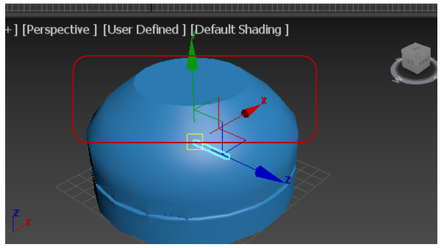
BOOLEAN

ADD OPERAND
(primeiro o cilindro e só depois o torus)
+
SUBTRACT



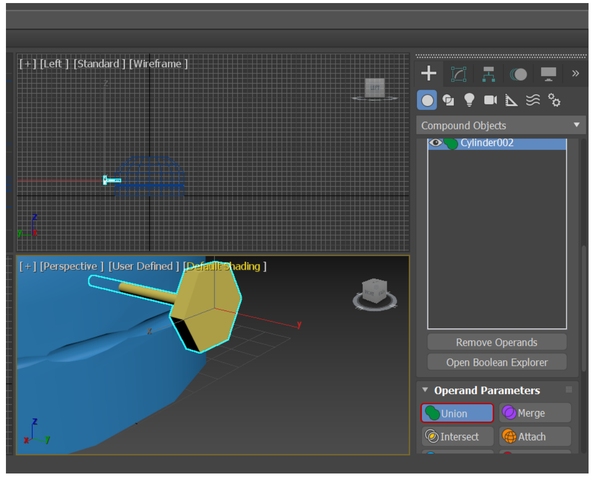
BOTÃO



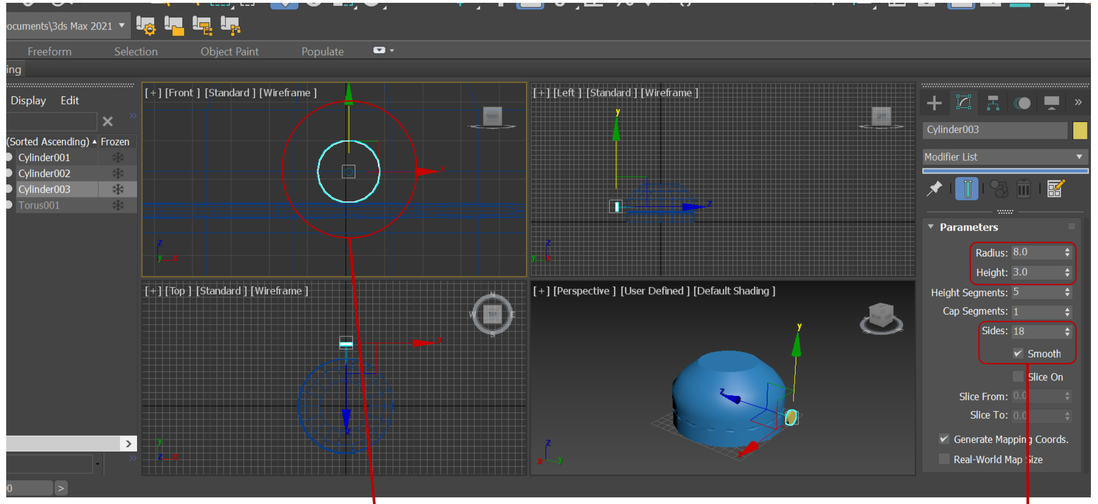


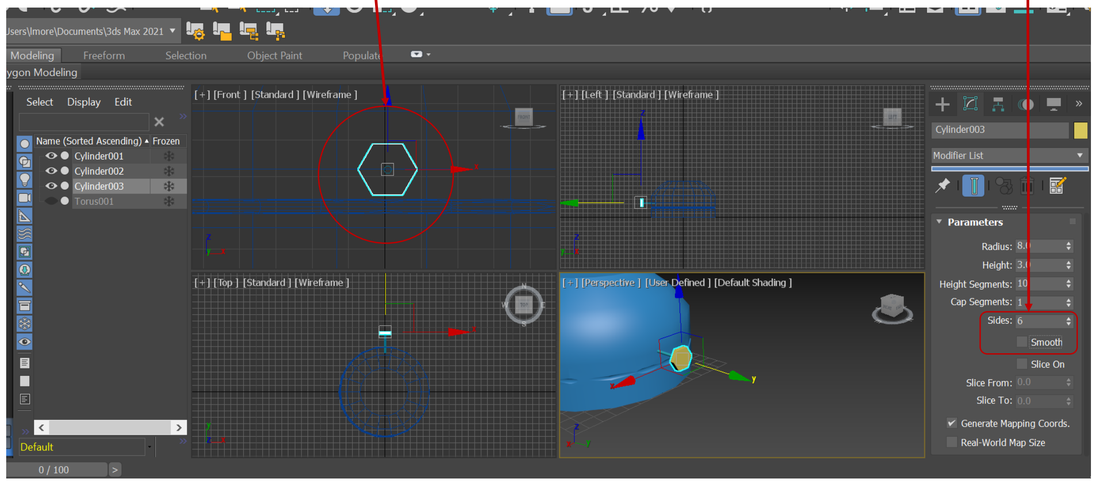
Afunilamento do cilindro nos últimos 5 cm:

- Modify List : TAPER
- Limit Efects: Lower = 50 e Uper = 80
- Taper: Amount = -0.5 e Curve = 1.1

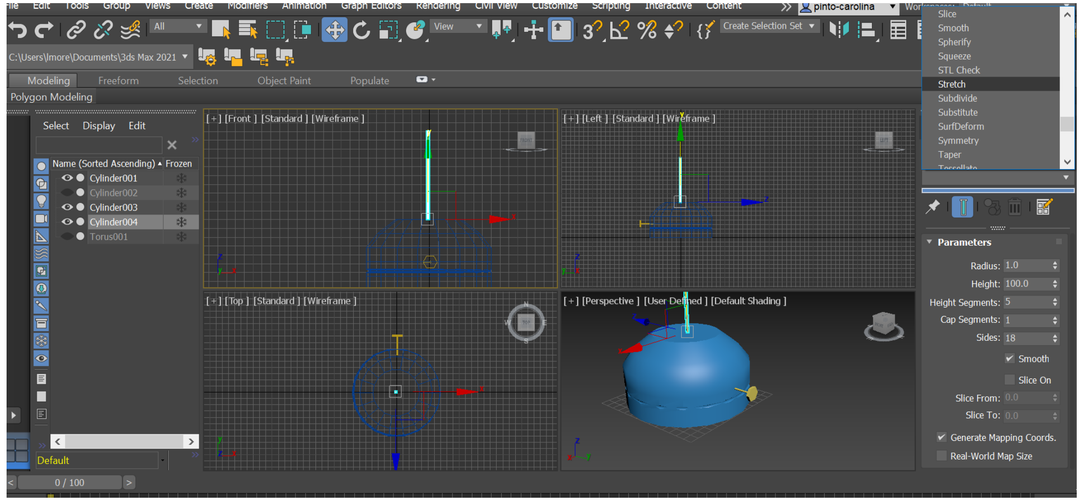


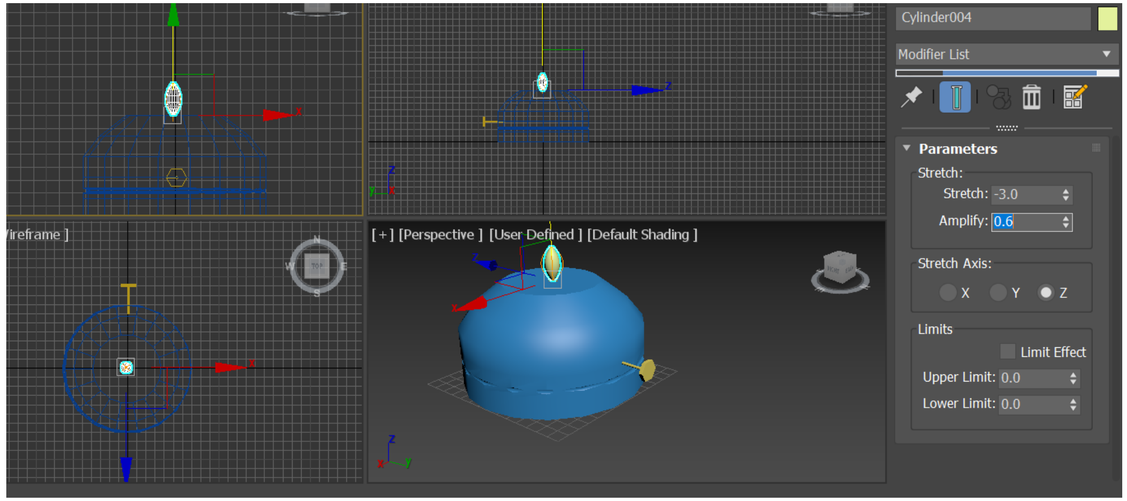
Unir as duas partes do botão



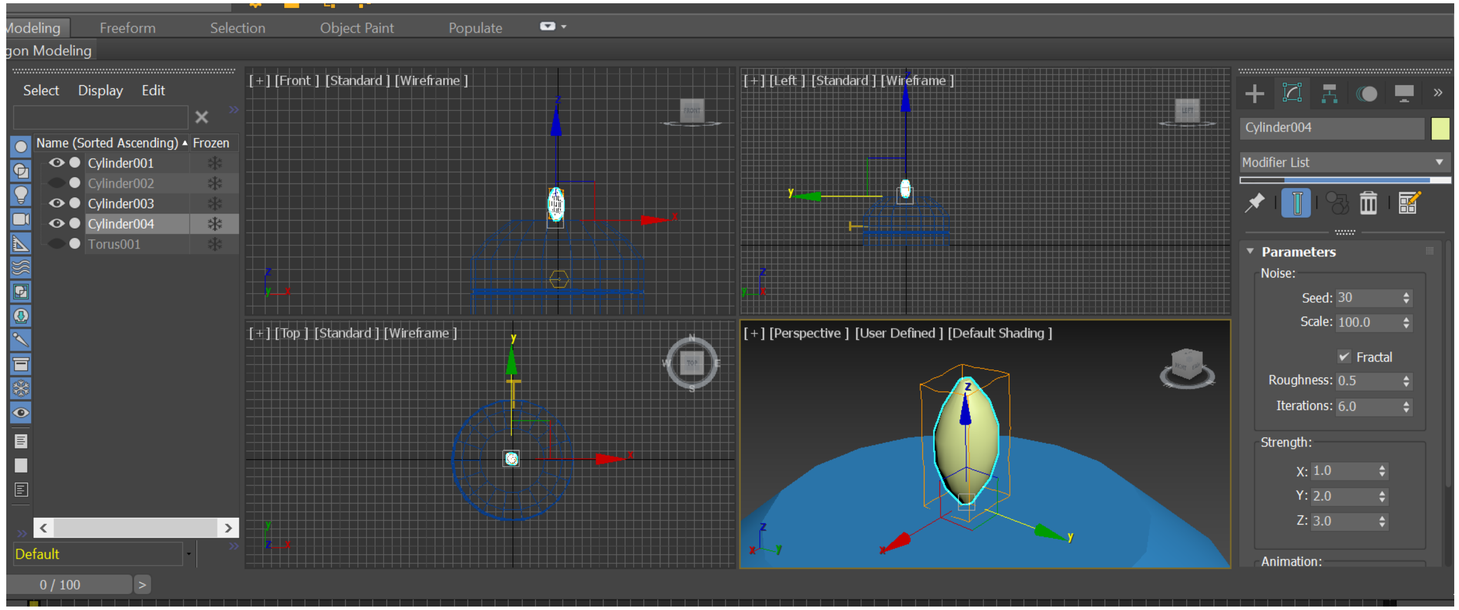


CHAMA



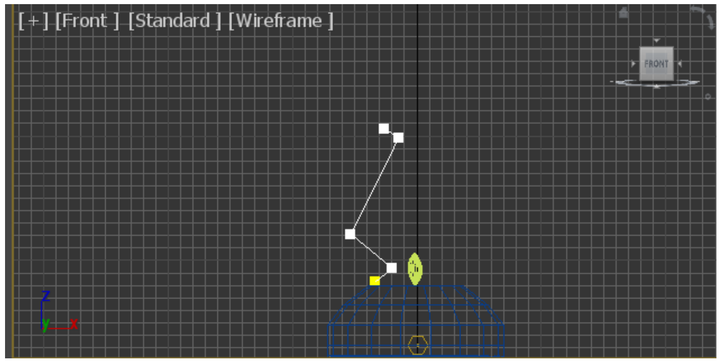


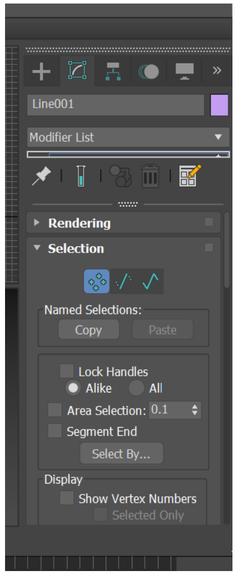
- Criar um cilindro de raio = 1 e altura =100
- Modify List: Stretch
- stretch = - 0.3 e amplify = 0.6
- Modify List: Noise – stregth: x = 1, y = 2 e z = 3, roughness = 0.5, interations = 6, fractal e seed (distribuição dos eixos) = 20 ou idêntico



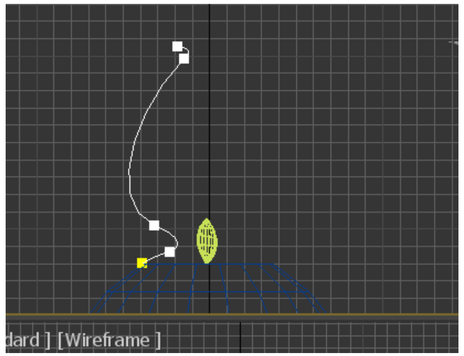
CAMPÂNULA

SPLINE – tentativa de criar as linhas da campânula

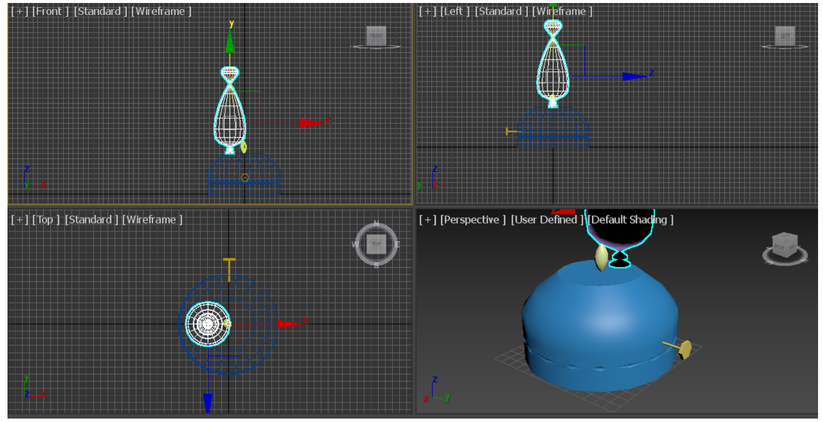




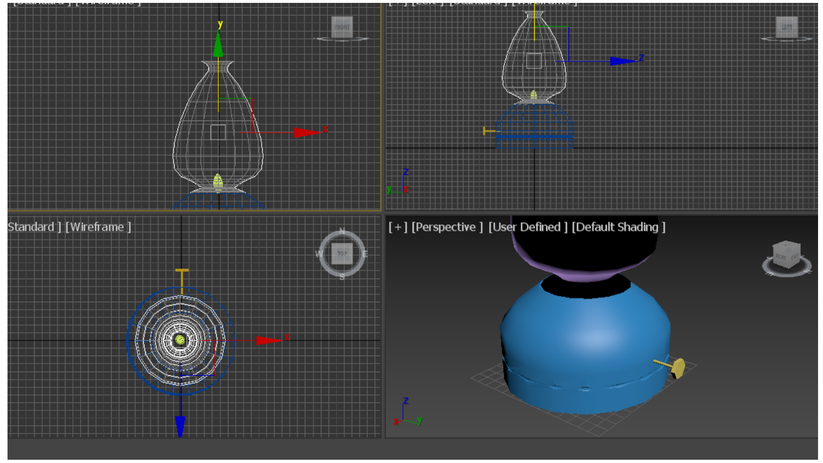
Clicar sobre um vértice no lado direito do rato e posteriormente clicar em BEZIER ou SMOOTH

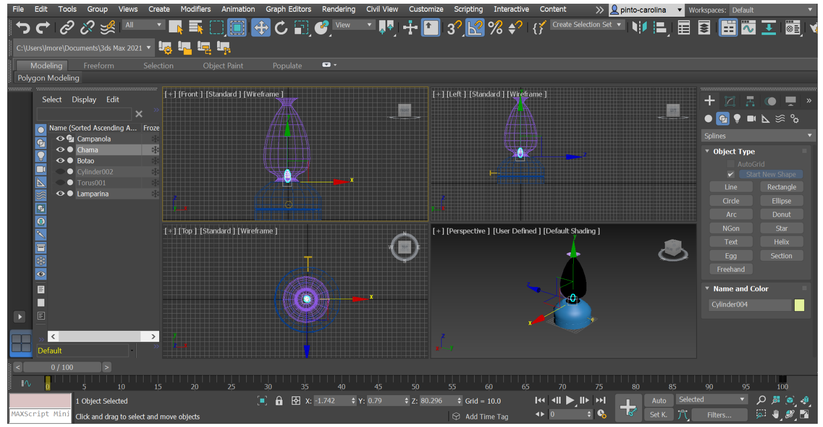


Modify list : LATHE

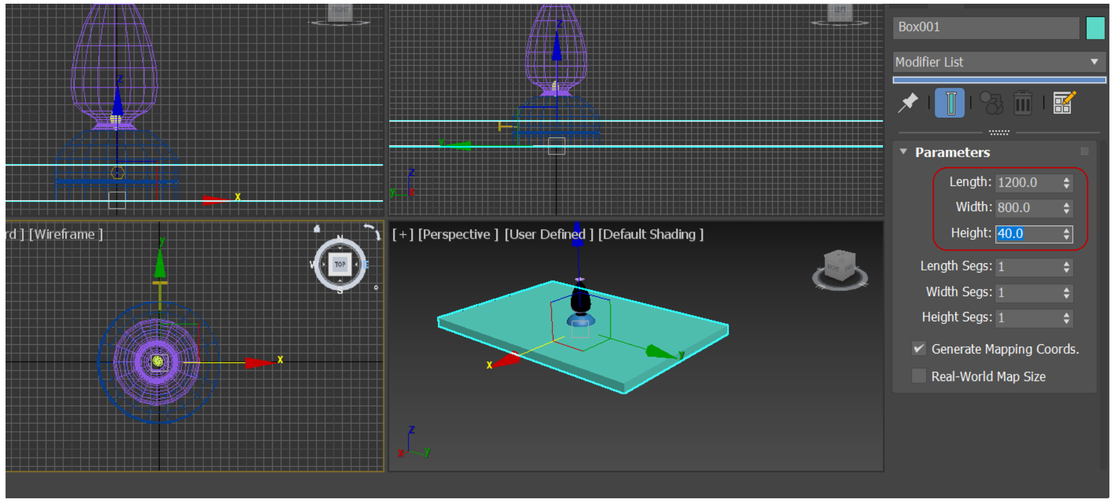


Botão do lado direito do rato - AXIS



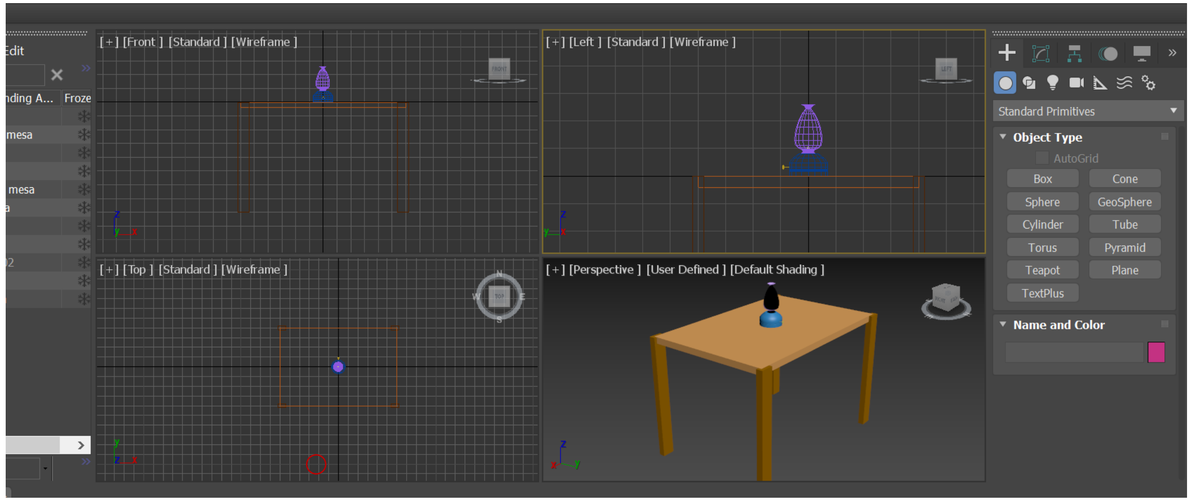


BOX

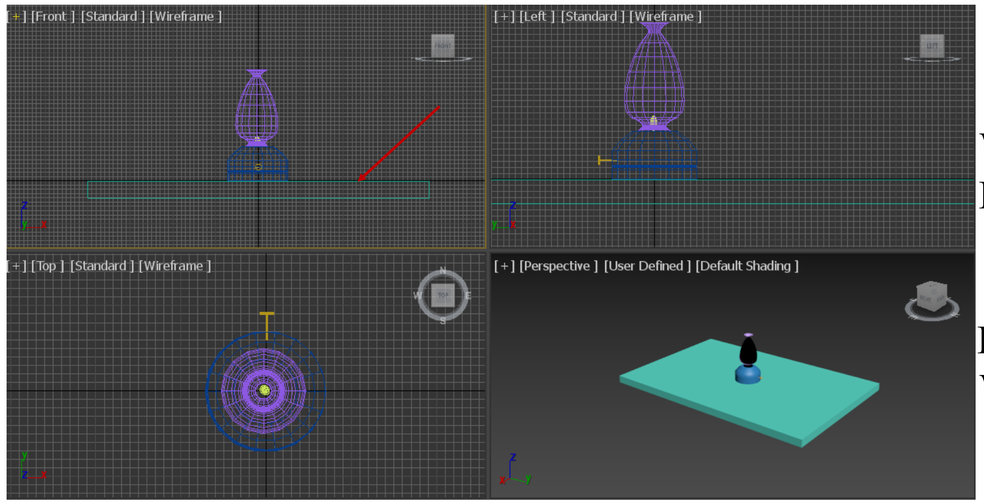


MESA

Pernas da mesa: Lenght = 40 Width = 80 Height = 800



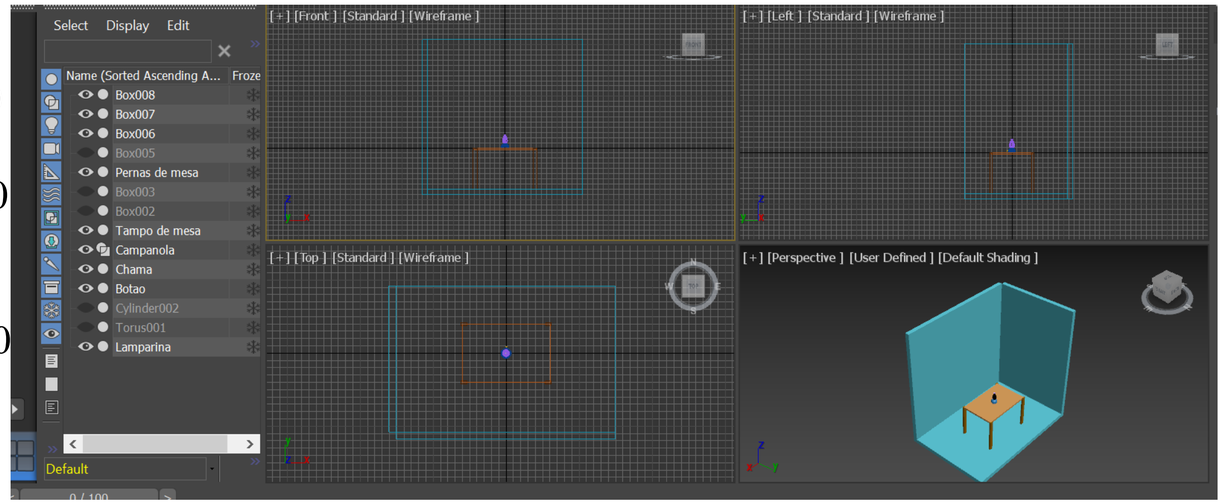
SELECT AND MOVE



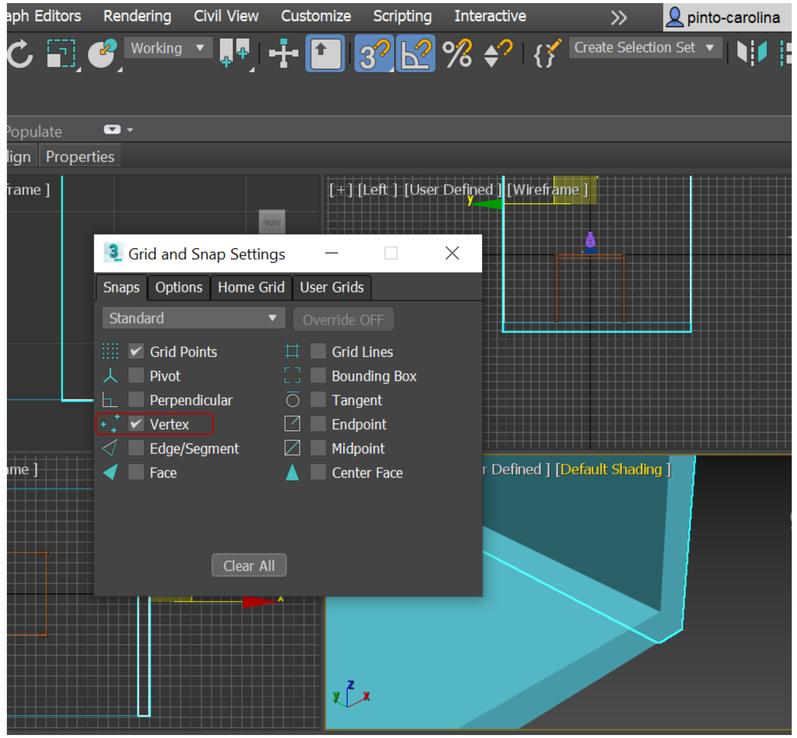
Paredes:
Lenght = 100
Width = 3000
Height = 2500

Chão:
Lenght = 2000
Width = 3000
Height = 100

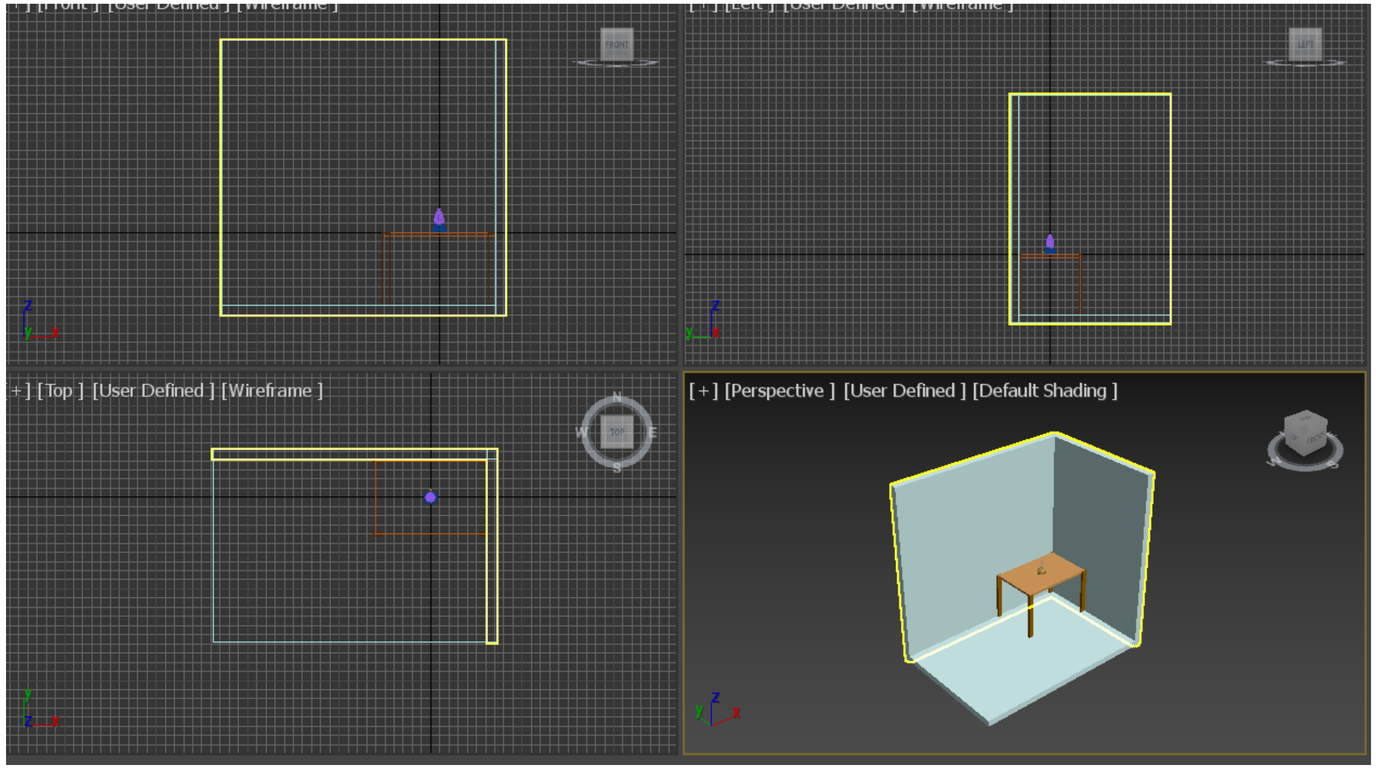
COPIAR: clone ou shift + move



Mostrar vértices: botão lado direito em cima do 



Mover a mesa para o canto: **SELECT AND MOVE**

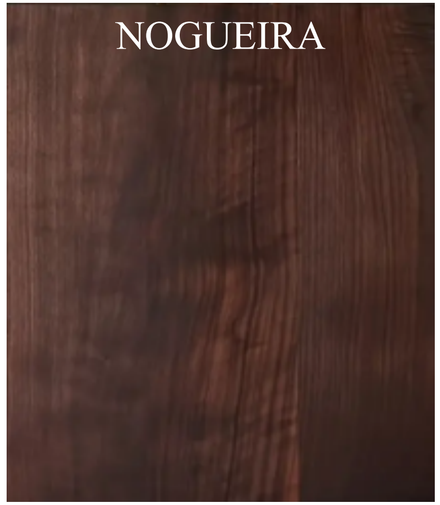


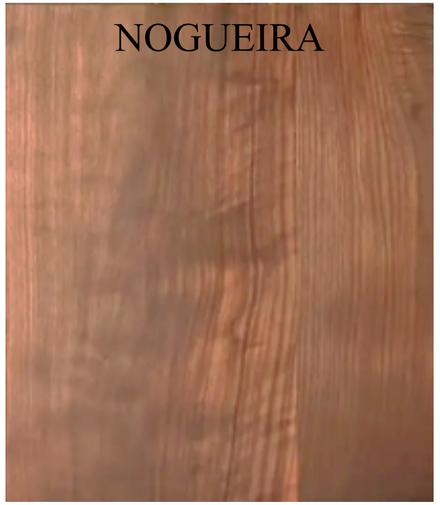
Material editor – compact
Os materiais arrastam-se
Cor, padrão (pigmentação de varias cores , uniforme ou não), textura
Cor: matiz, tonalidade e brilho
Roughness:0.5
Glossiness: 0.99
Transparencia 0.9
01 – vidro
02-latão (amarelo caril)

Google - latão textura chapa

Material base color – general maps – bitmap – procurar foto

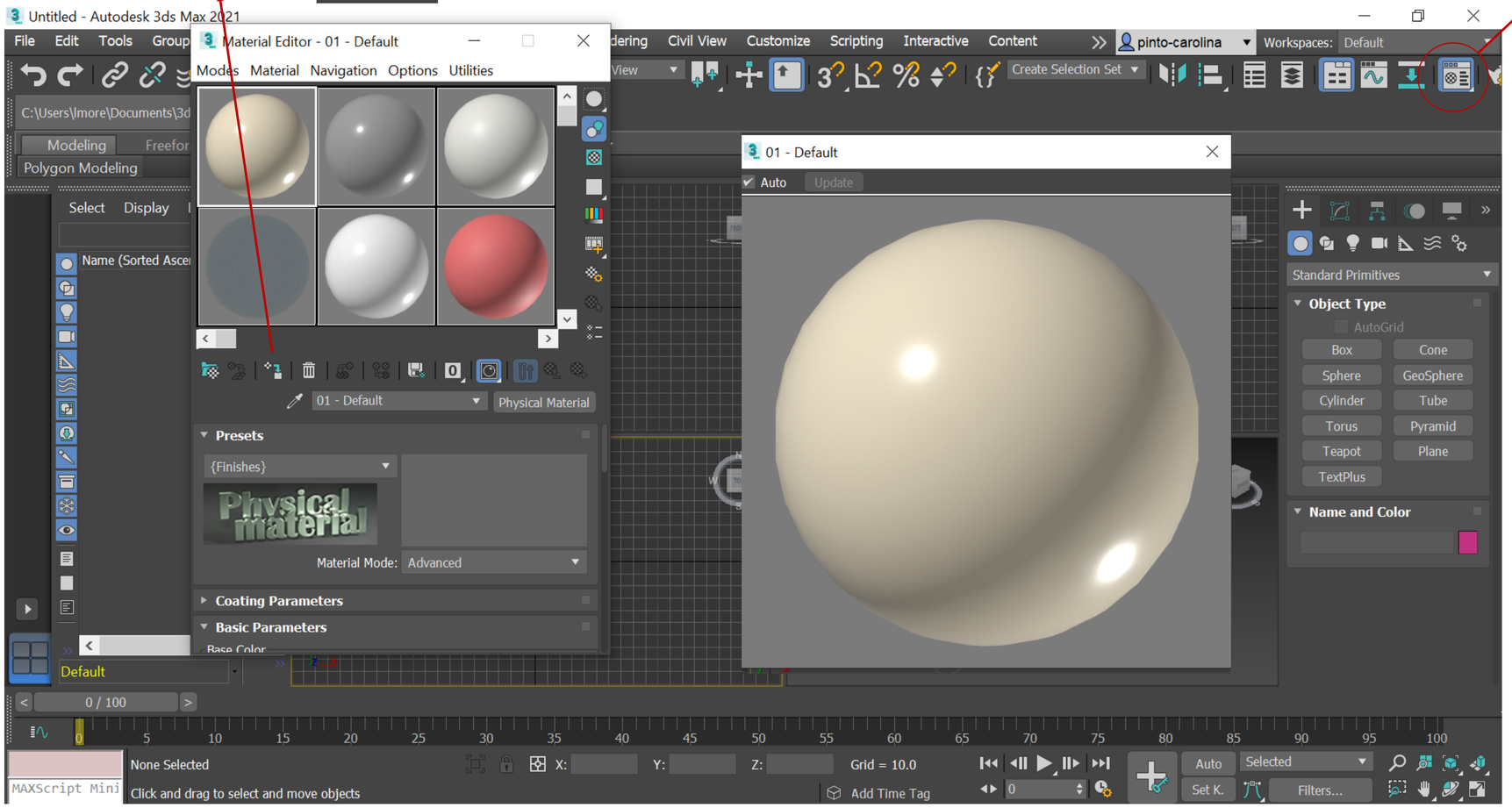
V:1.5
W no bitmap muda os angulos

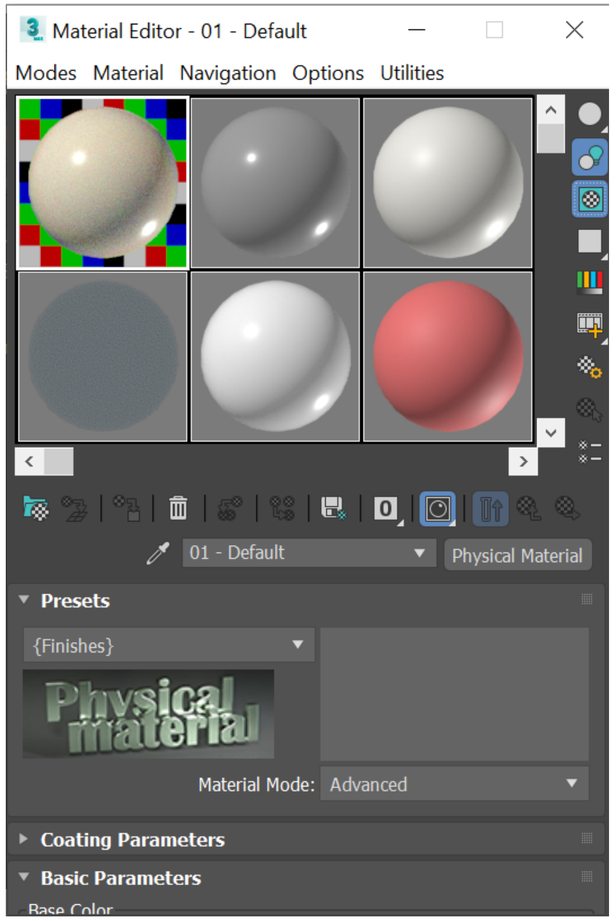




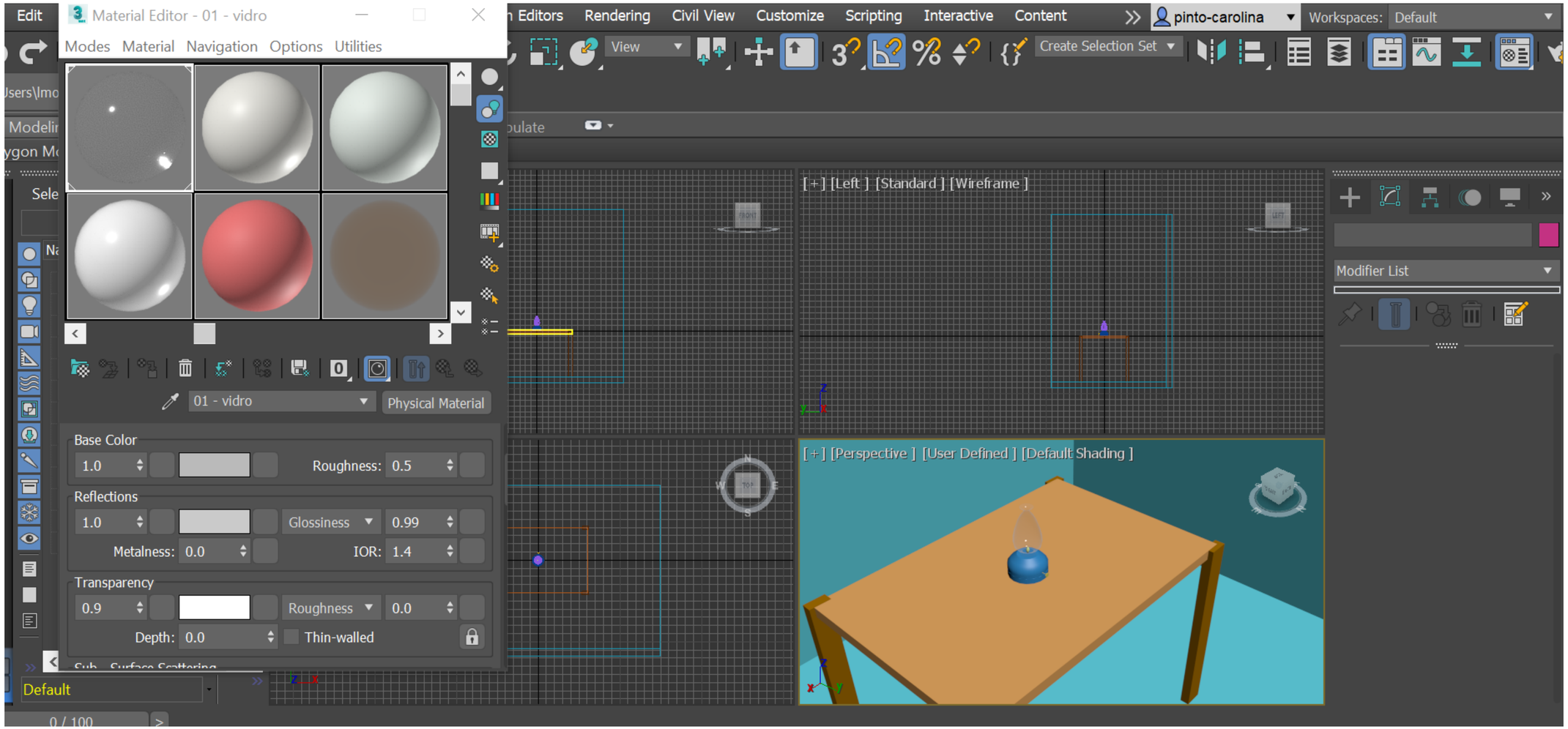
MATERIALIDADE

Aplicar nos objetos selecionados

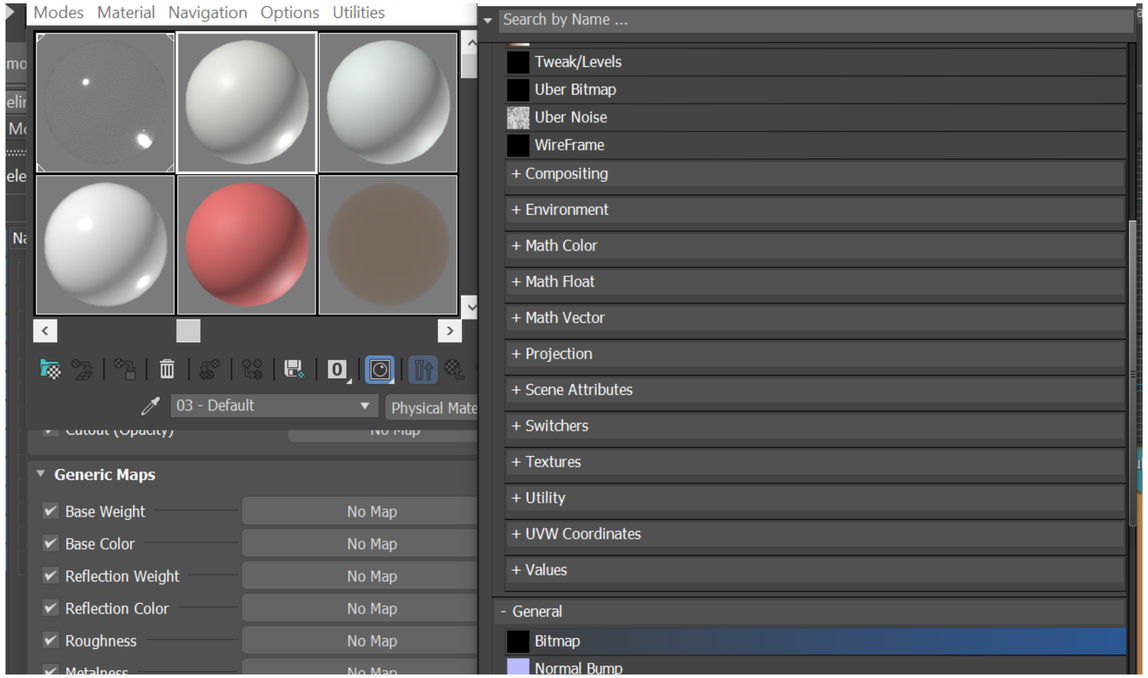




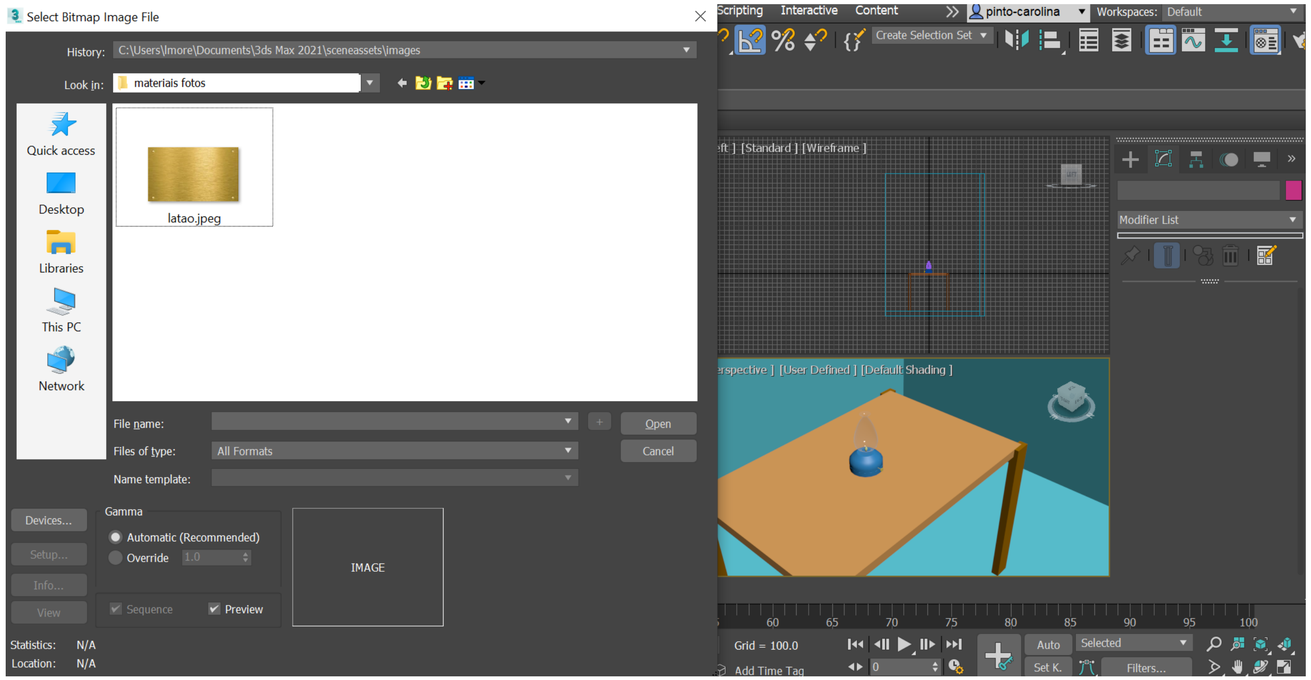
VIDRO


Material Editor - 01 - vidro
Modes Material Navigation Options Utilities
01 - vidro
Physical Material
Base Color
1.0
Roughness: 0.5
Reflections
1.0
Glossiness 0.99
Metalness: 0.0
IOR: 1.4
Transparency
0.9
Roughness 0.0
Depth: 0.0
Thin-walled
Default
[+] [Left] [Standard] [Wireframe]
[+] [Perspective] [User Defined] [Default Shading]
Modifier List
Create Selection Set
Workspaces: Default

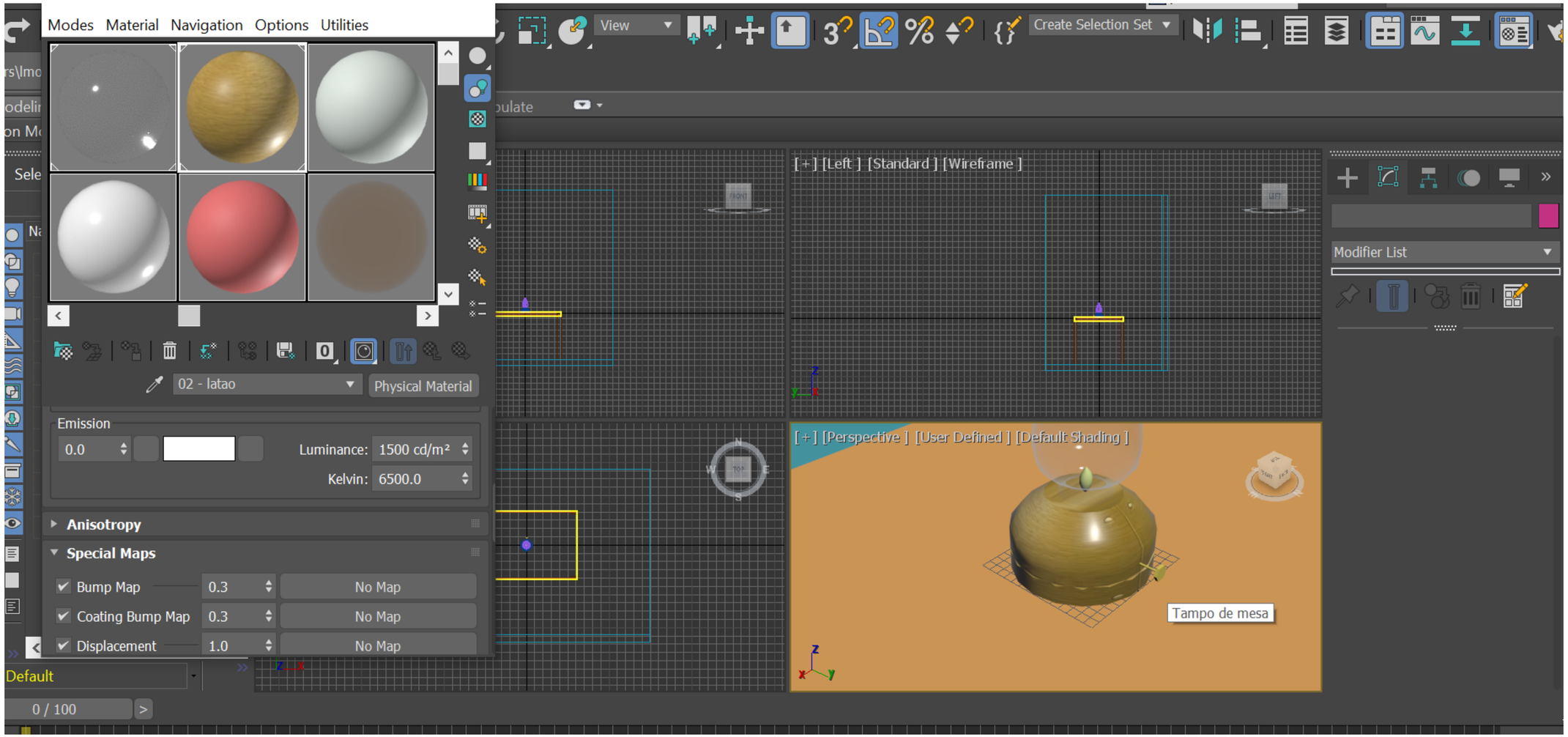
GENERAL MAPS - BASE COLOR - BITMAP



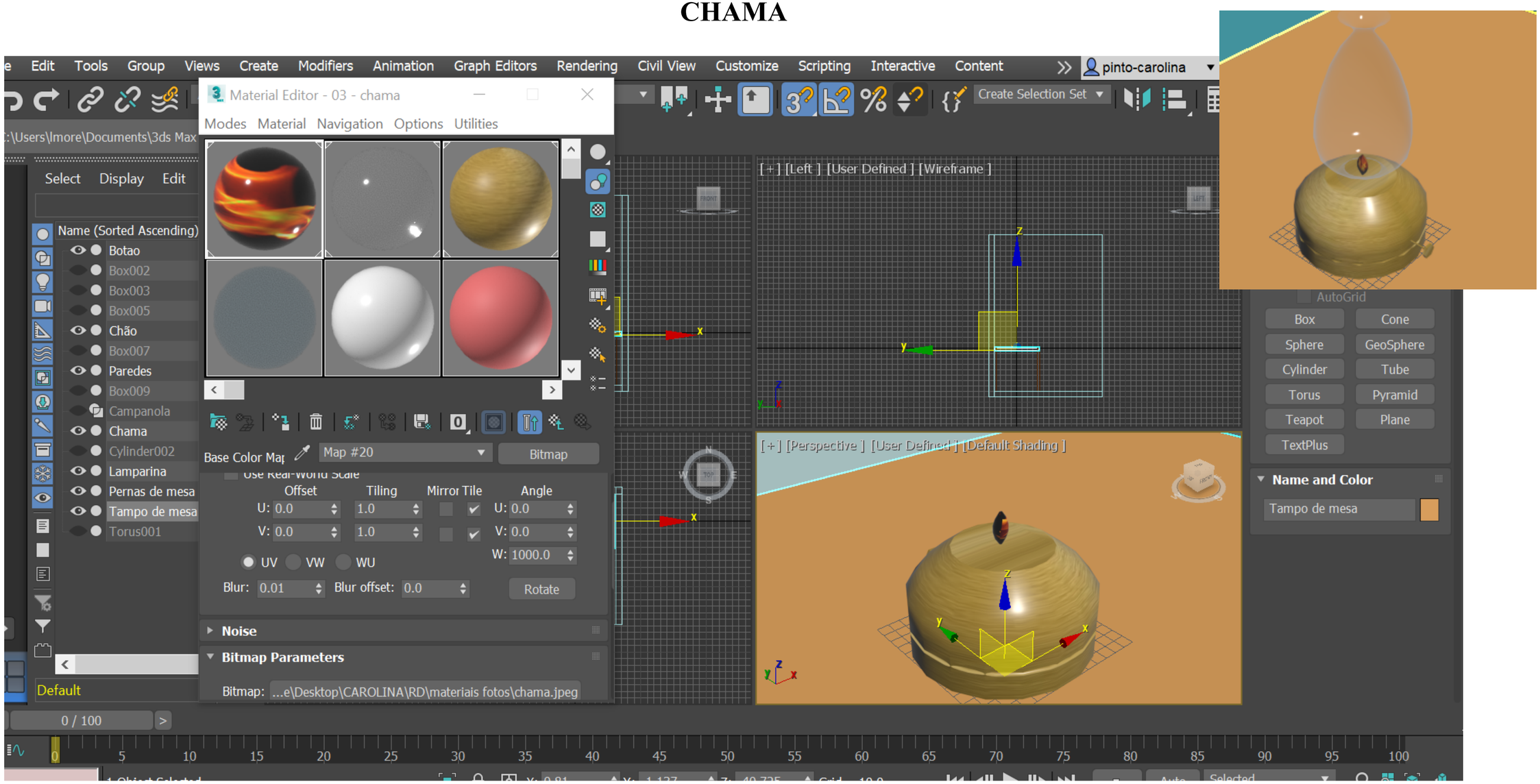
IR BUSCAR IMAGENS DE REFERENCIAS DE MATERIAIS



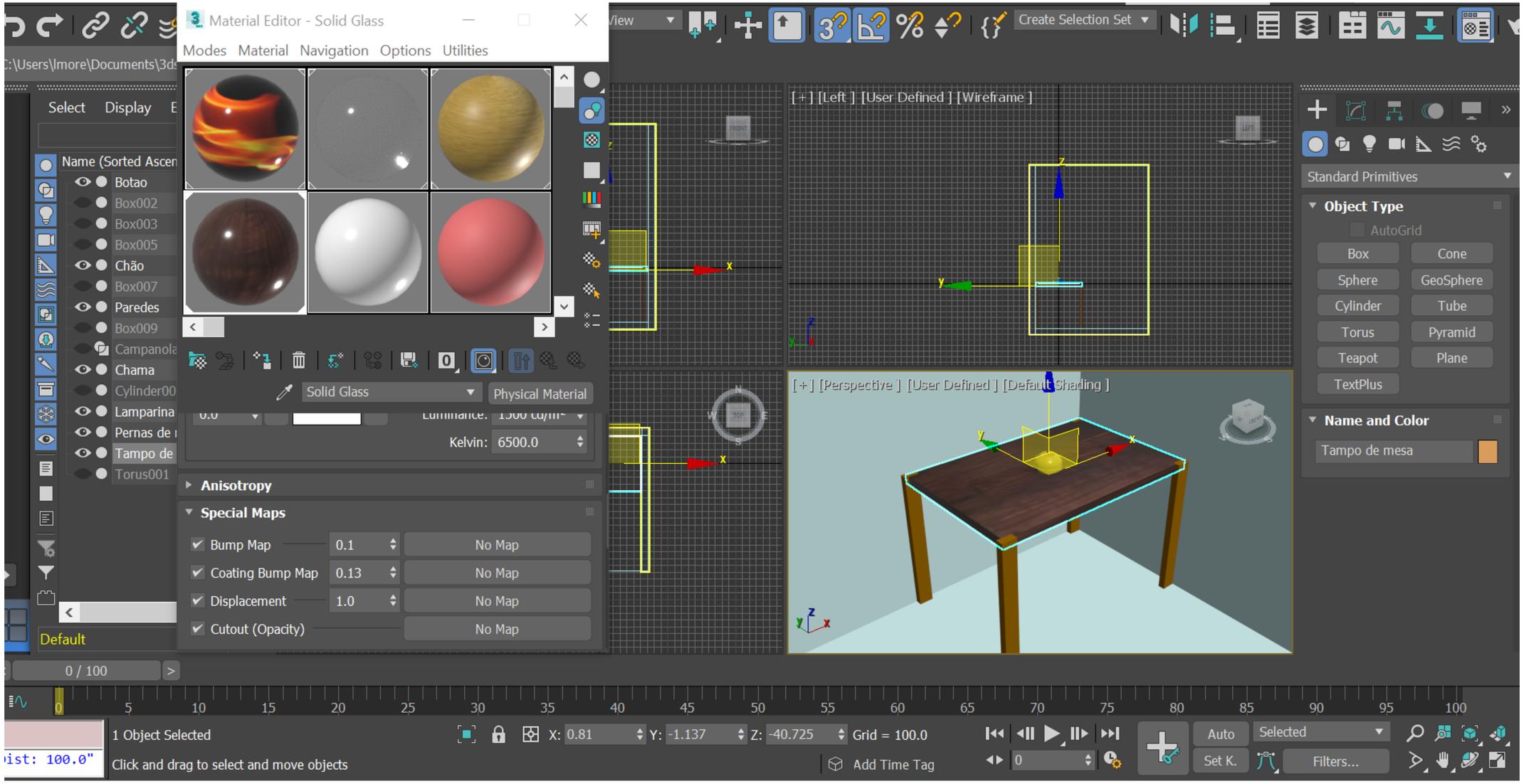
LATÃO


Modes Material Navigation Options Utilities
View
Create Selection Set
[+] [Left] [Standard] [Wireframe]
Modifier List
02 - latao
Physical Material
Emission
0.0
Luminance: 1500 cd/m²
Kelvin: 6500.0
Anisotropy
Special Maps
Bump Map 0.3 No Map
Coating Bump Map 0.3 No Map
Displacement 1.0 No Map
[+] [Perspective] [User Defined] [Default Shading]
Tampo de mesa
Default
0 / 100

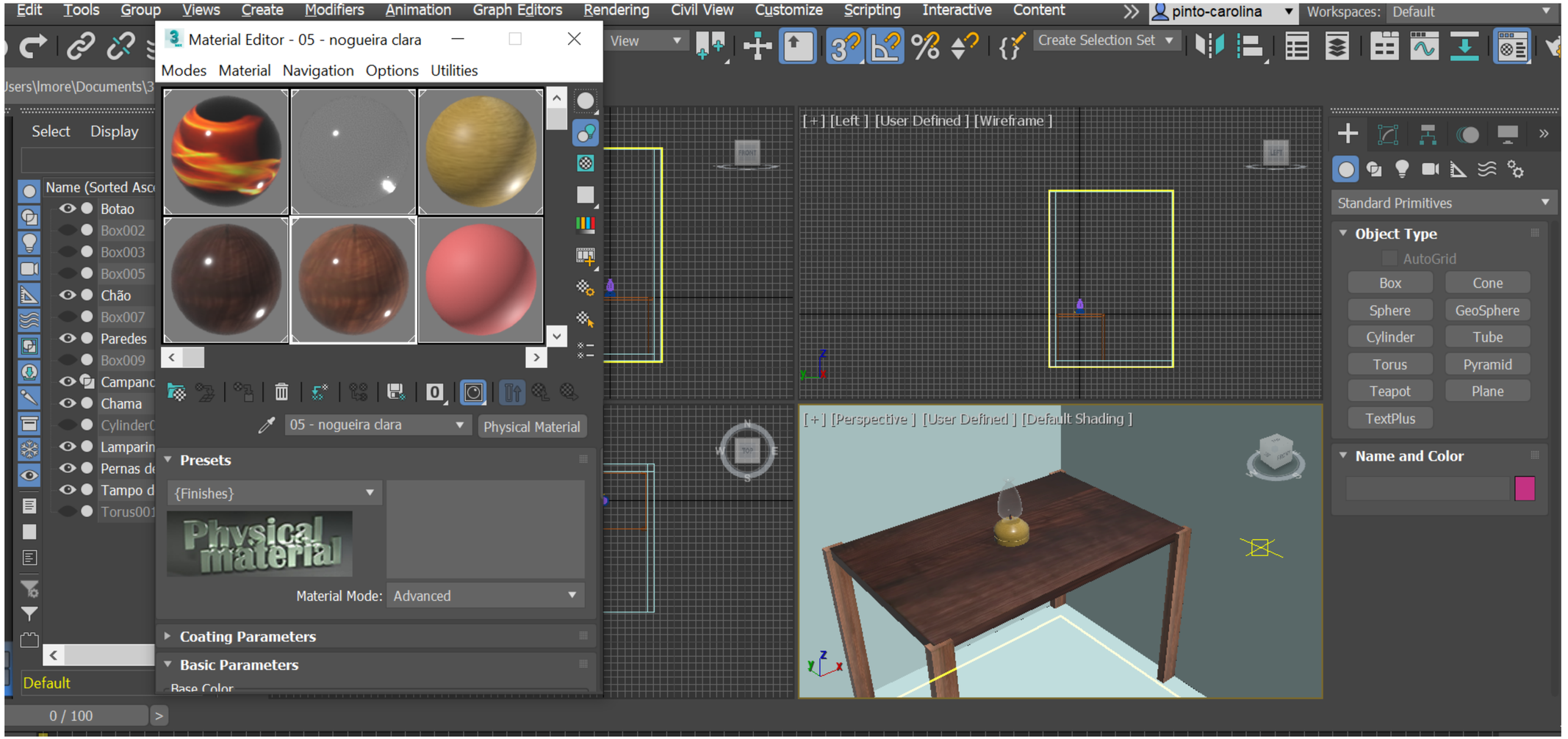
CHAMA


Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Civil View Customize Scripting Interactive Content
pinto-carolina
Material Editor - 03 - chama
Modes Material Navigation Options Utilities
Select Display Edit
Name (Sorted Ascending)
Botao
Box002
Box003
Box005
Chão
Box007
Paredes
Box009
Campanola
Chama
Cylinder002
Lamparina
Pernas de mesa
Tampo de mesa
Torus001
Base Color Map
Map #20
Bitmap
Offset
Tiling
Mirror Tile
Angle
U: 0.0
V: 0.0
1.0
W: 1000.0
UV VW WU
Blur: 0.01
Blur offset: 0.0
Rotate
Noise
Bitmap Parameters
Bitmap: ...e\Desktop\CAROLINA\RD\materiais fotos\chama.jpeg
Default
0 / 100
[+] [Left] [User Defined] [Wireframe]
[+] [Perspective] [User Defined] [Default Shading]
AutoGrid
Box
Cone
Sphere
GeoSphere
Cylinder
Tube
Torus
Pyramid
Teapot
Plane
TextPlus
Name and Color
Tampo de mesa

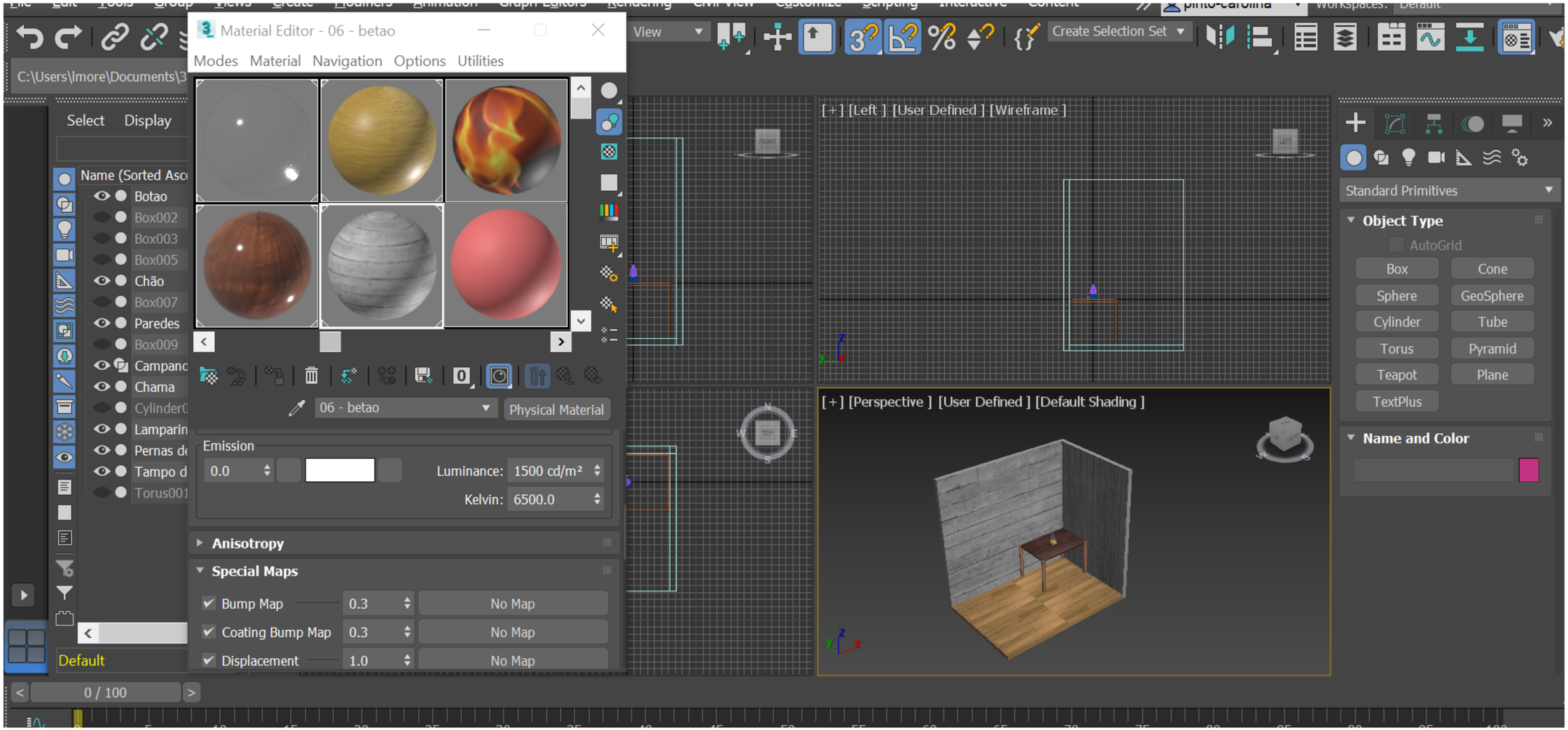
TAMPO DE MESA -NOGUEIRA



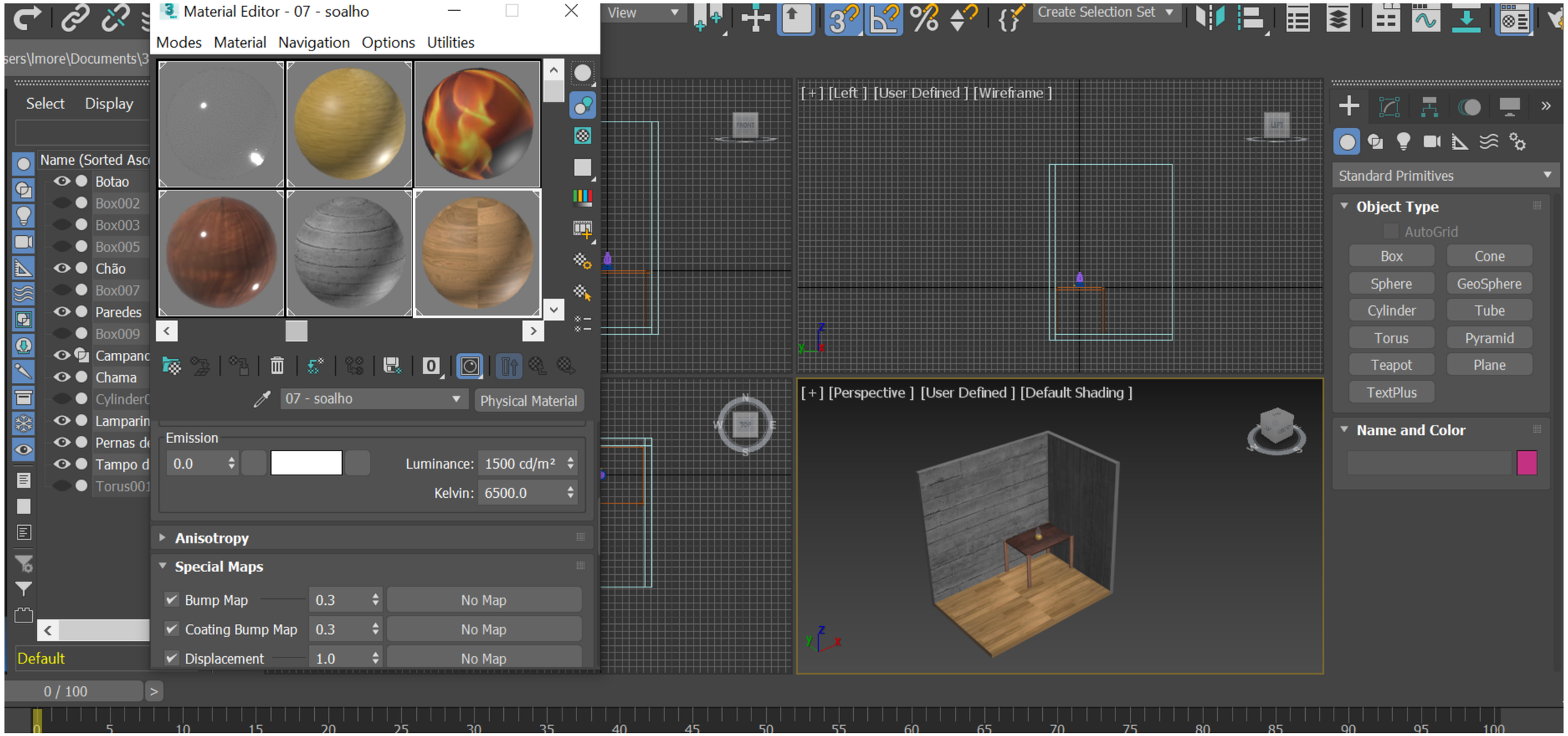
PERNAS DE MESA - NOGUEIRA



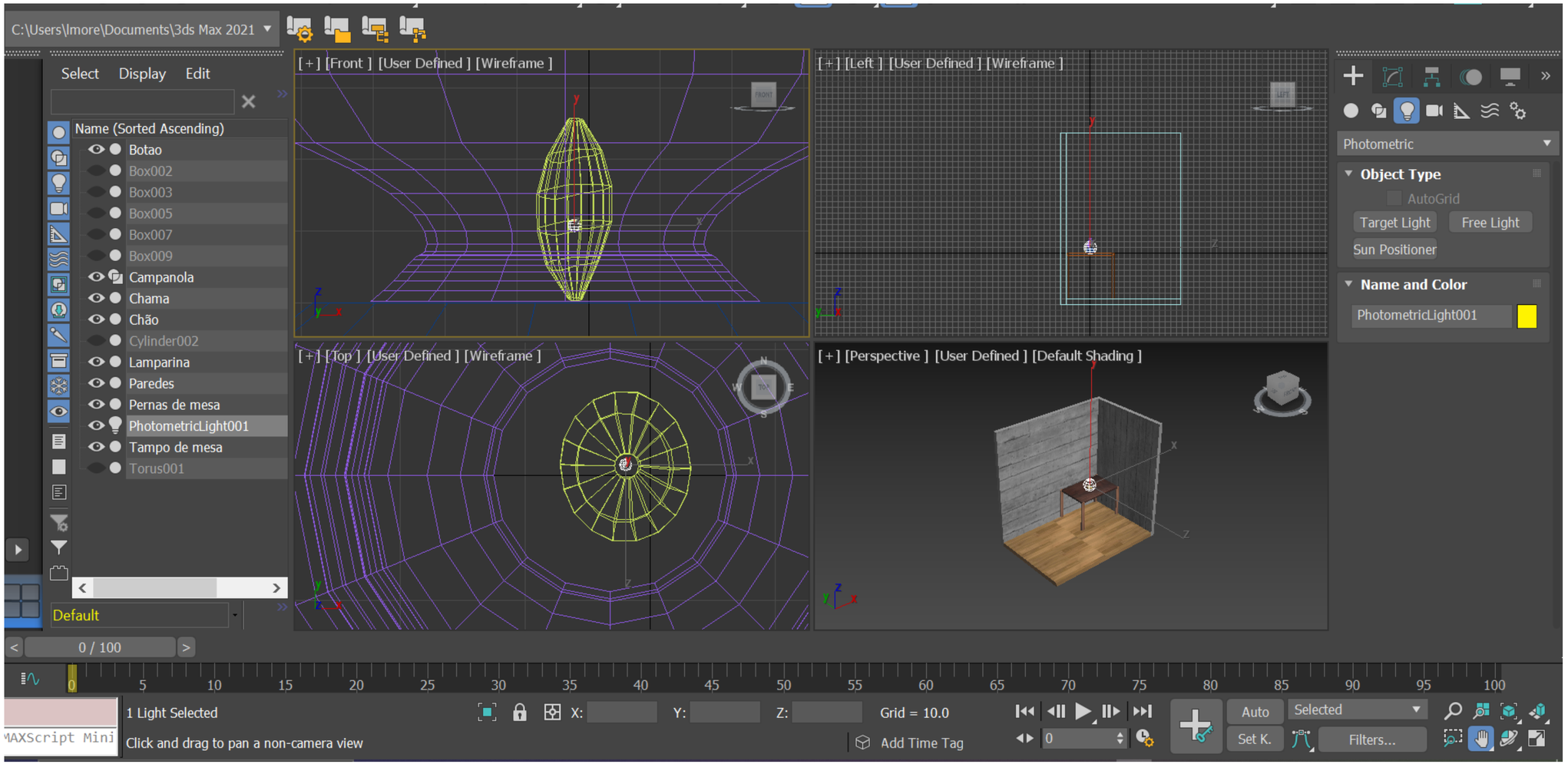
BETÃO


Material Editor - 06 - betao
Modes Material Navigation Options Utilities
06 - betao
Physical Material
Emission
0.0
Luminance: 1500 cd/m²
Kelvin: 6500.0
Anisotropy
Special Maps
Bump Map 0.3 No Map
Coating Bump Map 0.3 No Map
Displacement 1.0 No Map
[+] [Left] [User Defined] [Wireframe]
[+] [Perspective] [User Defined] [Default Shading]
Standard Primitives
Object Type
AutoGrid
Box
Cone
Sphere
GeoSphere
Cylinder
Tube
Torus
Pyramid
Teapot
Plane
TextPlus
Name and Color
Botao
Box002
Box003
Box005
Chão
Box007
Paredes
Box009
Default
0 / 100

SOALHO

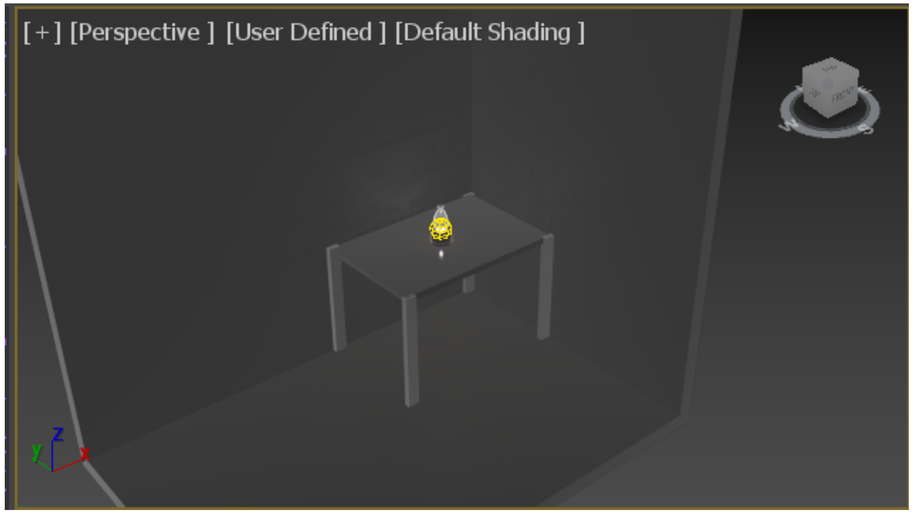

Material Editor - 07 - soalho
Modes Material Navigation Options Utilities
07 - soalho
Physical Material
Emission
0.0
Luminance: 1500 cd/m²
Kelvin: 6500.0
Anisotropy
Special Maps
Bump Map 0.3 No Map
Coating Bump Map 0.3 No Map
Displacement 1.0 No Map
Select Display
Name (Sorted Asc
Botao
Box002
Box003
Box005
Chão
Box007
Paredes
Box009
Chama
Default
0 / 100
[+] [Left] [User Defined] [Wireframe]
[+] [Perspective] [User Defined] [Default Shading]
Create Selection Set
Standard Primitives
Object Type
AutoGrid
Box
Cone
Sphere
GeoSphere
Cylinder
Tube
Torus
Pyramid
Teapot
Plane
TextPlus
Name and Color

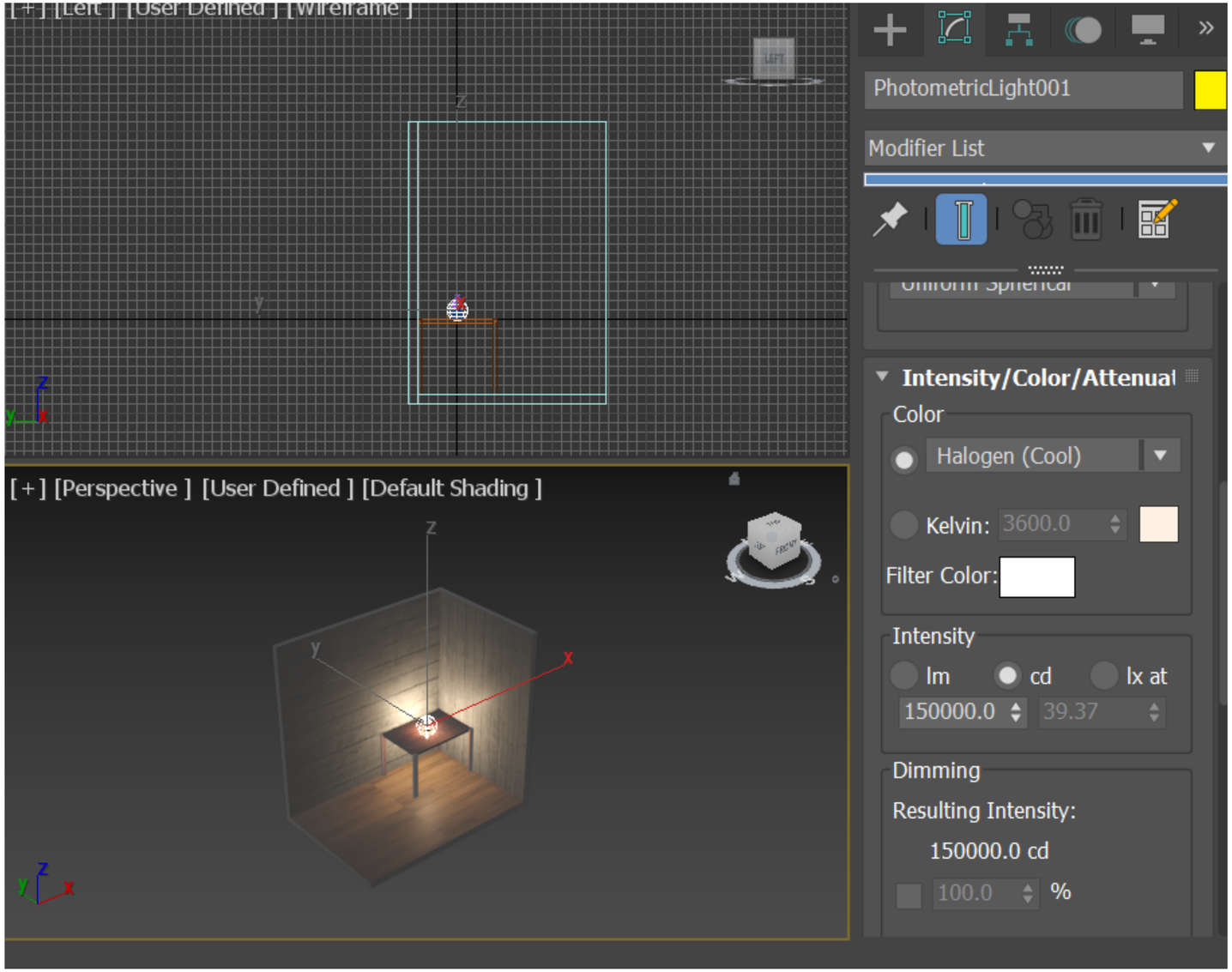
COLOCAR LUZ NA CHAMA



PHOTOMETIRC

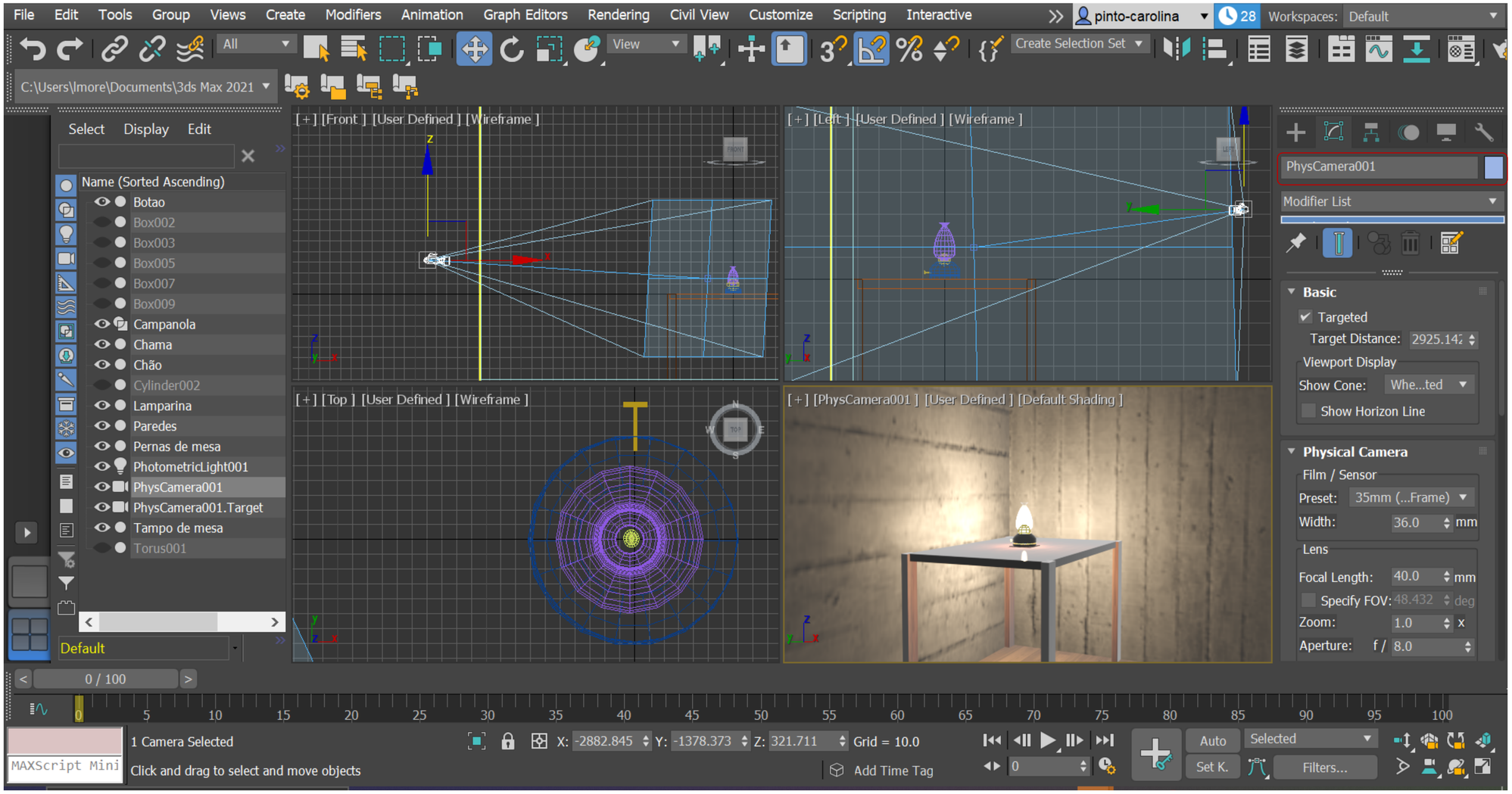
FREELIGHT
(luz para todos os sentidos)
TARGET LIGHT
(incidência de luz especifica)

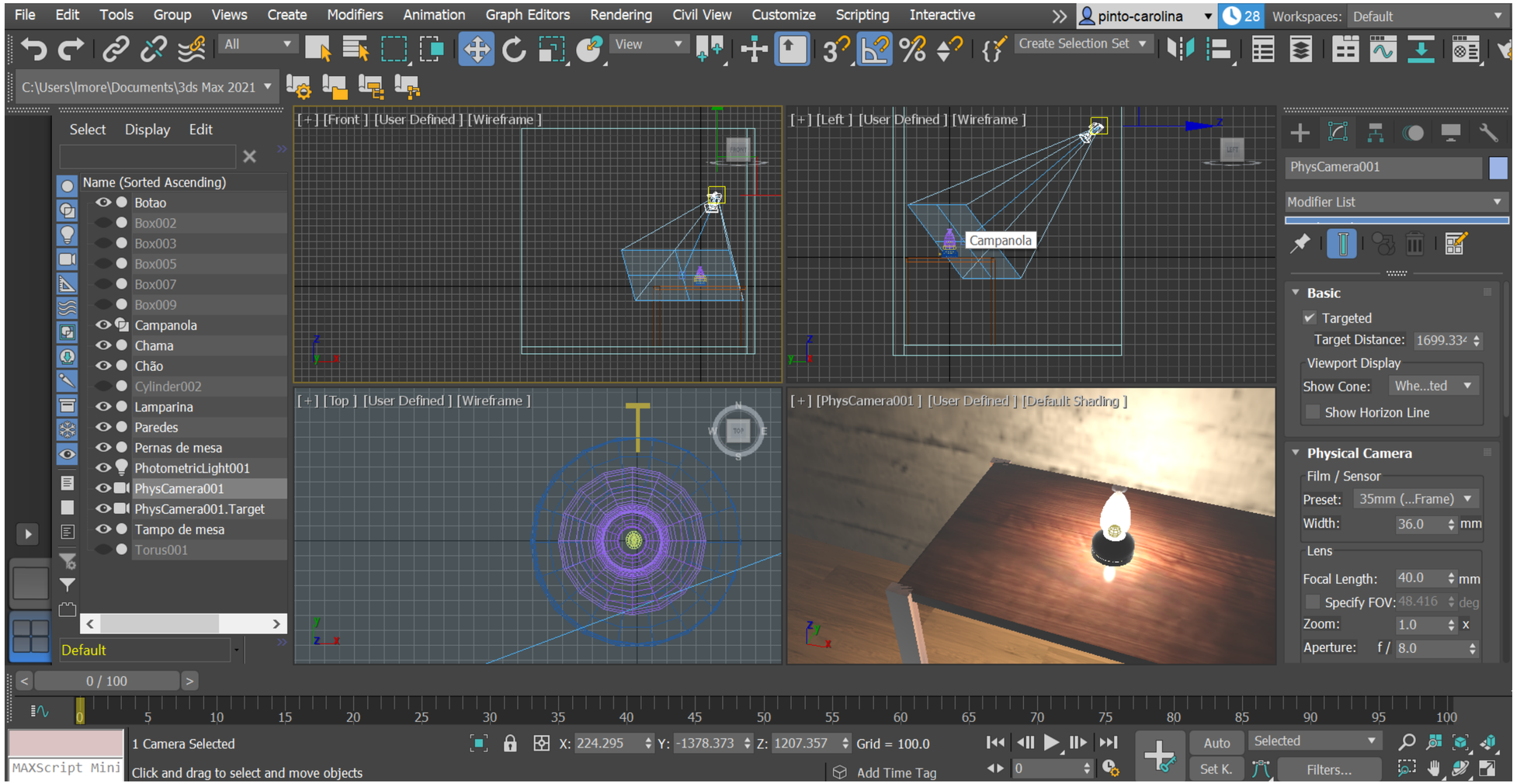




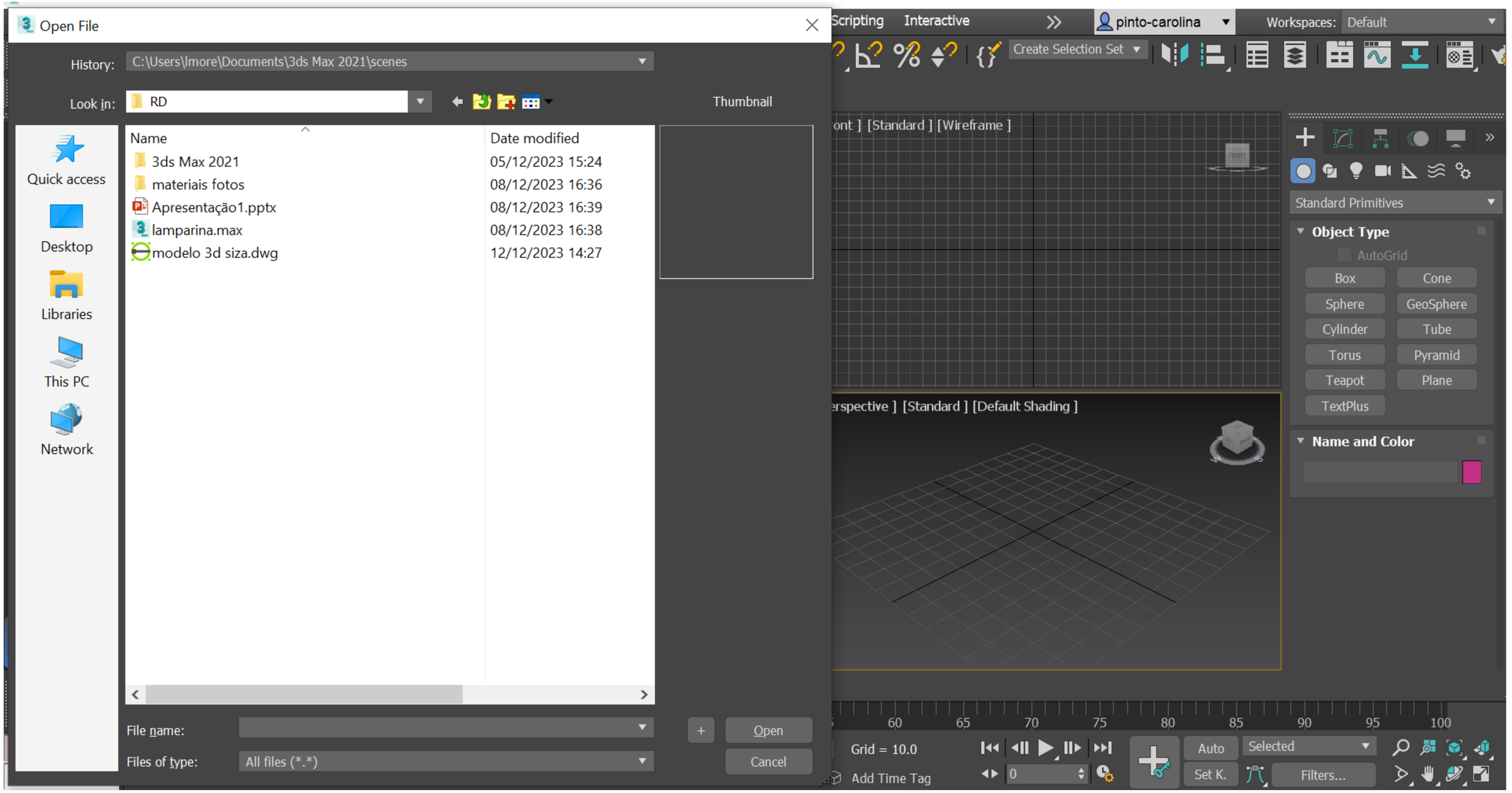
MODIFY LIST:
COLOR: Halogen (Cool) ou à escolha
INTENSITY: 150000 ou à escolha tendo em conta qual é o objetivo

CAMERA (FOCO DA IMAGEM / REDER)




File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Civil View Customize Scripting Interactive
pinto-carolina
Workspaces: Default
C:\Users\lmore\Documents\3ds Max 2021
Select Display Edit
Name (Sorted Ascending)
Botao
Box002
Box003
Box005
Box007
Box009
Campanola
Chama
Chão
Cylinder002
Lamparina
Paredes
Pernas de mesa
PhotometricLight001
PhysCamera001
PhysCamera001.Target
Tampo de mesa
Torus001
Default
[+] [Front] [User Defined] [Wireframe]
[+] [Left] [User Defined] [Wireframe]
Campanola
[+] [Top] [User Defined] [Wireframe]
[+] [PhysCamera001] [User Defined] [Default Shading]
PhysCamera001
Modifier List
Basic
Targeted
Target Distance:
Viewport Display
Show Cone:
Show Horizon Line
Physical Camera
Film / Sensor
Preset:
Width:
Lens
Focal Length:
Specify FOV:
Zoom:
Aperture:
0 / 100
1 Camera Selected
X: 224.295
Y: -1378.373
Z: 1207.357
Grid = 100.0
Auto
Selected
Set K.
Filters...
MAXScript Mini
Click and drag to select and move objects
Add Time Tag

ADICIONAR UM FICHEIRO AUTOCAD (DWG)



PASSAR TODAS AS LAYER OU APENAS PASSAR OBJETOS OU PASSAR LAYER INDIVIDUAIS