

20221006

GIOVANNA MARIA MENEGHEL DE ALMEIDA



UNIVERSIDADE  
DE LISBOA



FACULDADE DE ARQUITETURA  
UNIVERSIDADE DE LISBOA

Representação  
Digital

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

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# CRIANDO O SITE

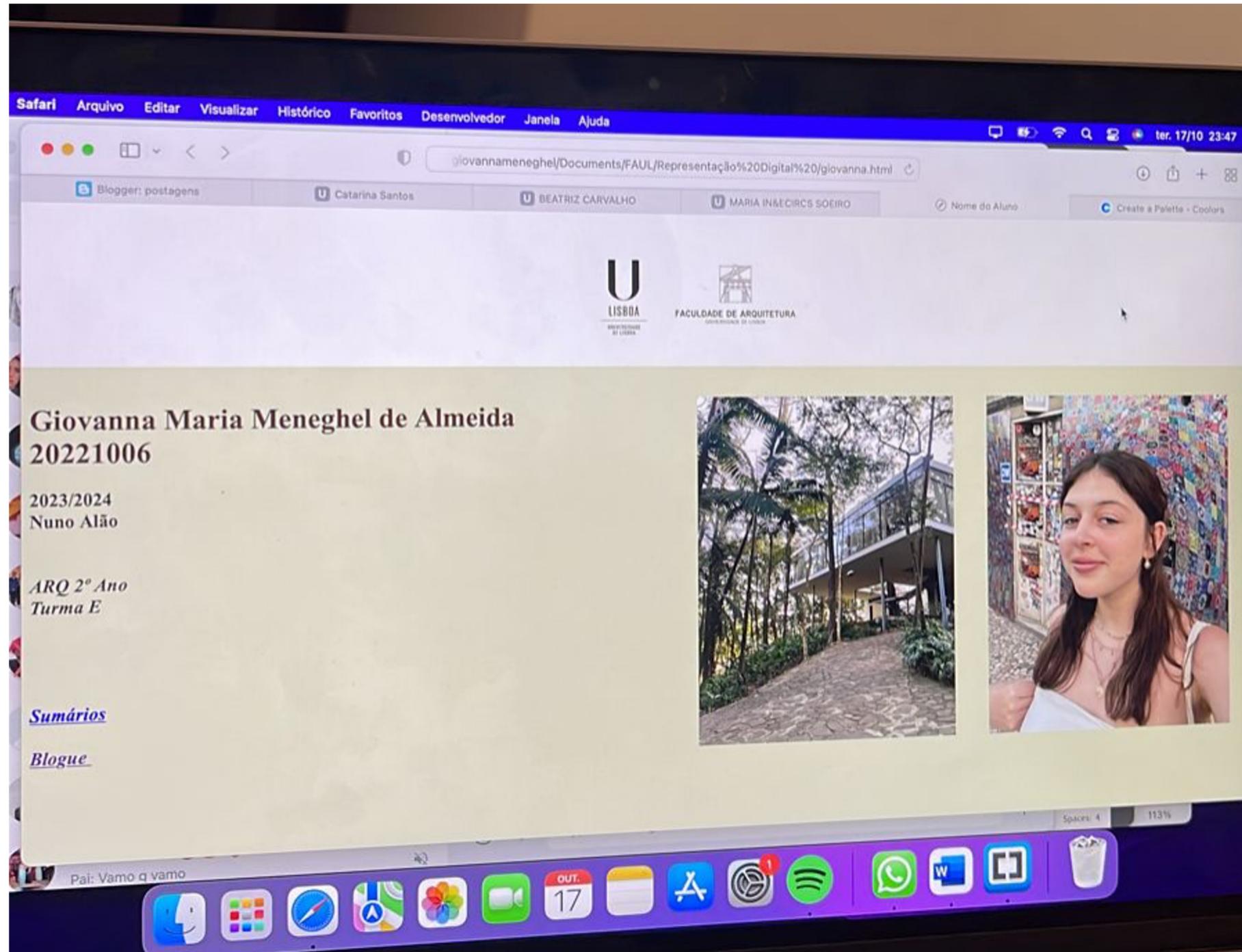
- Programa BRACKETS (mac)
- Baixar arquivo *ficha.html* enviado pelo gmail
- Dará acesso ao código, aonde alteramos para nosso dados
- Adicionar: 1 foto de rosto e pelo menos 1 foto de arquitetura

# BRACKETS

## Comando para por acento

- **Ú**      *&\_acute;*;
- **À**      *&\_grave;*;
- **Ê**      *&\_circ;*;
- **Õ**      *&\_tilde;*;
- **1º** *1&ordm;*;
- **2ª** *2&ordf;*;

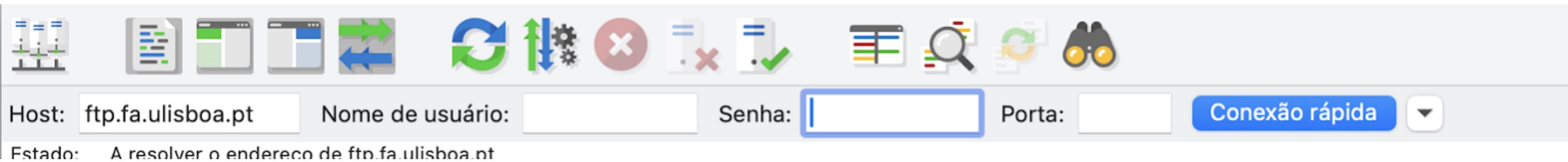
PARA ADICIONAR IMAGEM, O ARQUIVO TEM DE ESTAR NA MESMA PASTA QUE O ARQUIVO HTML



```
38 <div id="foto" style="position:absolute; top:50px; left:300px; width:315px; height:50px; z-index:0 ; margin-
    left:300px;margin-bottom: 150px">
39
40 </div>
41 <div class="quadro">
42
43 <br>
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56 </div>
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67 <a href="http://www.fa.ulisboa.pt/">Faculdade de Arquitetura - ULisboa </a>
68 </fa>
69 </div>
70 <br>
71 <br>
72 2023/2024
73 <br>
74 <a href="http://home.fa.ulisboa.pt/~nunoalao">Nuno Al&atilde;o</a>
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77 <h1><b>Giovanna Maria Meneghel de Almeida </b><br>20221006</h1>
78 <h3>
79 <font color="black"> <i>
80 <br>
81 ARQ 2&ordm; Ano <br>
82 Turma E
83 <br>
```

# FILEZILLA

- Baixar aplicação para por o site online
- Para ter acesso á plataforma da faculdade:



- Nome de usuário: numero de aluno
- Senha: do moodle
- CRIAR PASTA PUBLIC\_HTML

# AUTOCAD

## Cordenadas:

- Cartesianas (x,y)
- Polares
- Absoluta #
- Relativas @

# Comandos Autocad

L – *LINE*

PL- *POLYLINE*

COPY

M – *MOVE*

*CHPROP* : Mudar as propriedades, como da camada etc

ROTATE – *rodar sobre um ponto*

HATCH – Preencher

DTEXT – *Escrever*

Z- *Zoom*

E – Extend, *extender uma linha até outra*

ALIGN – *alinhar algo a algo*

MIRROR - *espelhar*

List – *saber sobre a linha*

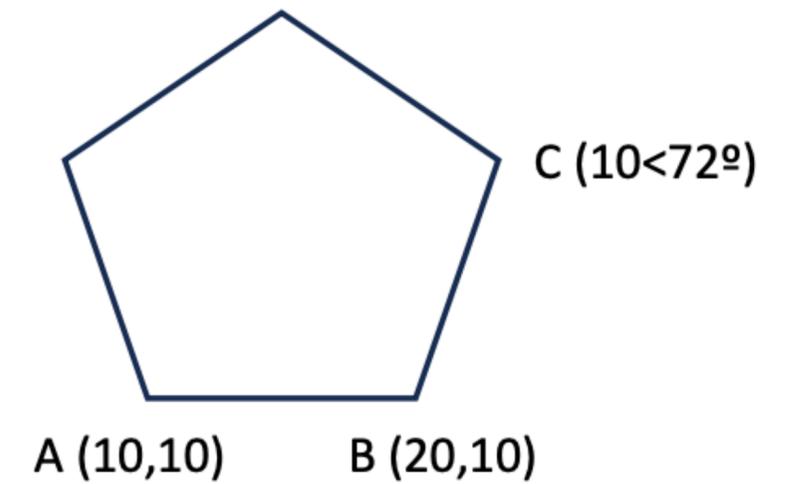
STRETCH

EXTEND

SCALE

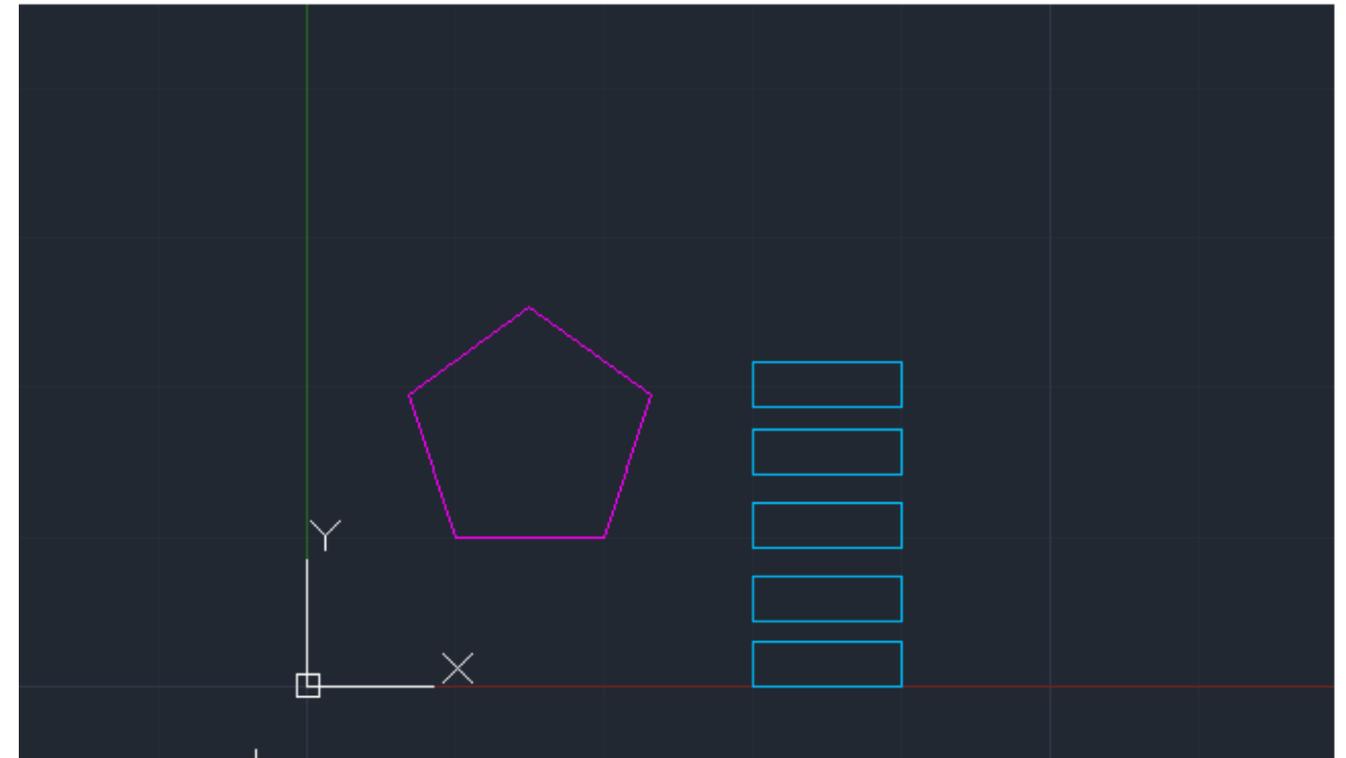
# PENTAGÓNOS

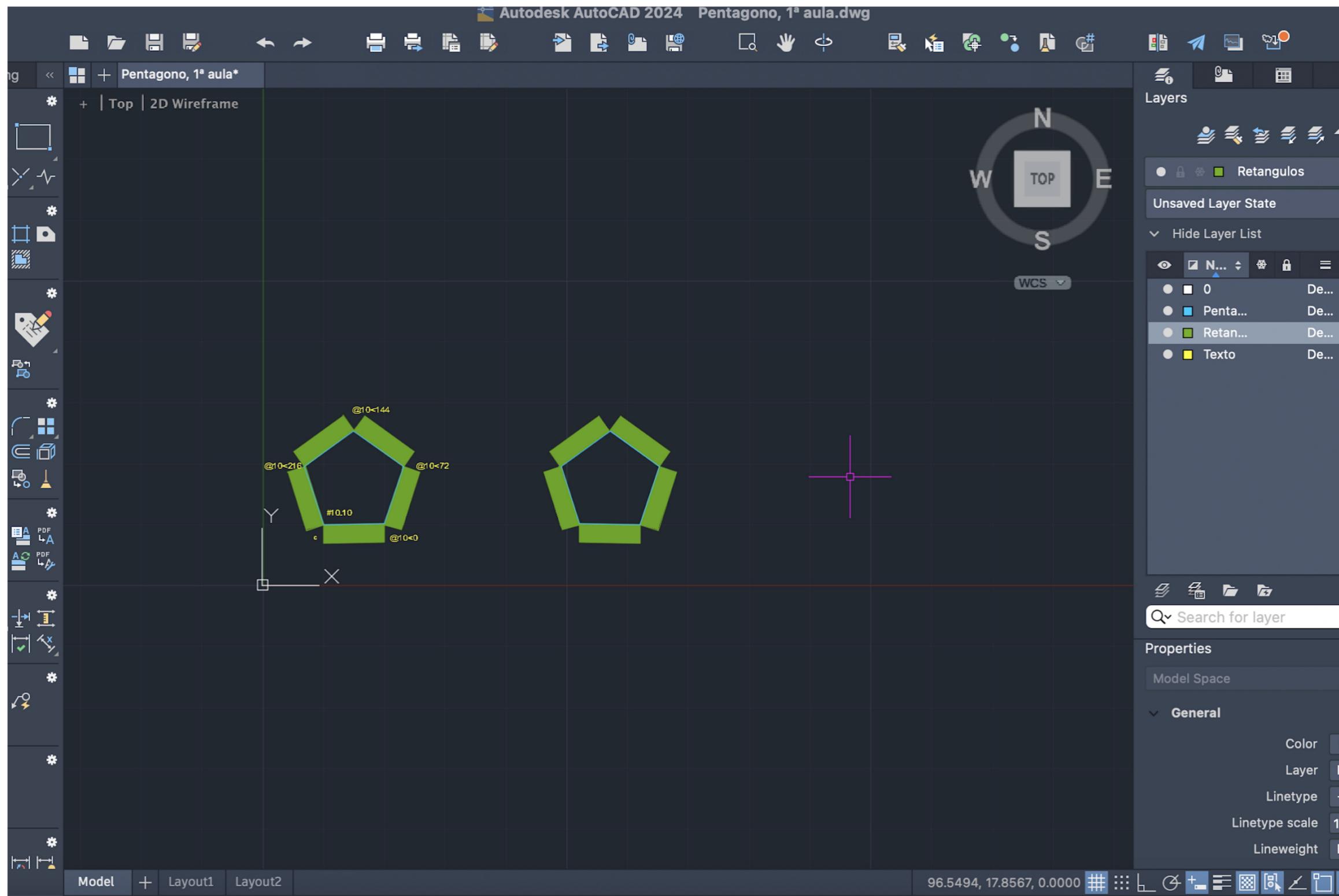
- Criar layers “texto” e “desenho”
- Desenhar o pentágono a partir de pontos



# PENTÁGONOS

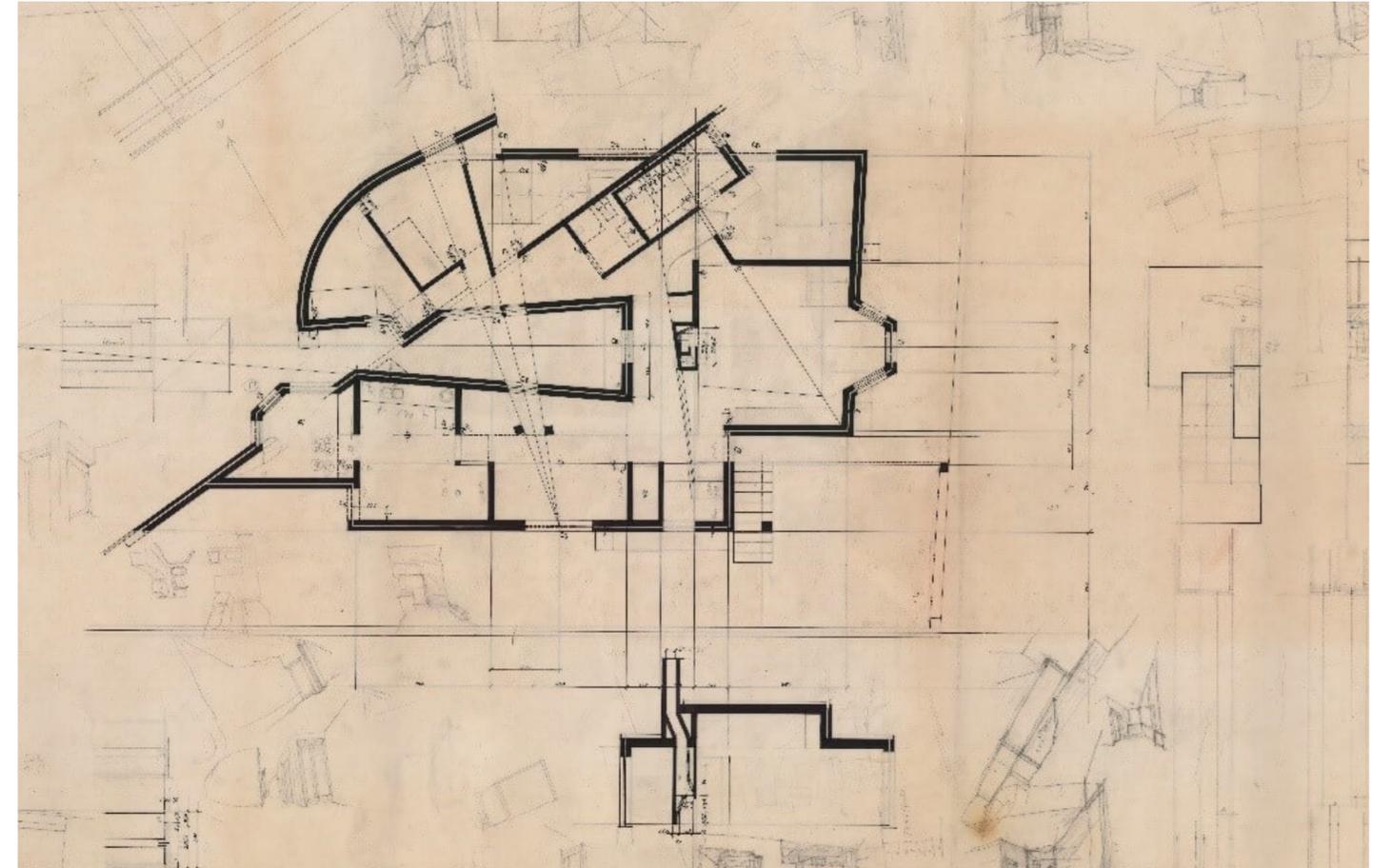
- Criar retângulos ligados as arestas do pentágono
- Usando MOVE E ROTATE para ajustar na posição
- Outro método: MIRROR, ALIGN





# Casa Antonio Carlos Siza

- Fazer o decalque da planta;
- Criar layers para organização;
- Elas podem ser congeladas, desligadas, bloqueadas...



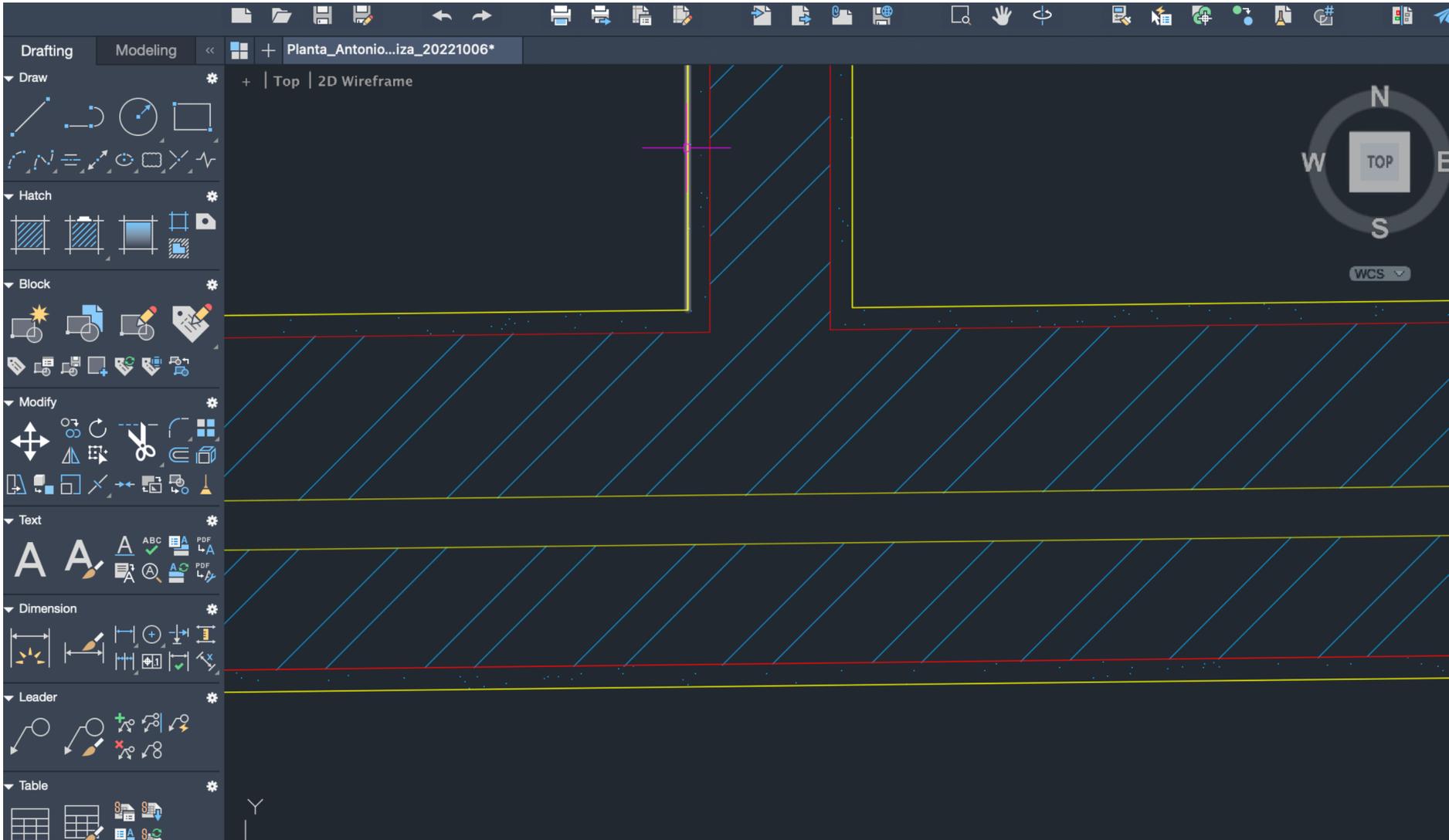
# PREPARAÇÃO

- Usando o SCALE, arrumar a planta a escala real;
- Medir com o DIST (a cama, ou porta por exemplo) e assim calcular o fator de escala;
- Para calcular basta dividir o tamanho pretendido pelo atual;

# Paredes

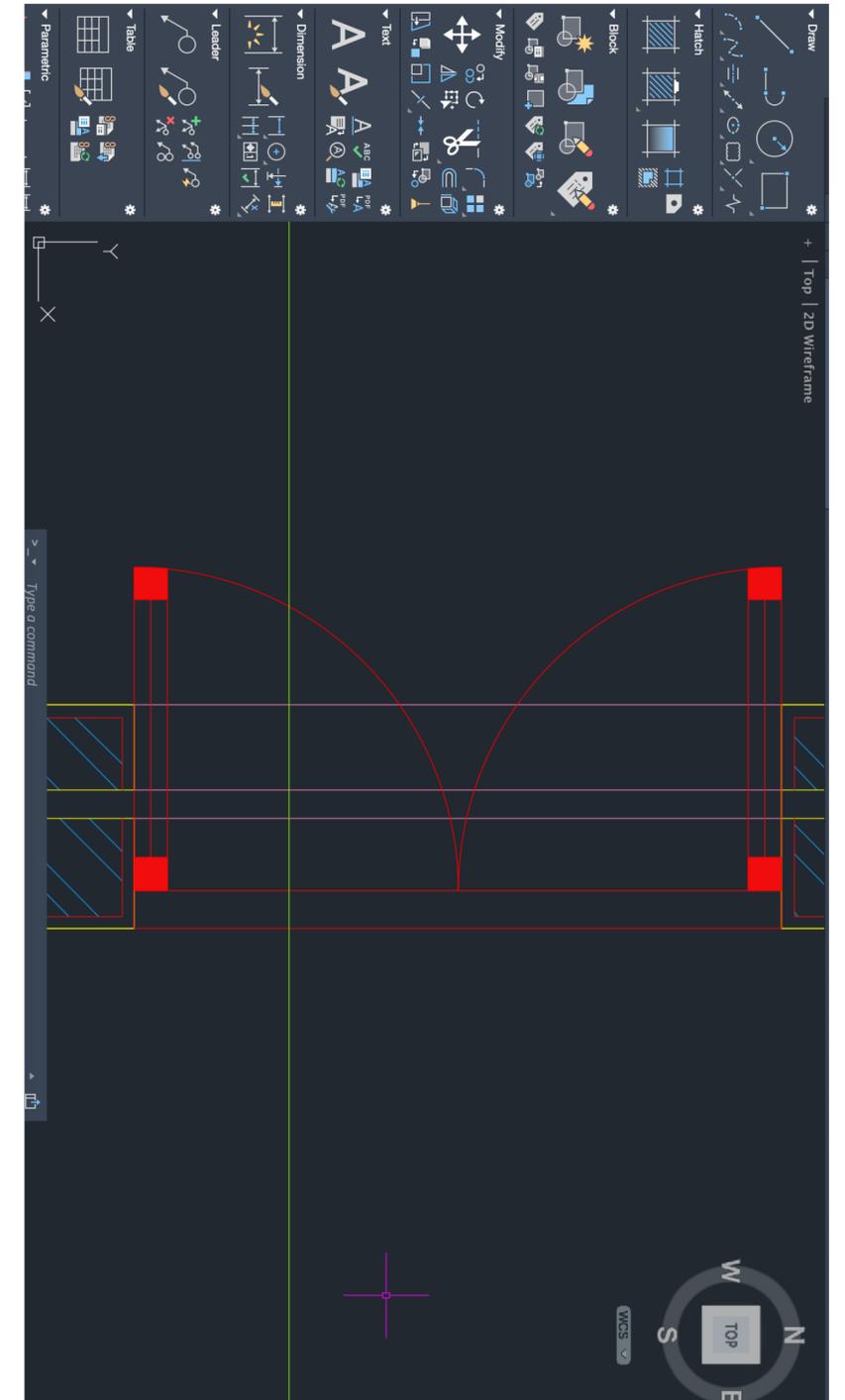
*Linha > offset 0.02 > offset 0.11 > offset 0.045 > offset 0.15 > offset 0.02*

*Hatch Arsand*  
*Hatch Ans32*



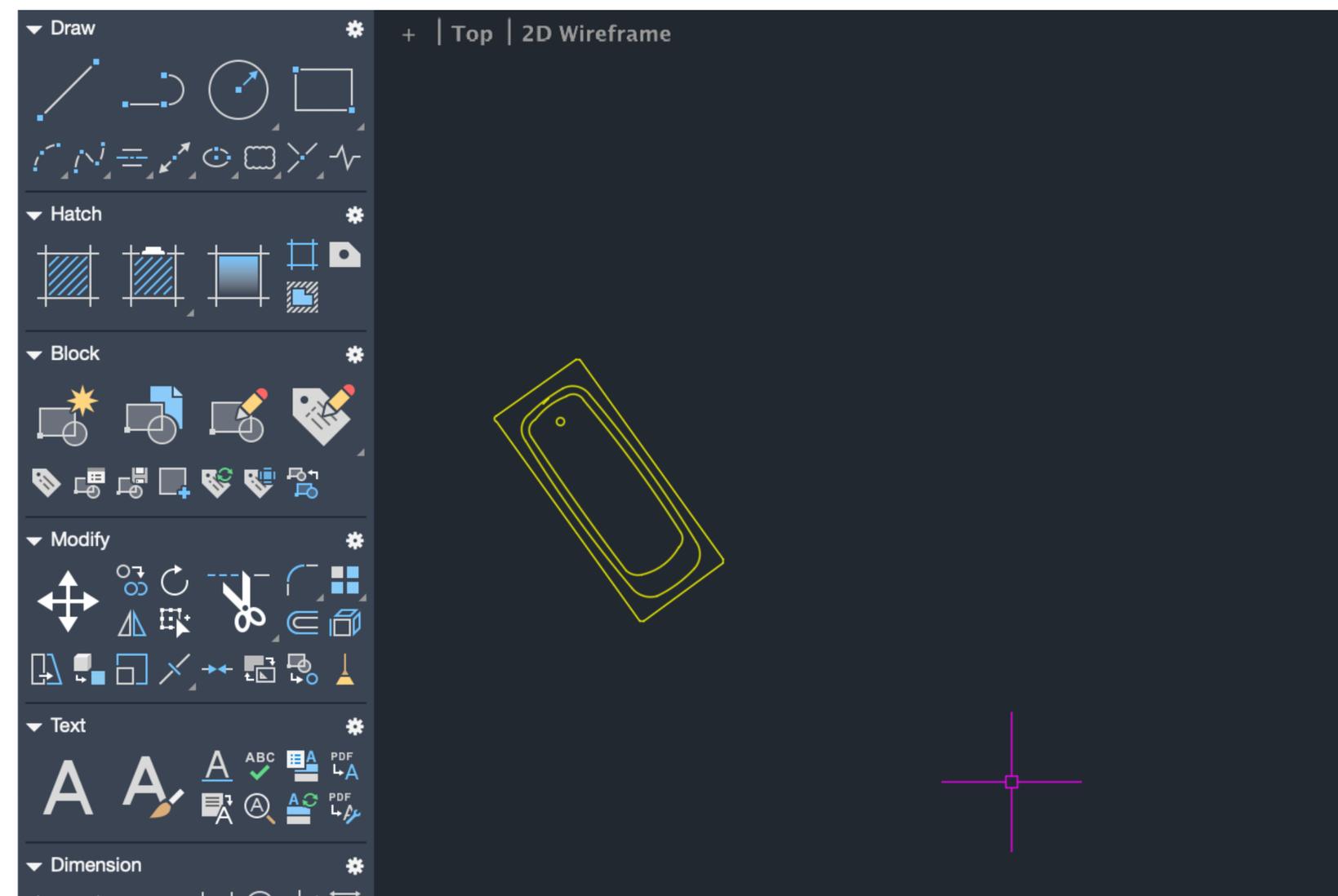
# Janelas na planta

- OFFSET 0.02
- 0,5 x2
- Match prop
- Hatch solid para o quadradinho da janela
- Laywer vistas 10



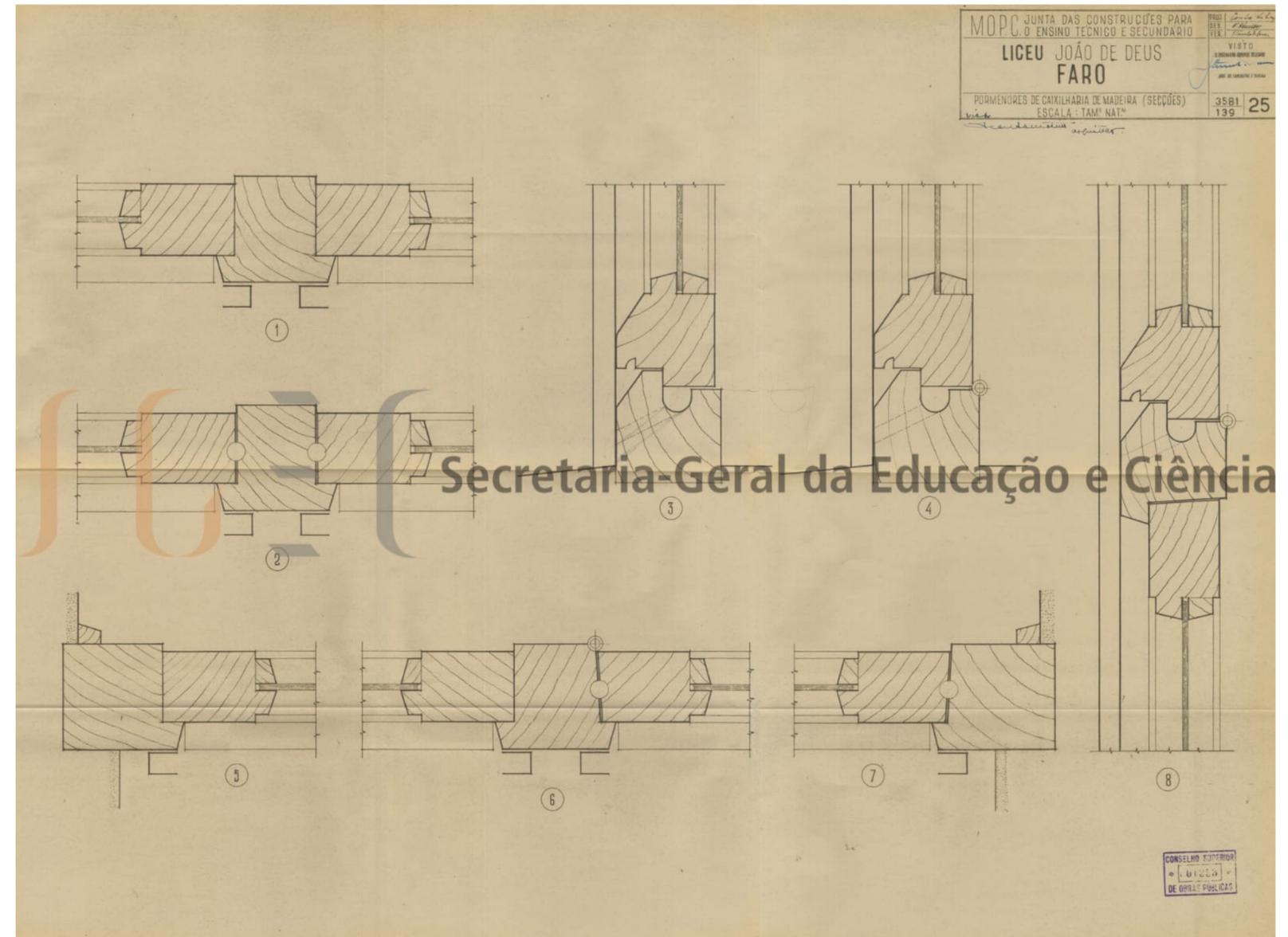
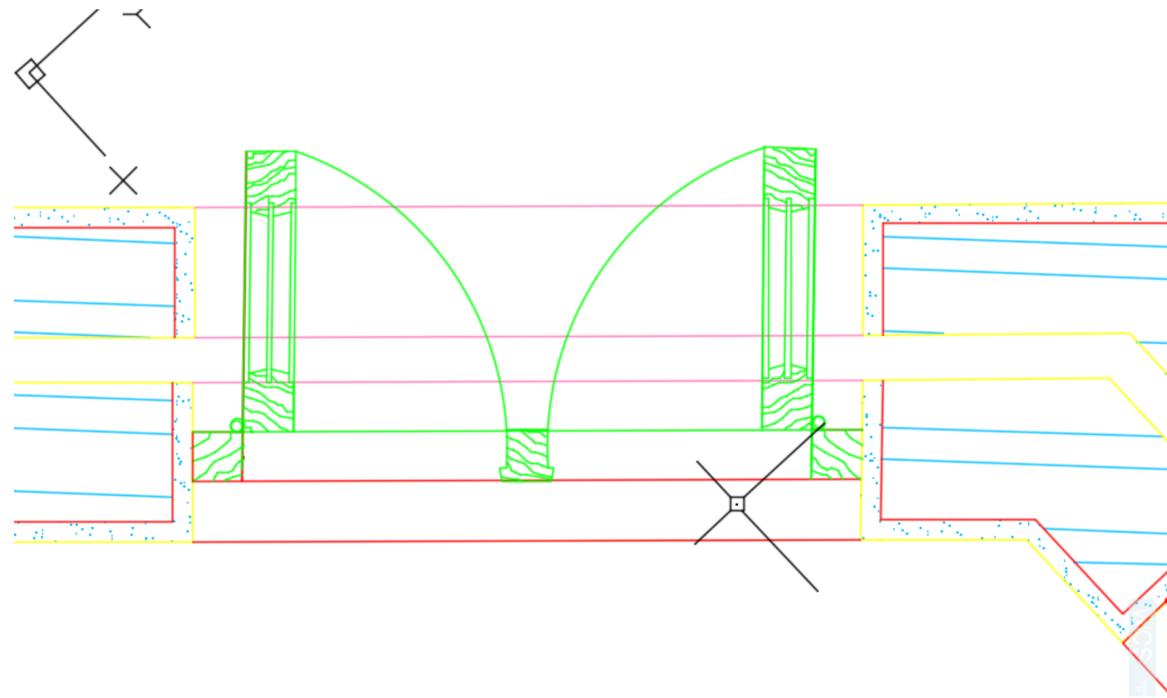
# MOBÍLIA

- Entrar no site roca.pt
- Escolher um dos modelos, ao descer a página tem ficheiros dwg com planta, corte e alçado do objeto
- Baixar o arquivo da planta .dwg
- Usando o COPYCLIP, fazer um PASTECLIP no arquivo da planta

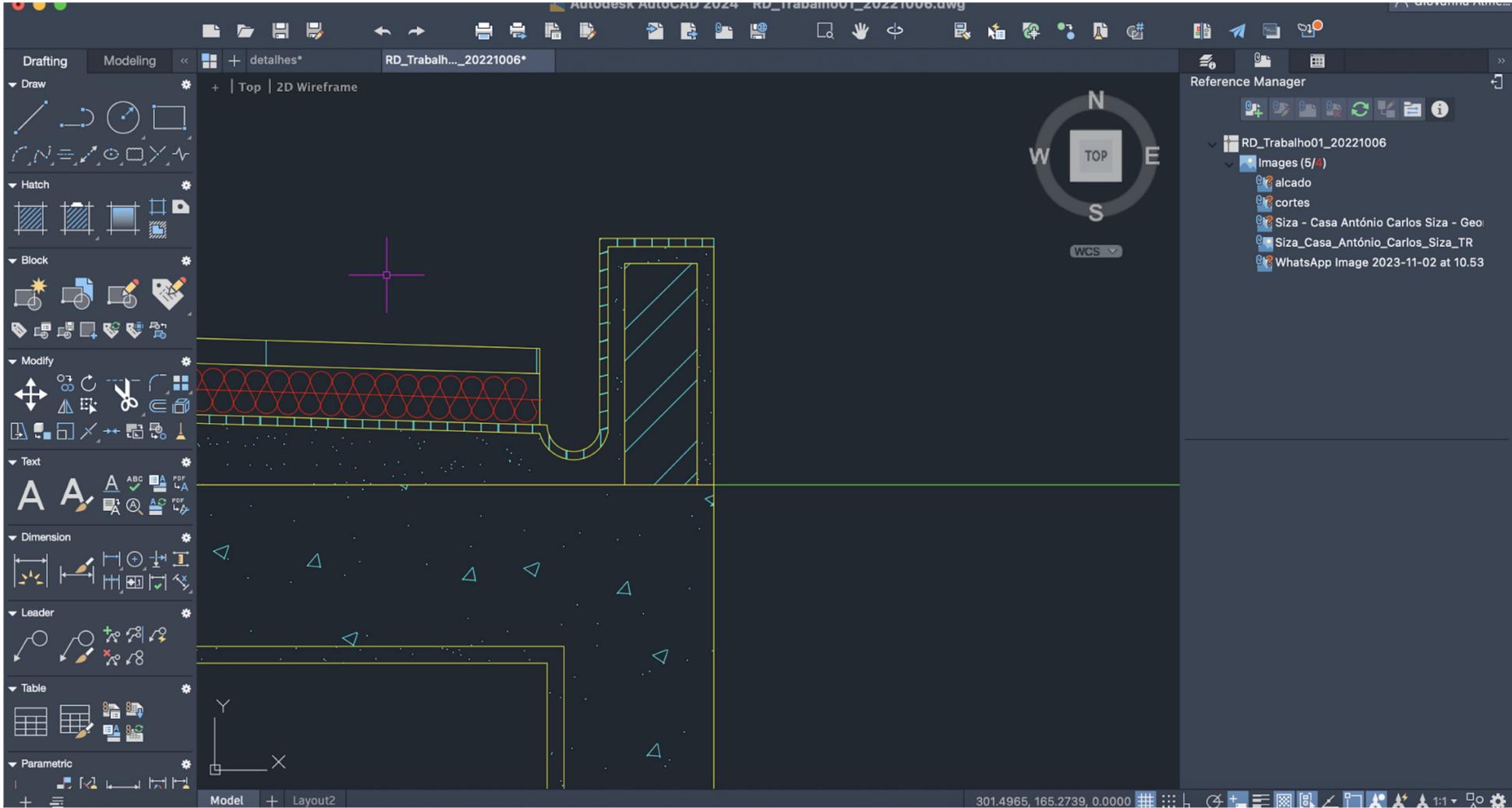
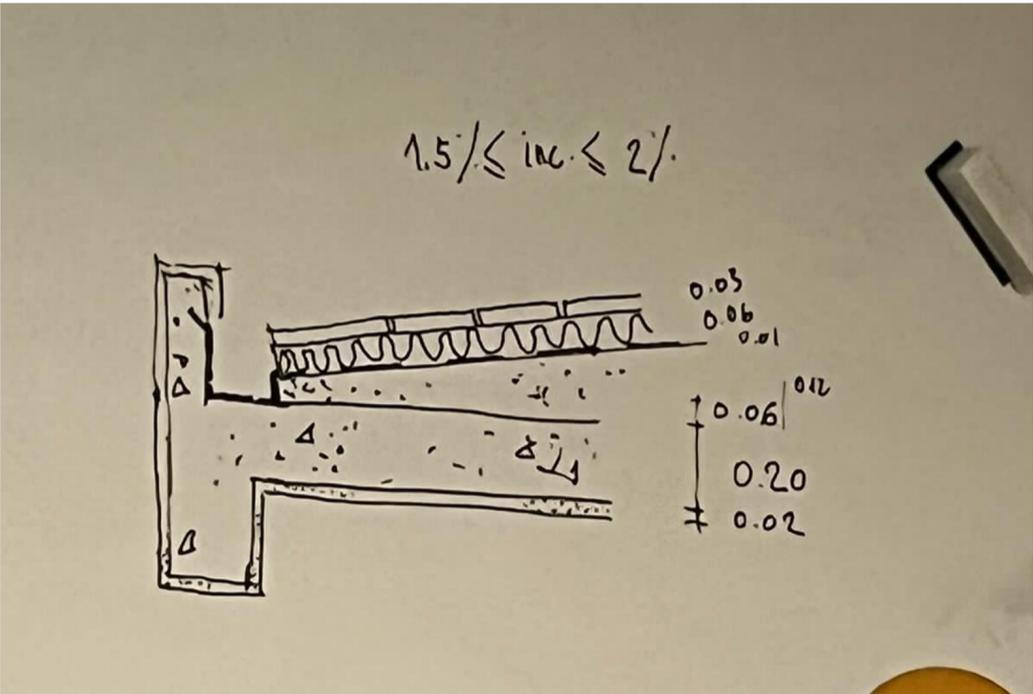


# PORMENOR

- Caxilhos detalhados da janela;
- Não há HATCH para isso,
- então desenhar as linhas.



# PORMENOR COBERTURA



# LAYOUT

## ➤ PAGE SETUP MANAGER

Definir tamanho de layout /A1 ou A0

Dwg to pdf

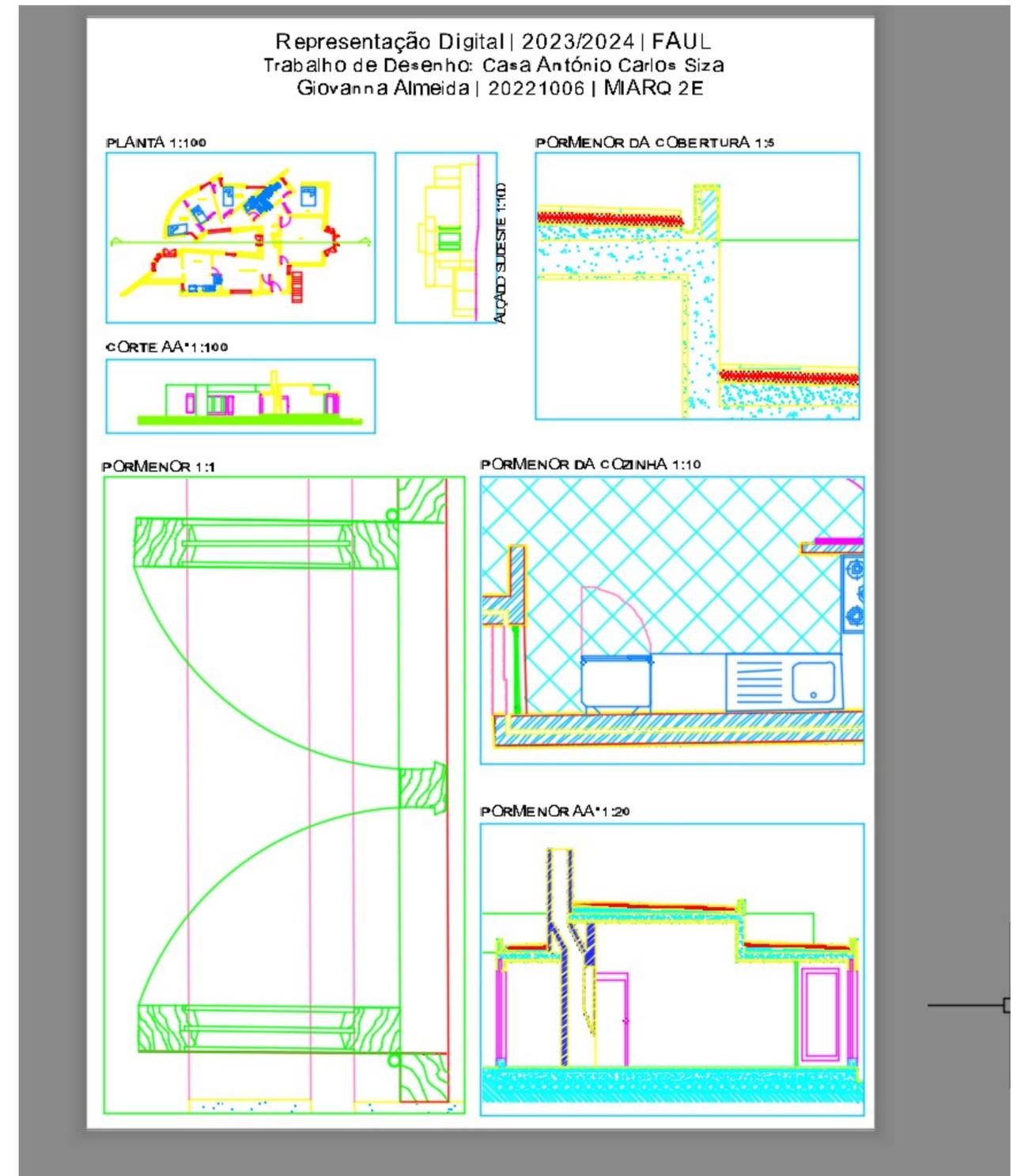
Escala 1:1

## ➤ Cabeçalho com dados

## ➤ Criar laywer “PortViews”

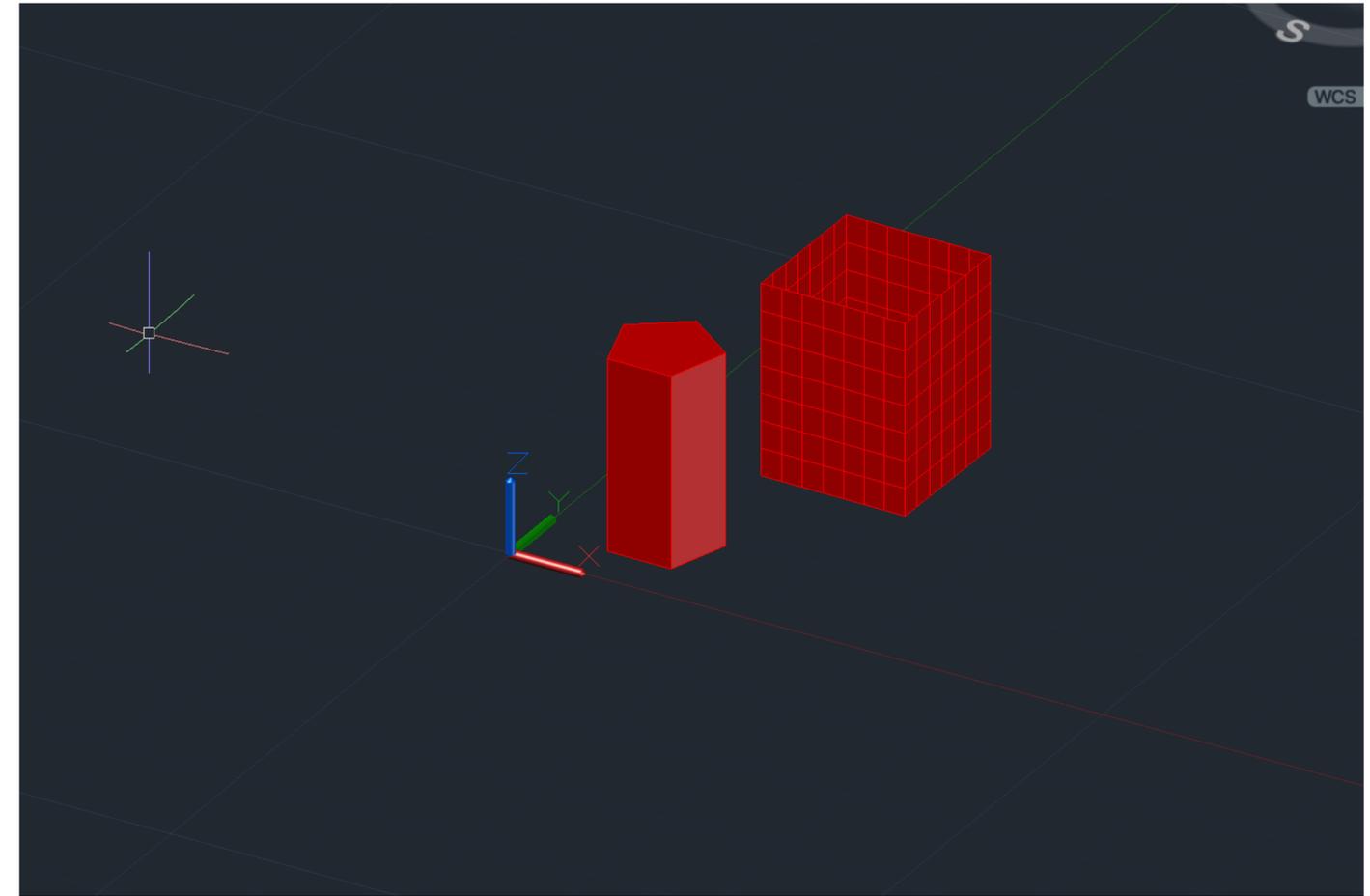
# LAYOUT

- MVIEW, cria janela
- Zoom\_scale\_10xp (para por na escala 1:100)
- Ajustar no tamanho pretendido
- Congelar layers que não quer que apareça na janela



# MODELAÇÃO 3D

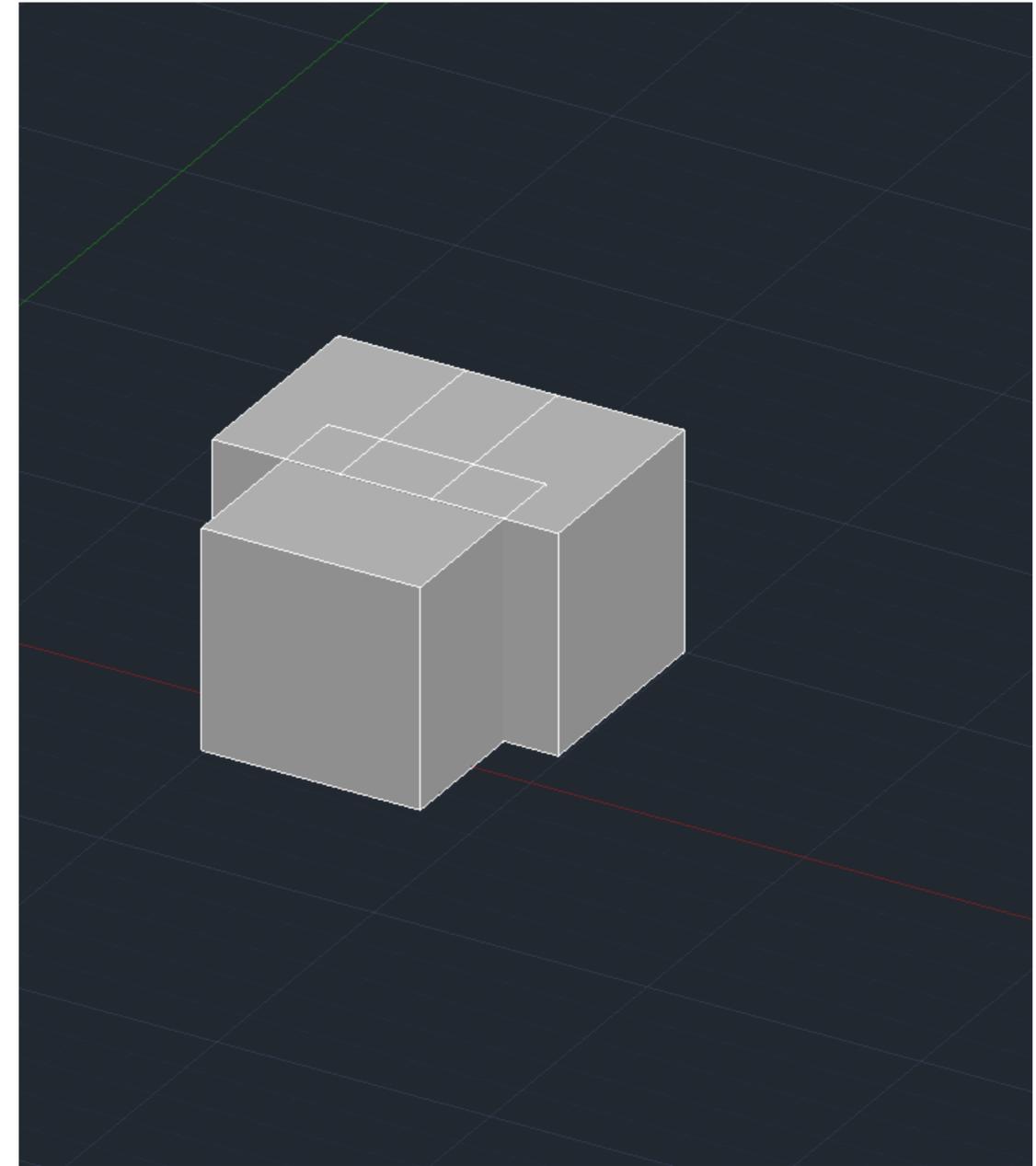
- Figura tridimensional (extrusão)
- Criar polígono 5 lados
- ***Orbit- extrude***
- seleccionar o pentágono e subir arestas
- Comando HIDE – esconde as arestas



(Quando seleccionamos o extrudo podemos seleccionar um “solid ou surface”)

# MODELAÇÃO 3D - CUBOS

1. Criar polígono 4 lados
  - Fazer EXTRUDE
  - Assim temos um cubo
2. Usar o comando BOX para criar outro
3. Fazer PLINE
  - 10,10,10
  - Subir com EXTRUDE
4. Juntar

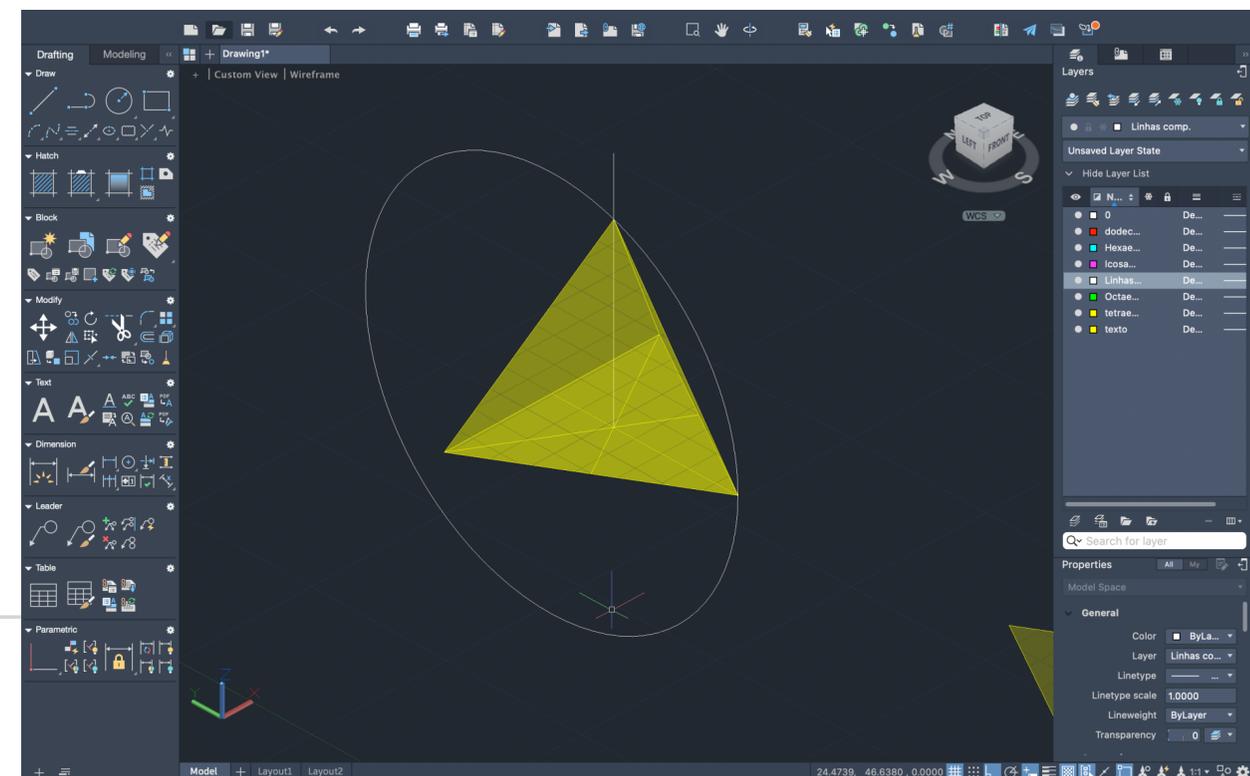


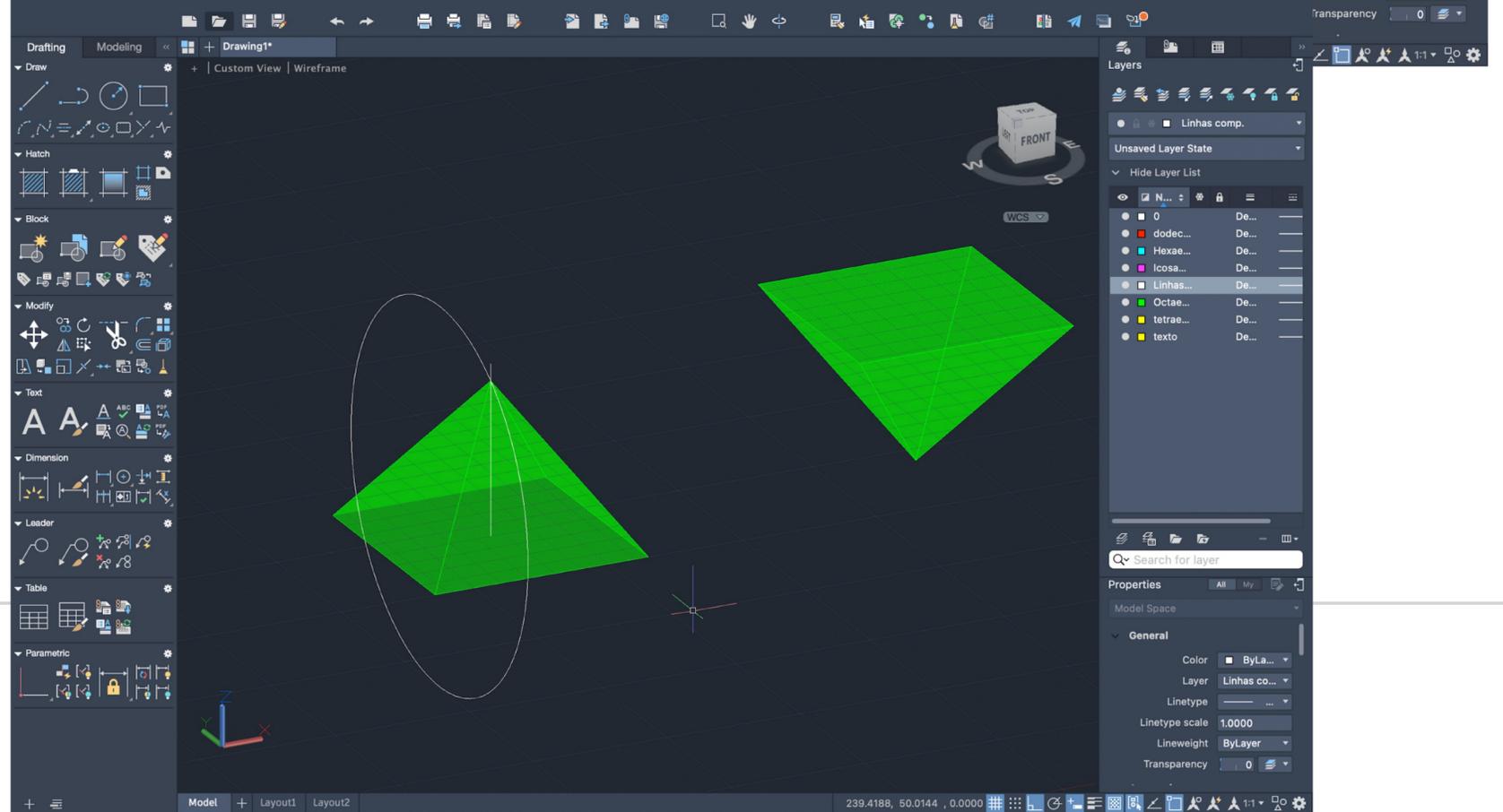
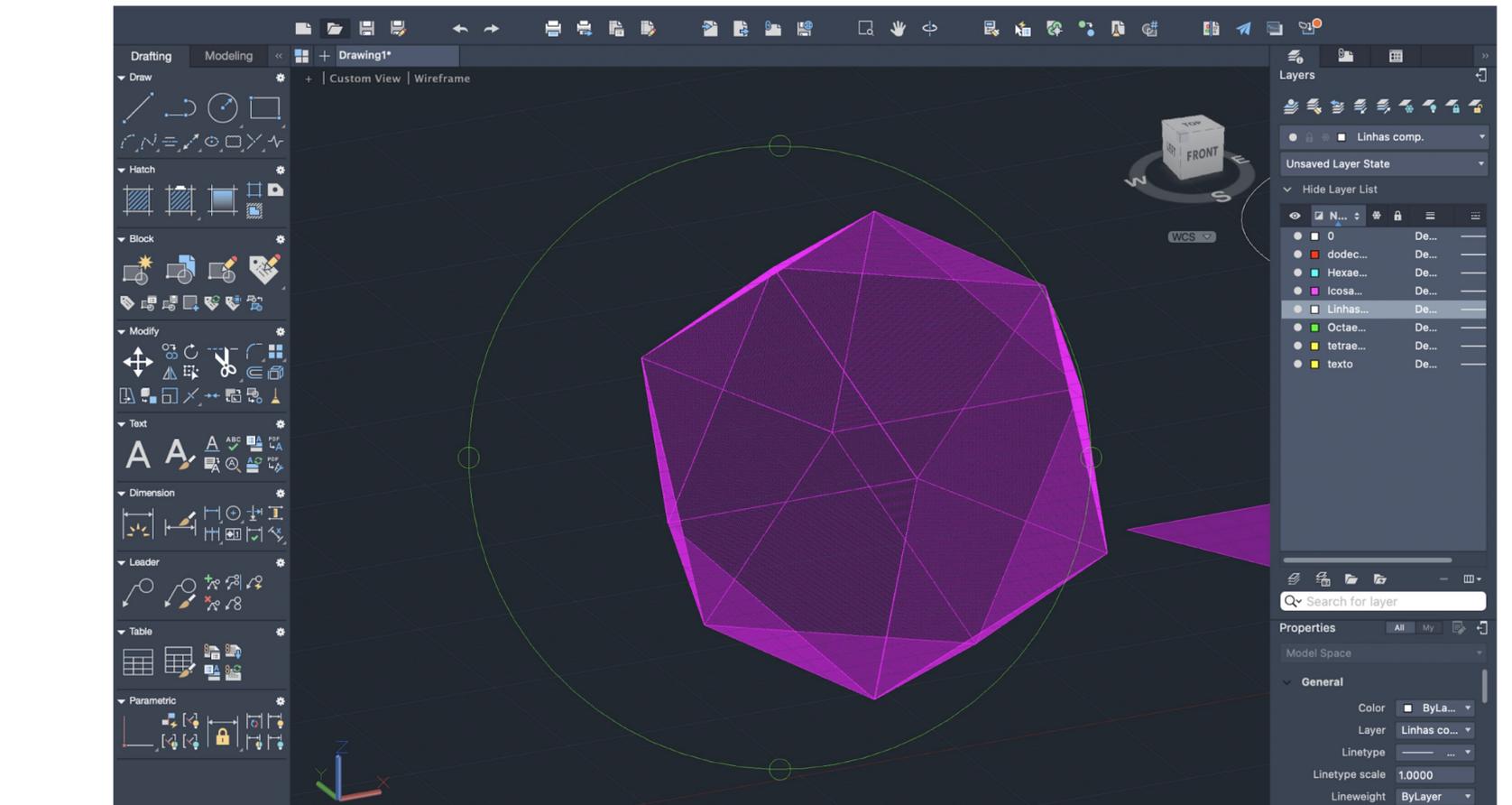
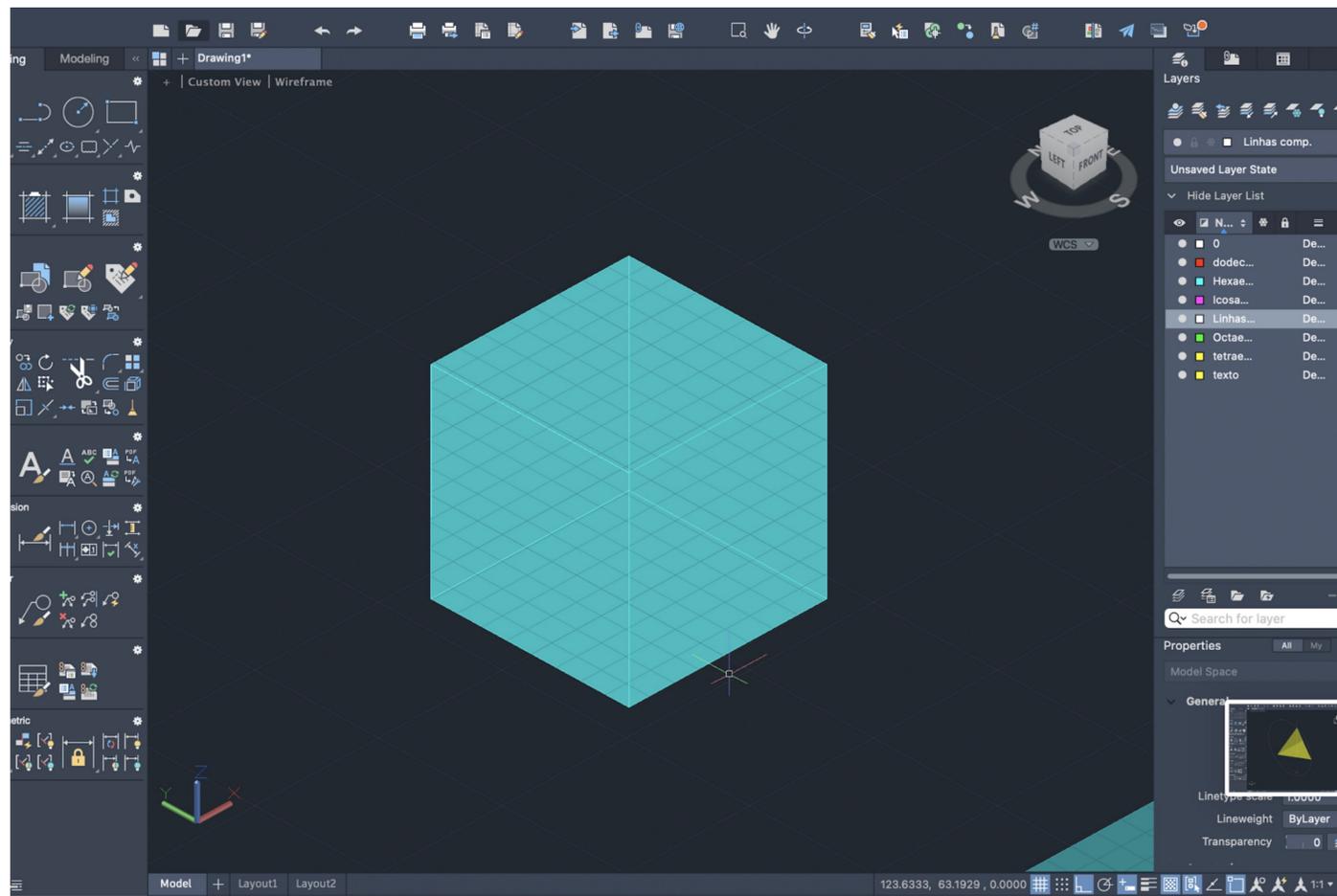
# MODELAÇÃO 3D - SÓLIDOS

- TETRAEDRO, 4 faces triangulares
- HEXAEDRO, 6 faces quadrangulares
- OCTAEDRO, 8 faces triangulares
- DODECAEDRO, 12 faces pentagonais
- ICOSAEDRO, 20 faces triangulares

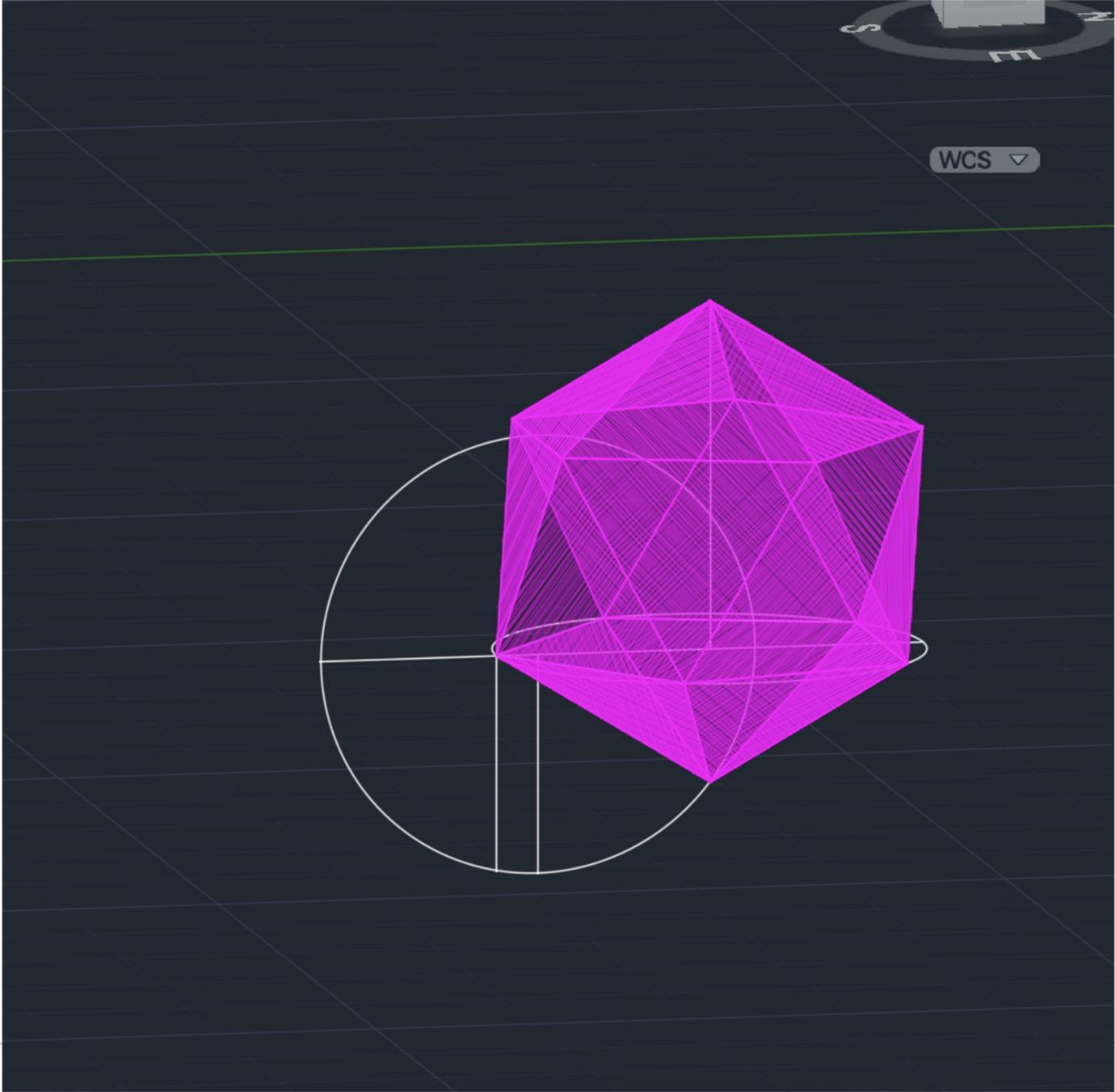
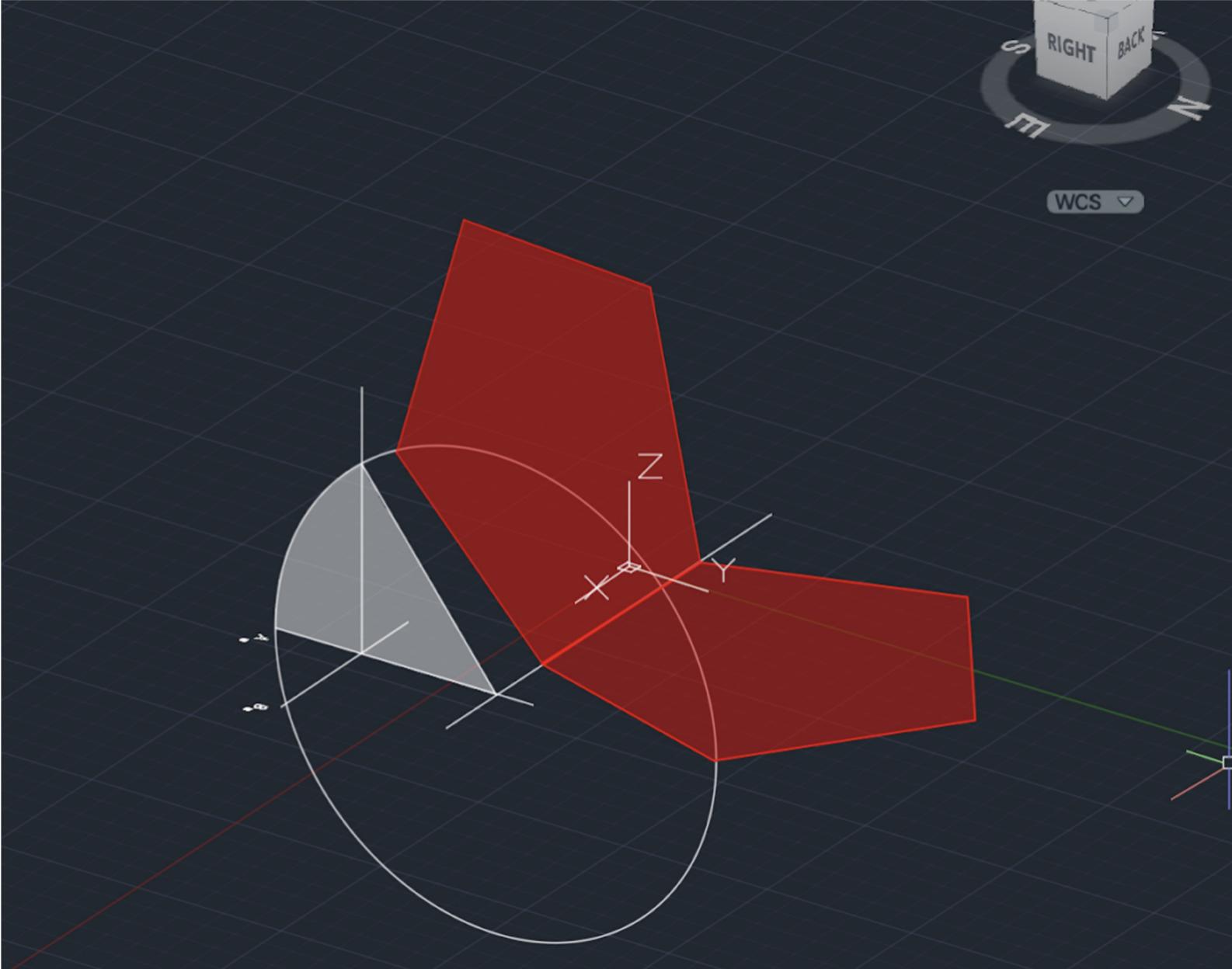
# MODELAÇÃO 3D - SÓLIDOS

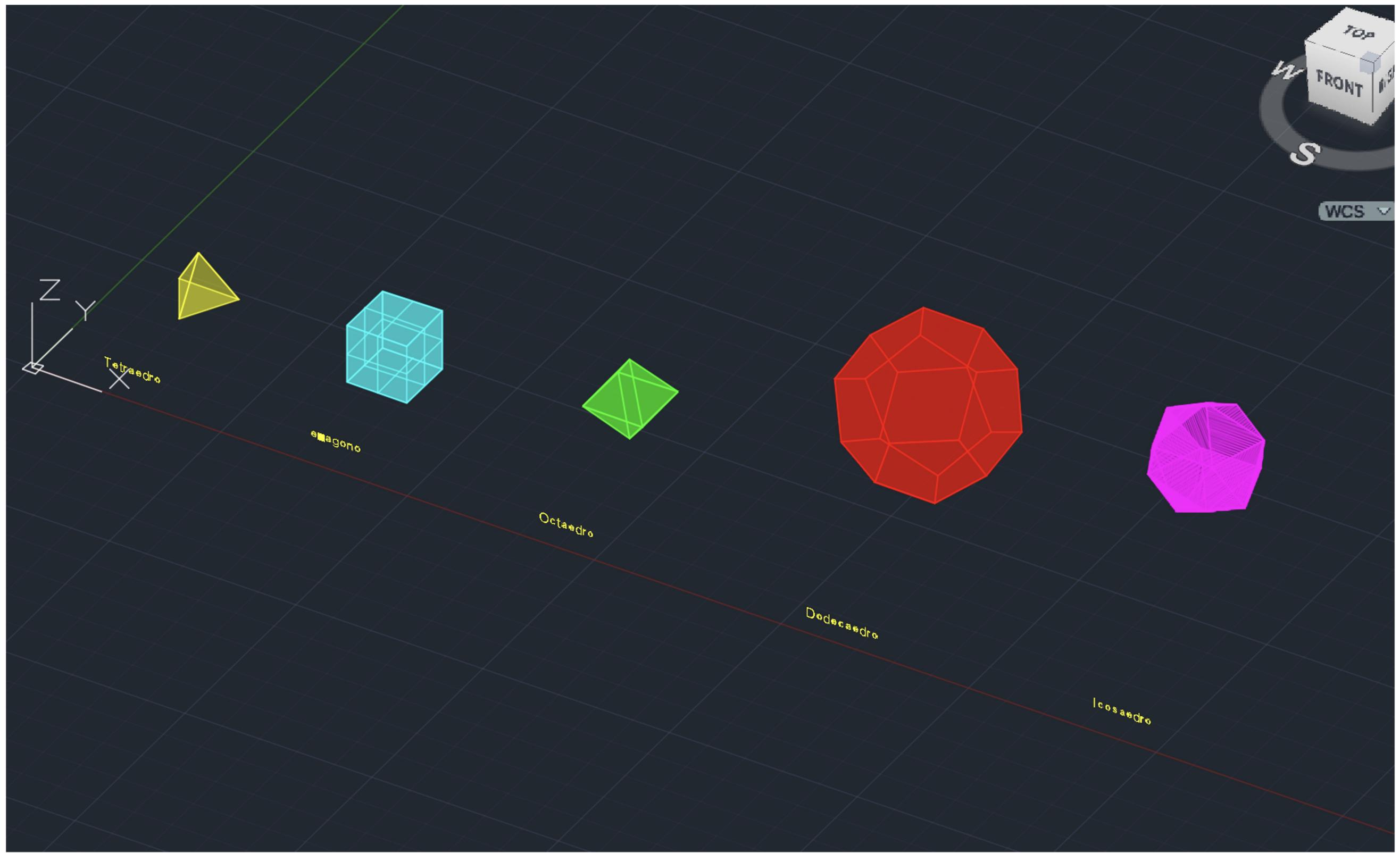
- Após desenhar as figuras, fazemos círculos verticais (3D ROTATE) com a intenção de se achar a altura do sólido
- Feito isso, aplicamos novamente 3D ROTATE para subir as faces do objeto





# MODELAÇÃO 3D - SÓLIDOS





Tetraedro

Hexaedro

Octaedro

Dodecaedro

Icosaedro

WCS

TOP

FRONT

RIGHT

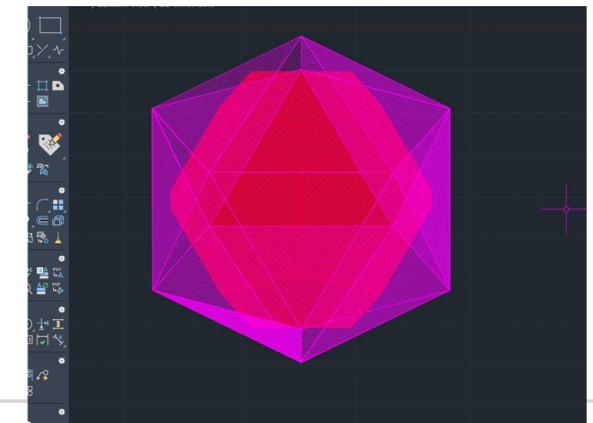
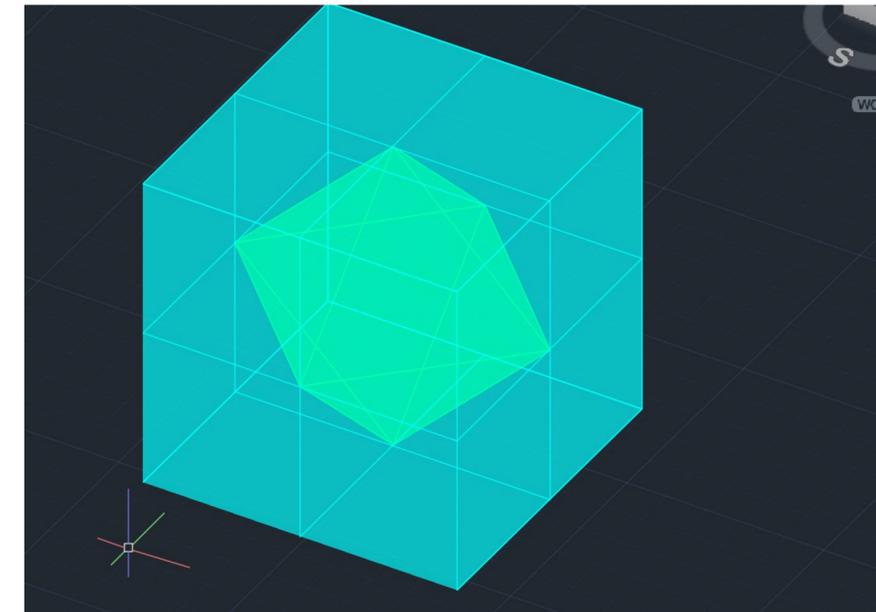
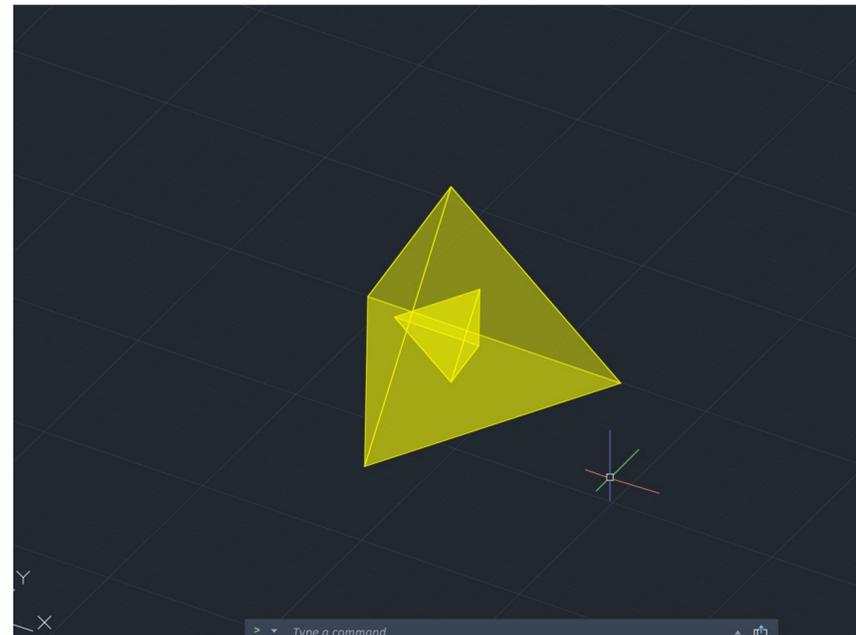
# MODELAÇÃO 3D - SÓLIDOS

- Agora vemos quais sólidos tem em comum algo com qual
- E colocamos um dentro do outro

HEXAGONO + OCTAEDRO

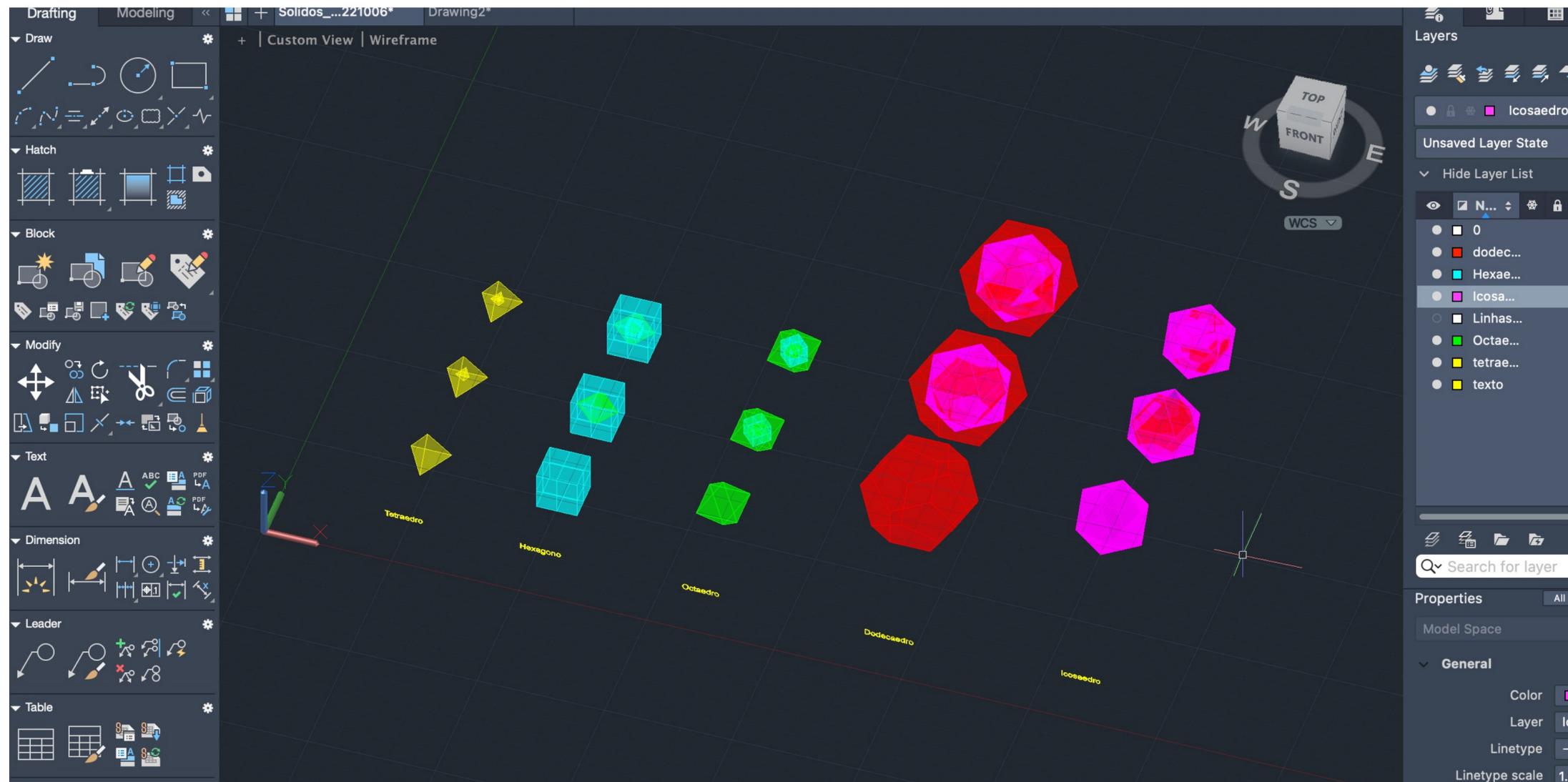
DODEAEDRO + ICOSAEDRO

TETRAEDRO + TETRAEDRO



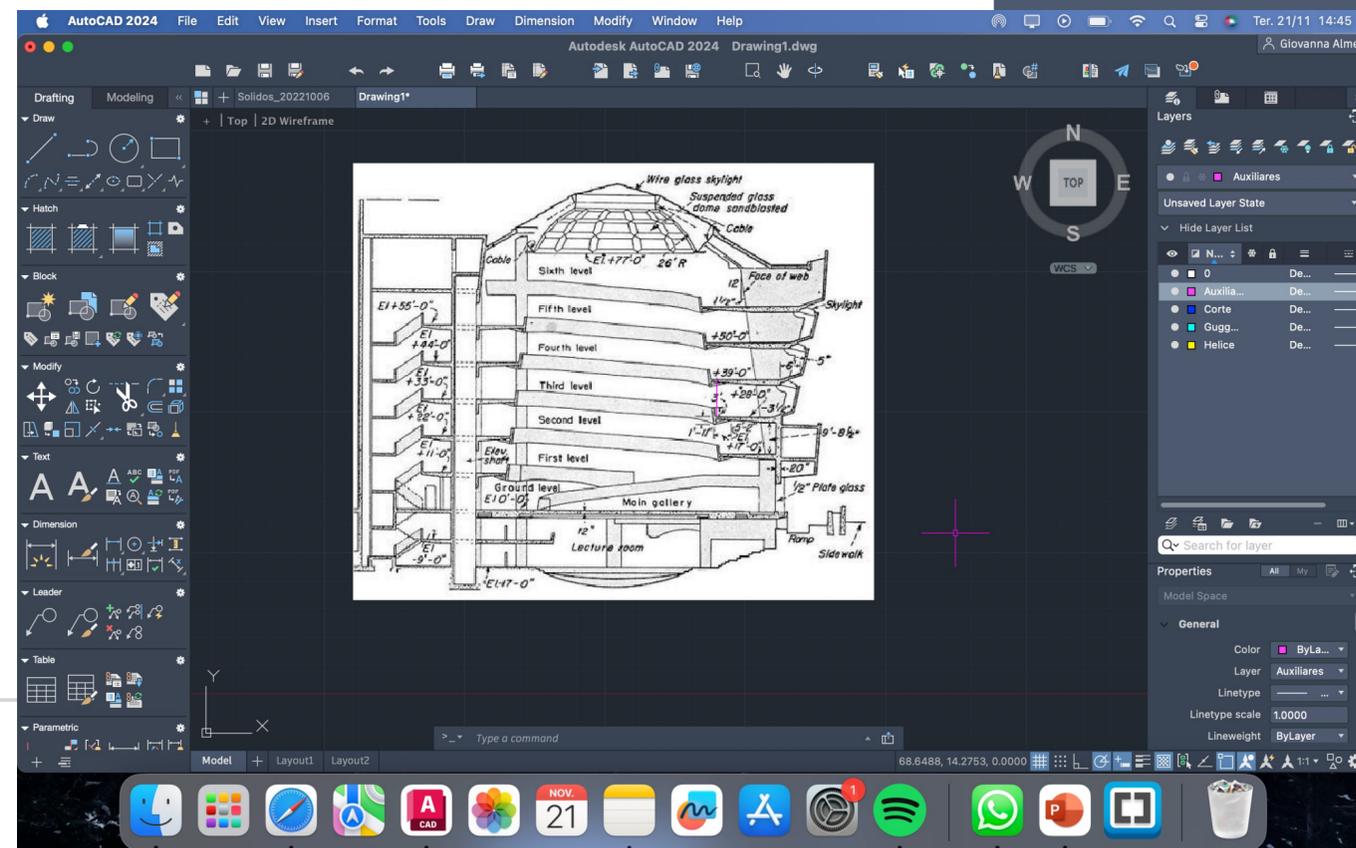
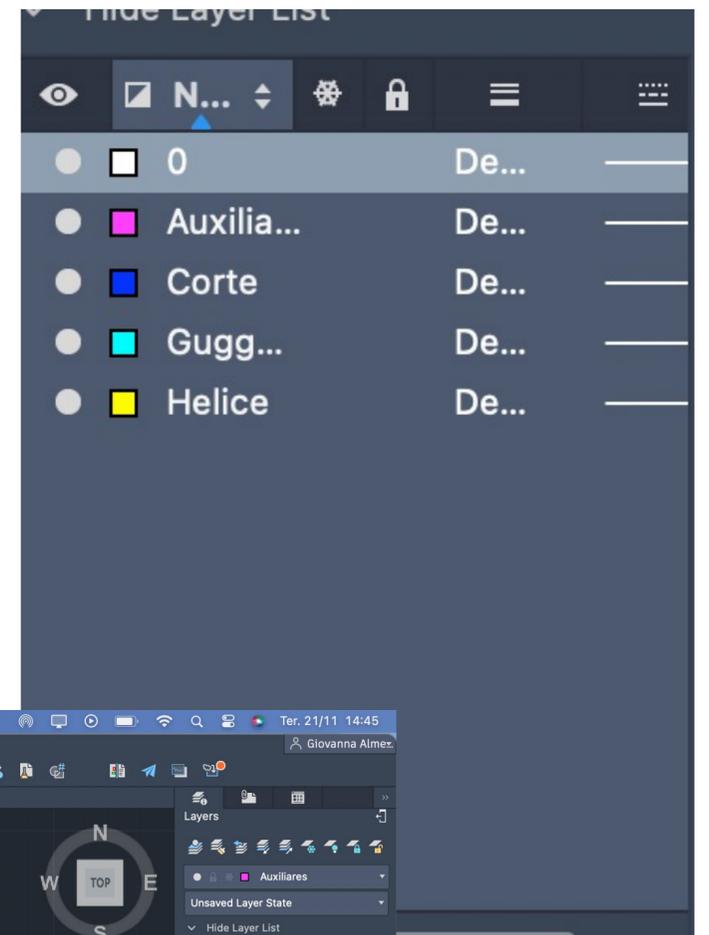
# MODELAÇÃO 3D - SÓLIDOS

- Repete – se o processo novamente



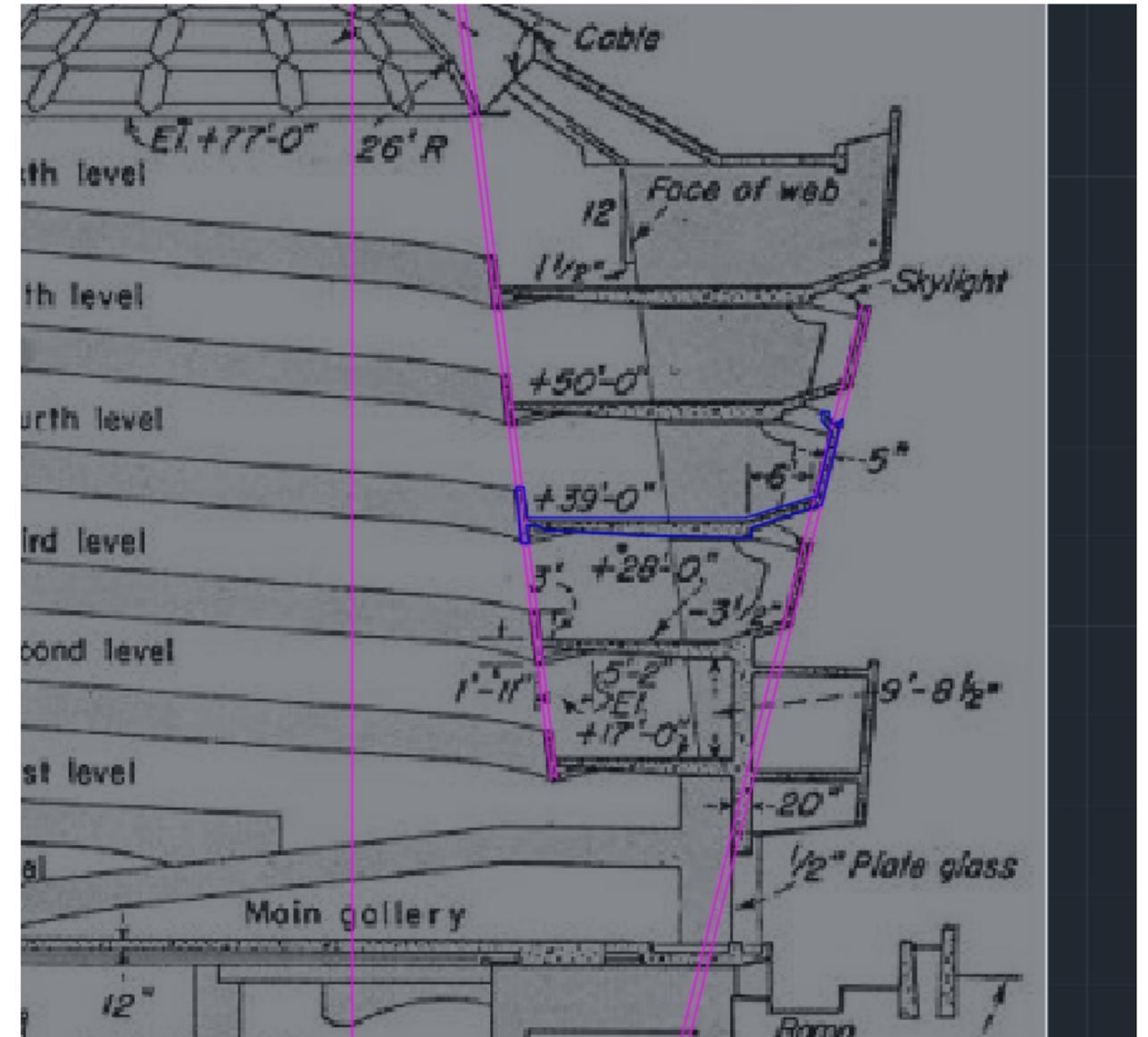
# GUGGENHEIN

- ATACCH DA IMAGEM
- CRIAR LAYWERS
- FAZER SCALE DO OBJETO (ALIGN)
- 1 PÉ = 0.305m



# GUGGENHEIN

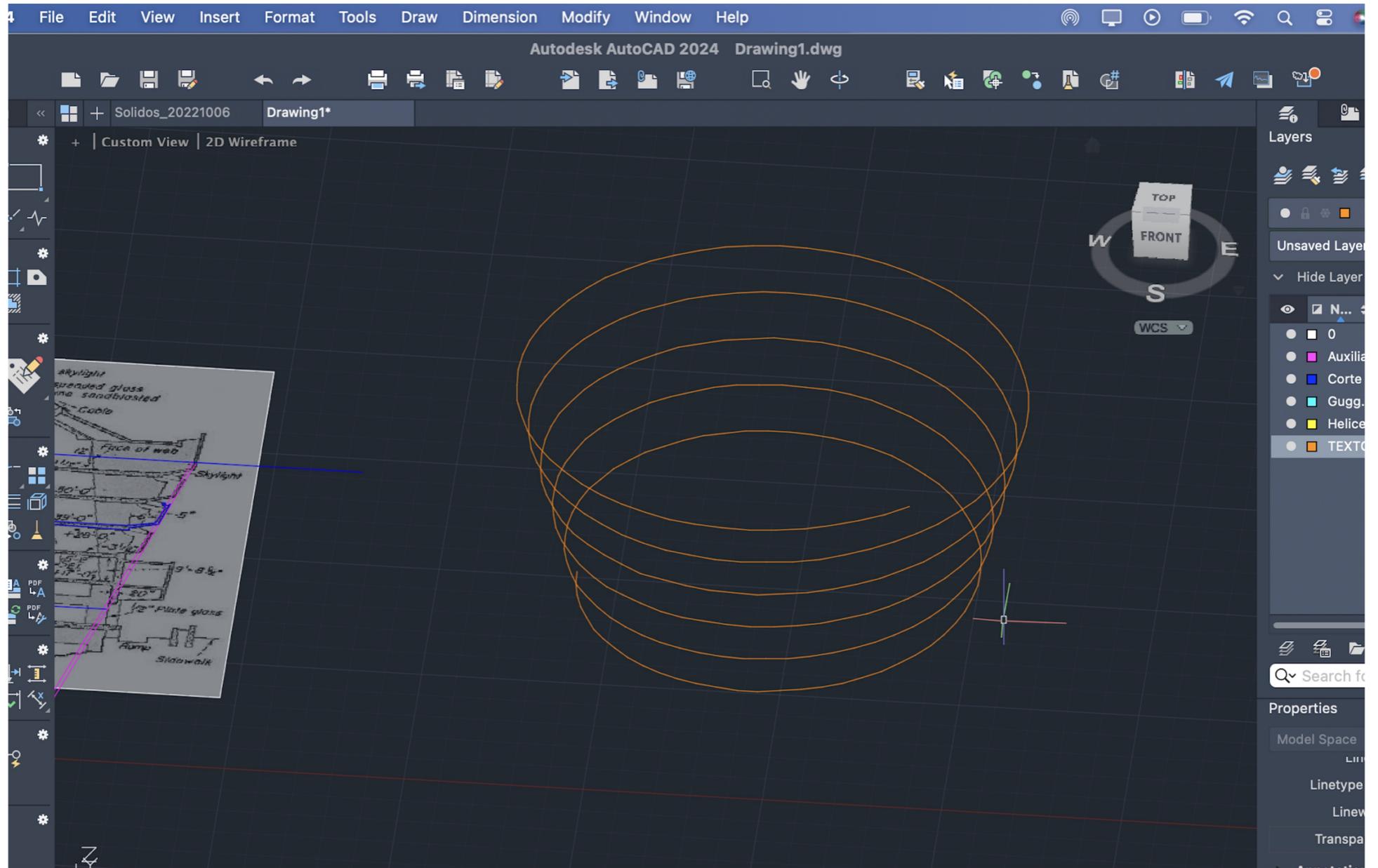
- Marcar as geometrias do edifício
- Começar a decalcar na laywer CORTE
- Descobrir o valor do RAIO INF, SUP, ALTURA



# GUGGENHEIN

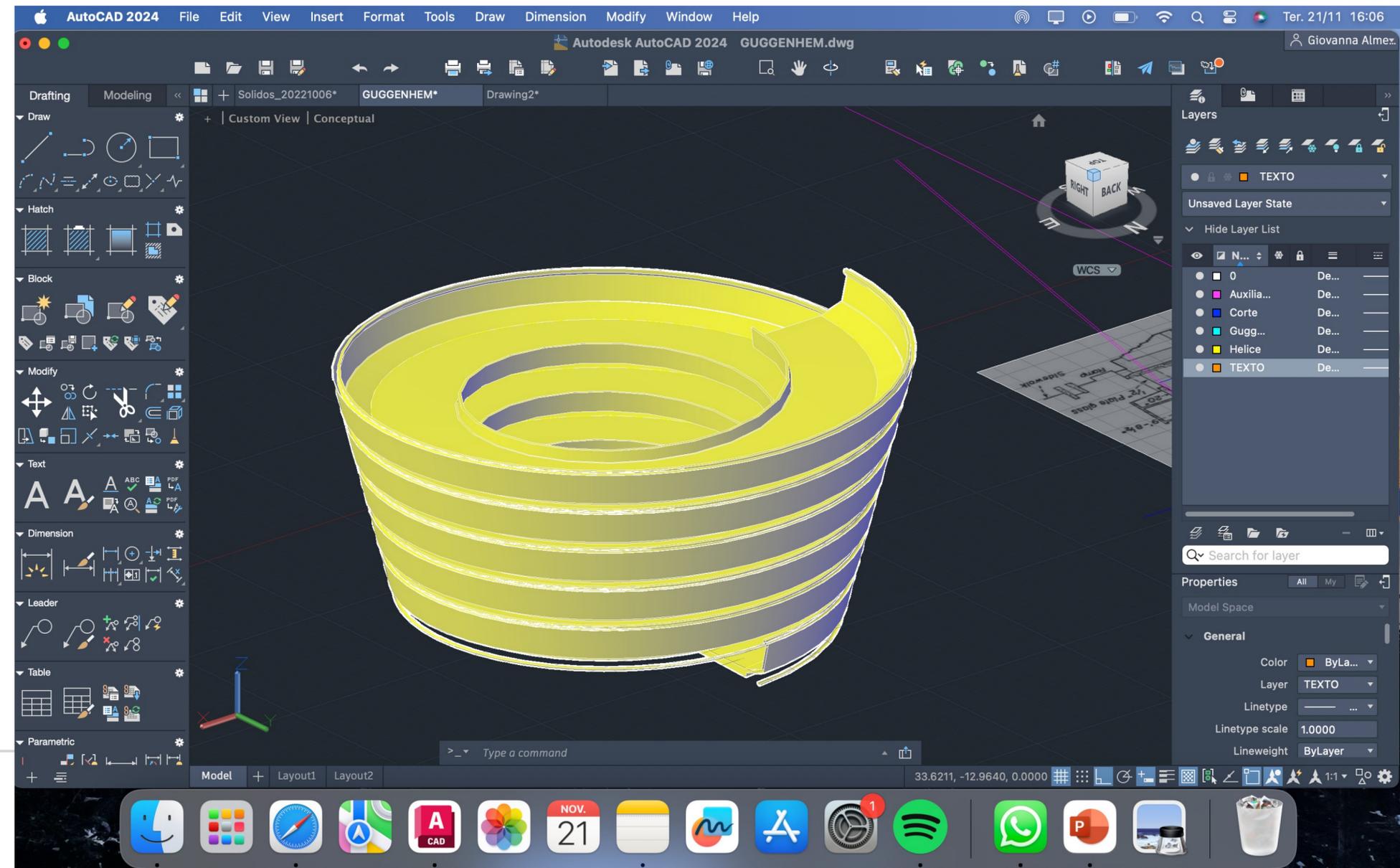
- COMANDO HELIX

1. Raio Inf
2. Raio Sup
3. TURNS
4. (numero de voltas)
5. HEIGHT
6. (altura do pé direito)



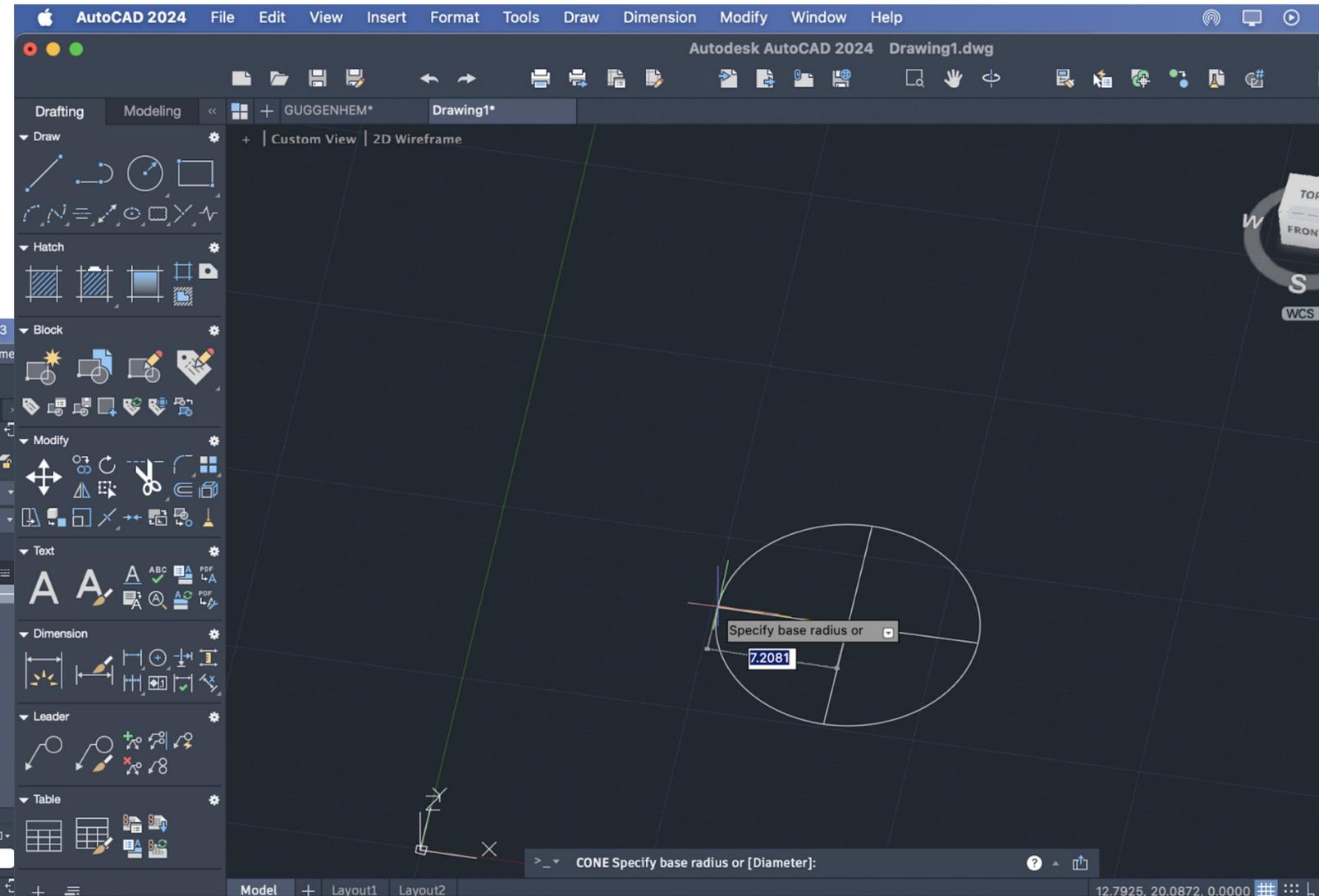
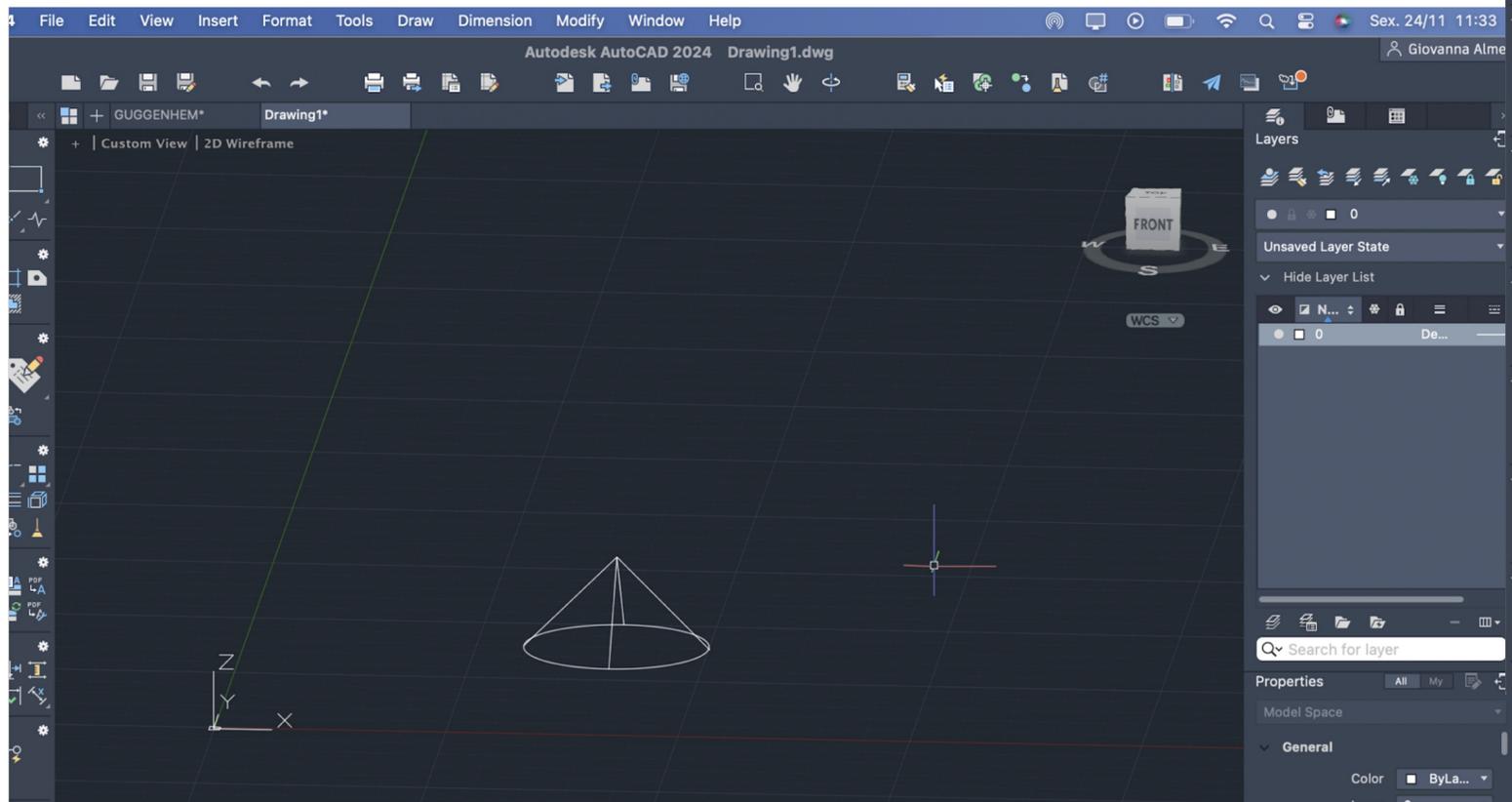
# GUGGENHEIN

- ALINHAR O CORTE JÁ FEITO, COM O HELIX
- EXTRUDE
- VISUAL STYLES



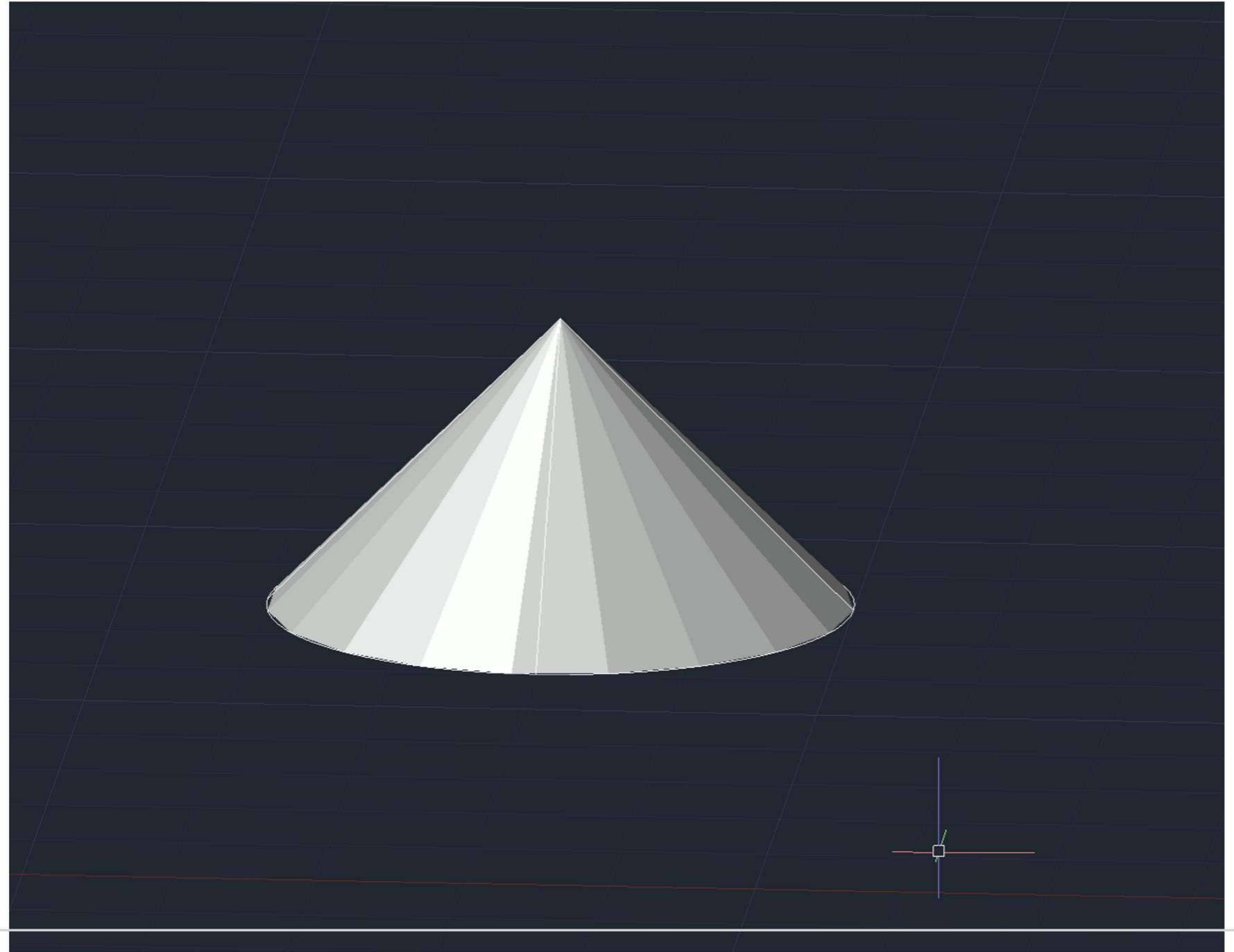
# SECÇÕES PLANAS EM UM CONE

- Começar com o comando CONE
- Usar 5 de medida para o raio



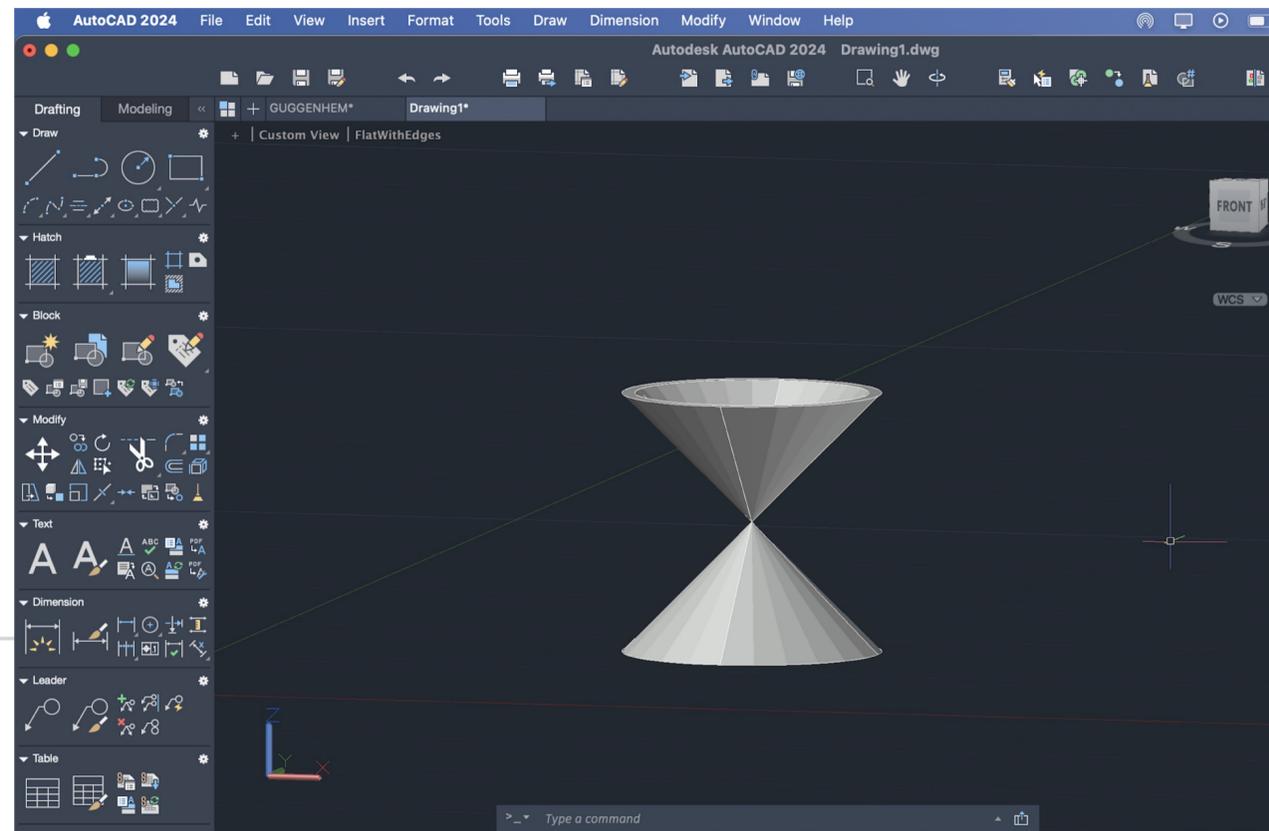
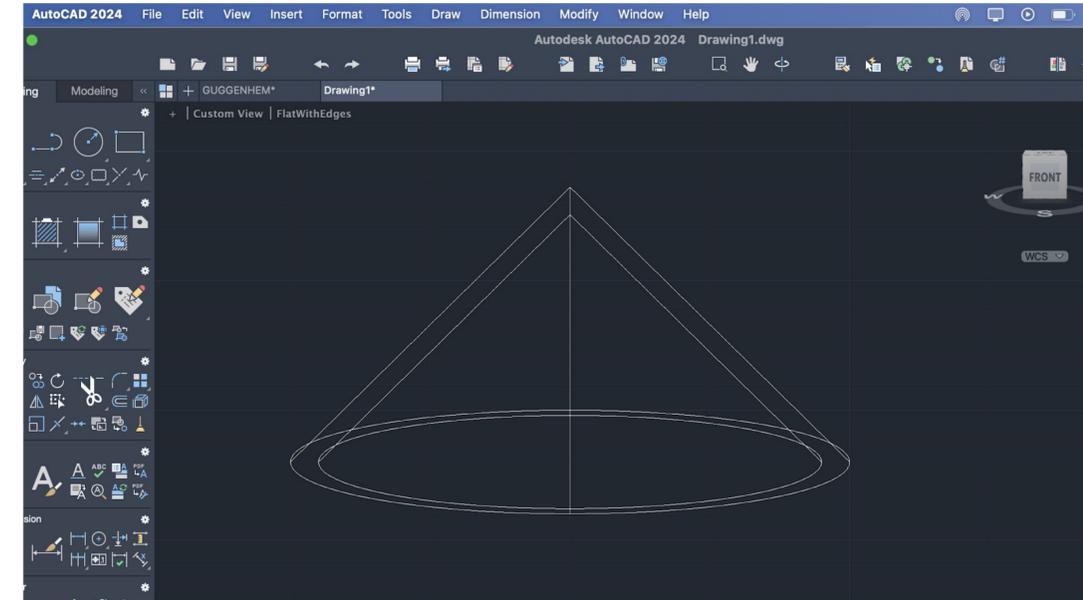
# SECÇÕES PLANAS EM UM CONE

- Comando SHADE

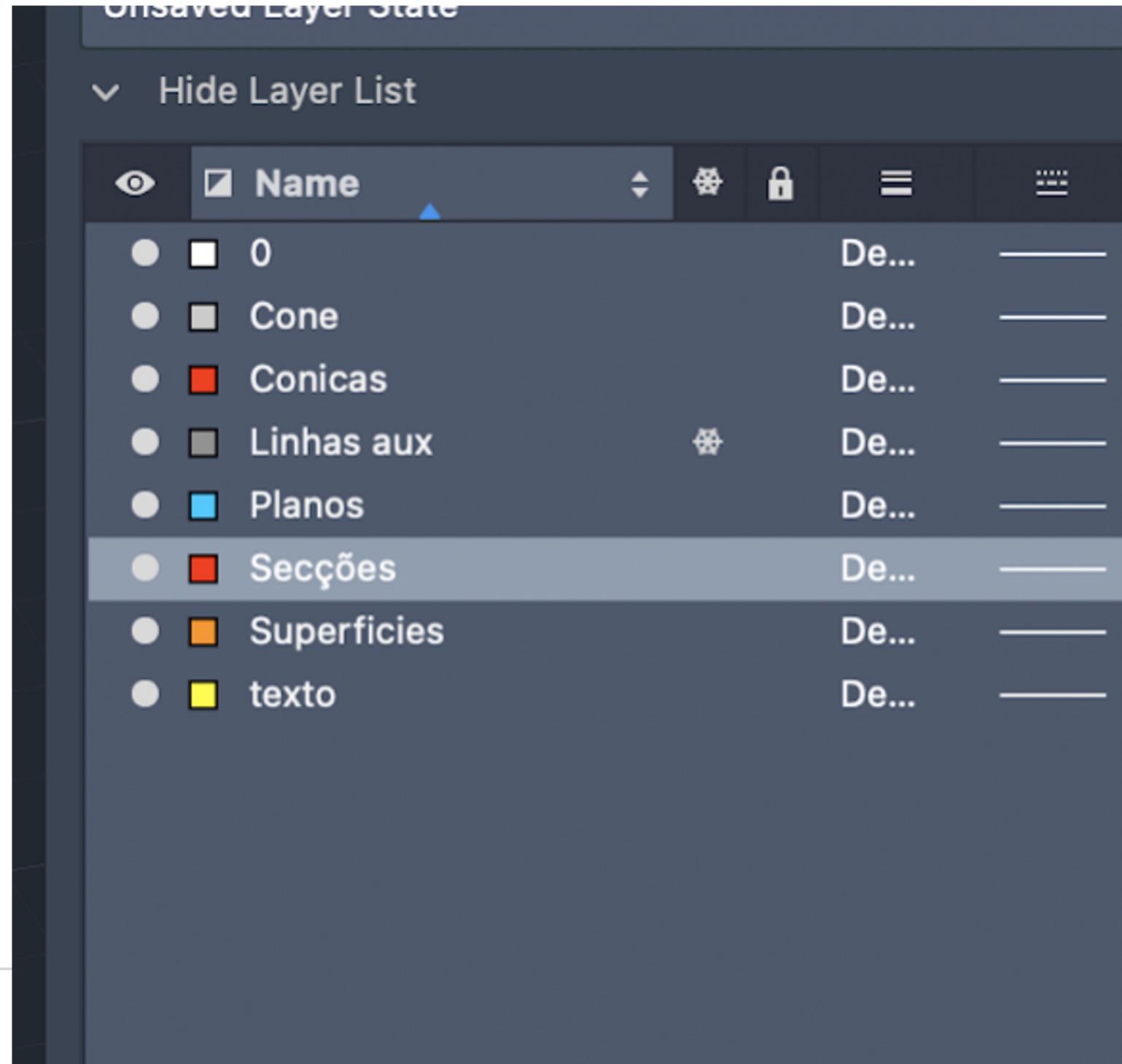


# SECÇÕES PLANAS EM UM CONE

- Fazer um COPY 0.5 para baixo
- Usar o comando SUB, assim fazendo um objeto “oco”
- MIRROR3D para copiar o objeto para cima

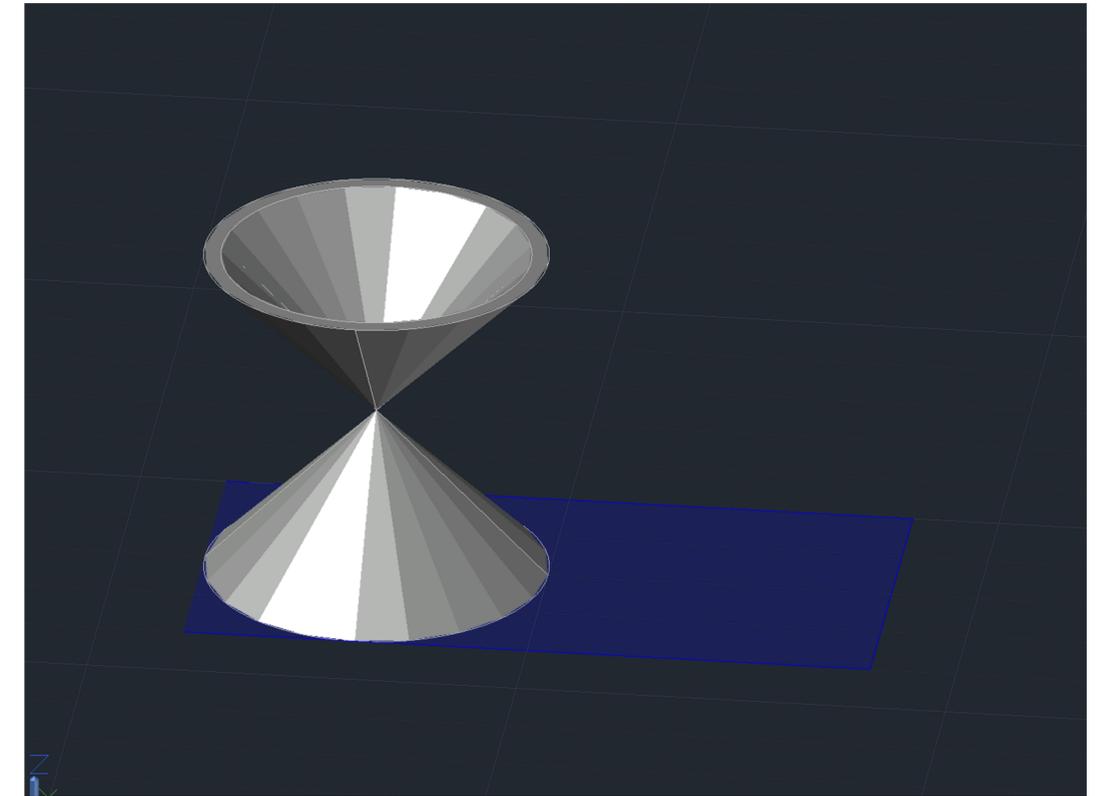
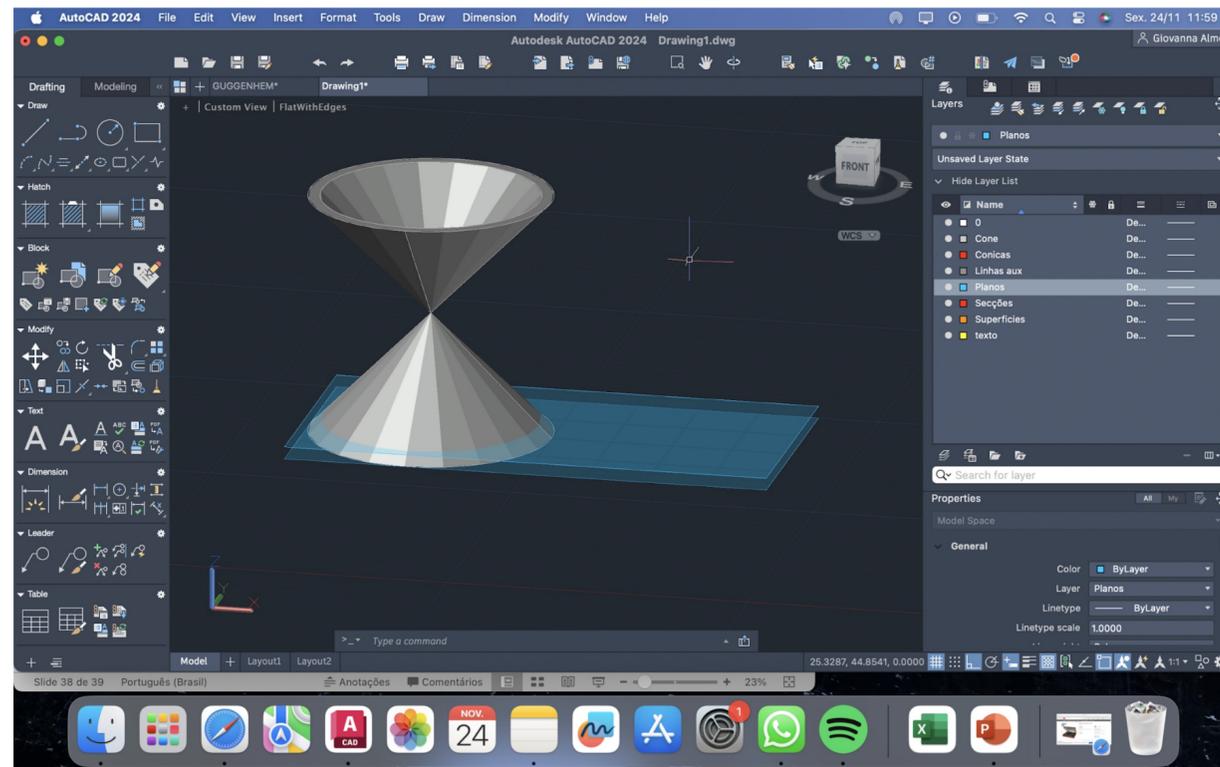


# LAYERS



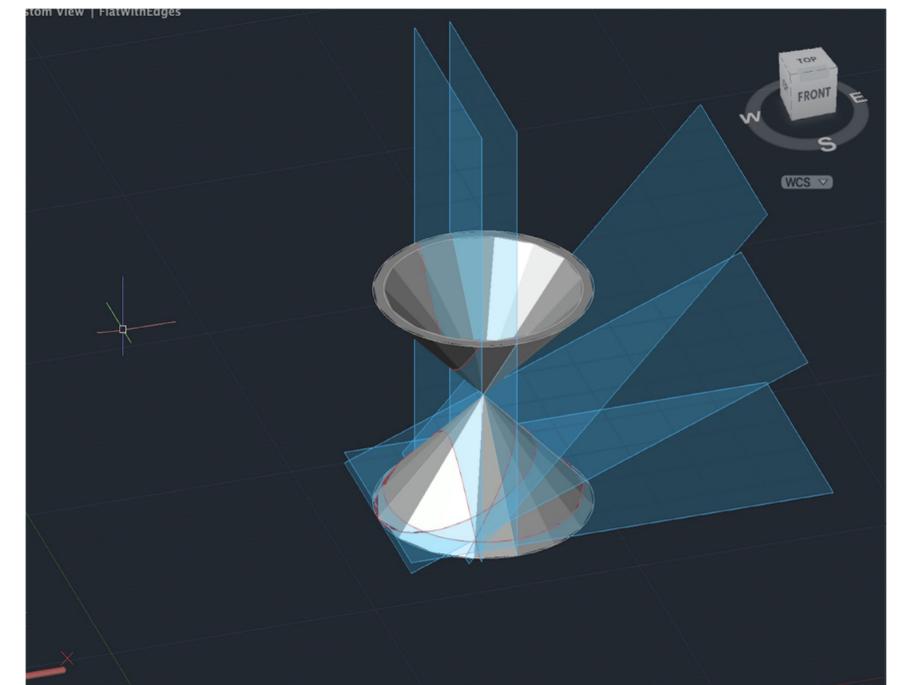
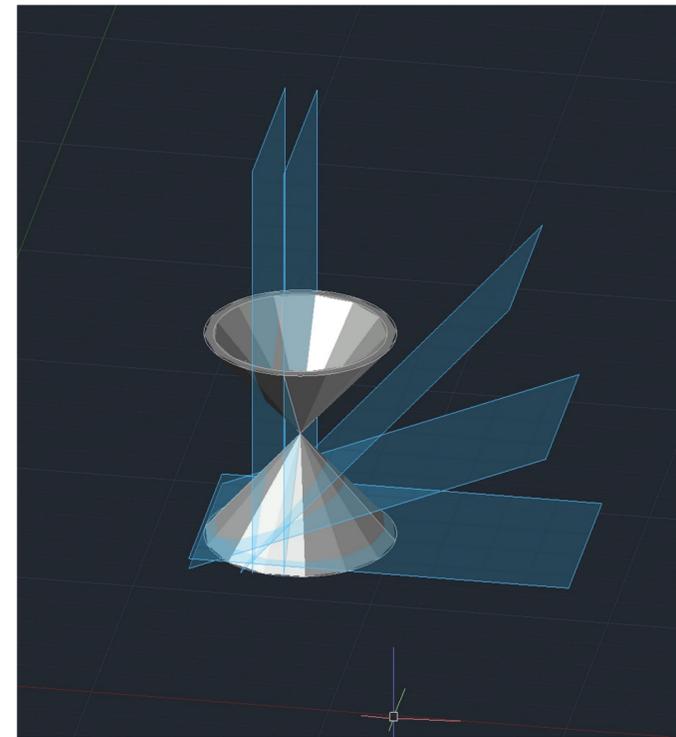
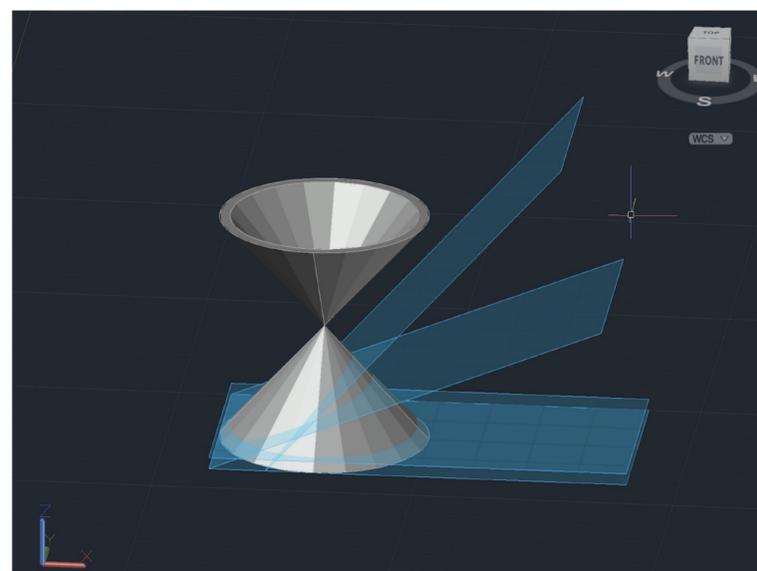
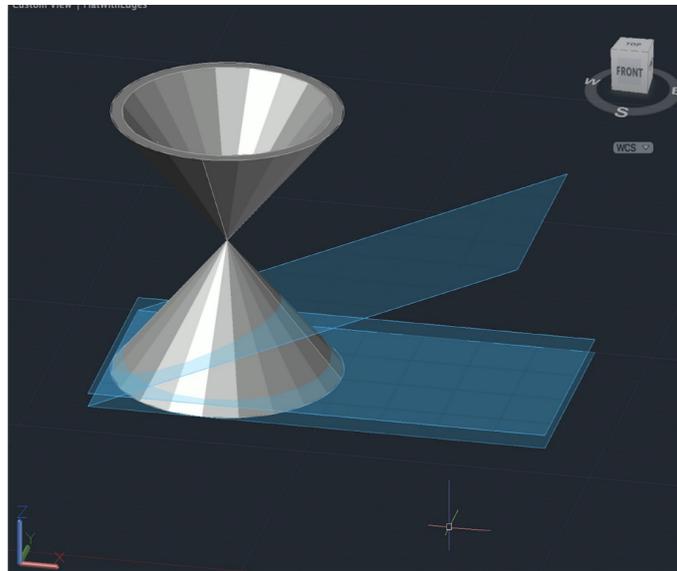
# SECÇÕES PLANAS EM UM CONE

- Criar um retângulo, e ajeitar rente ao cone
- Fazer um copy da mesma, 0.5 para cima



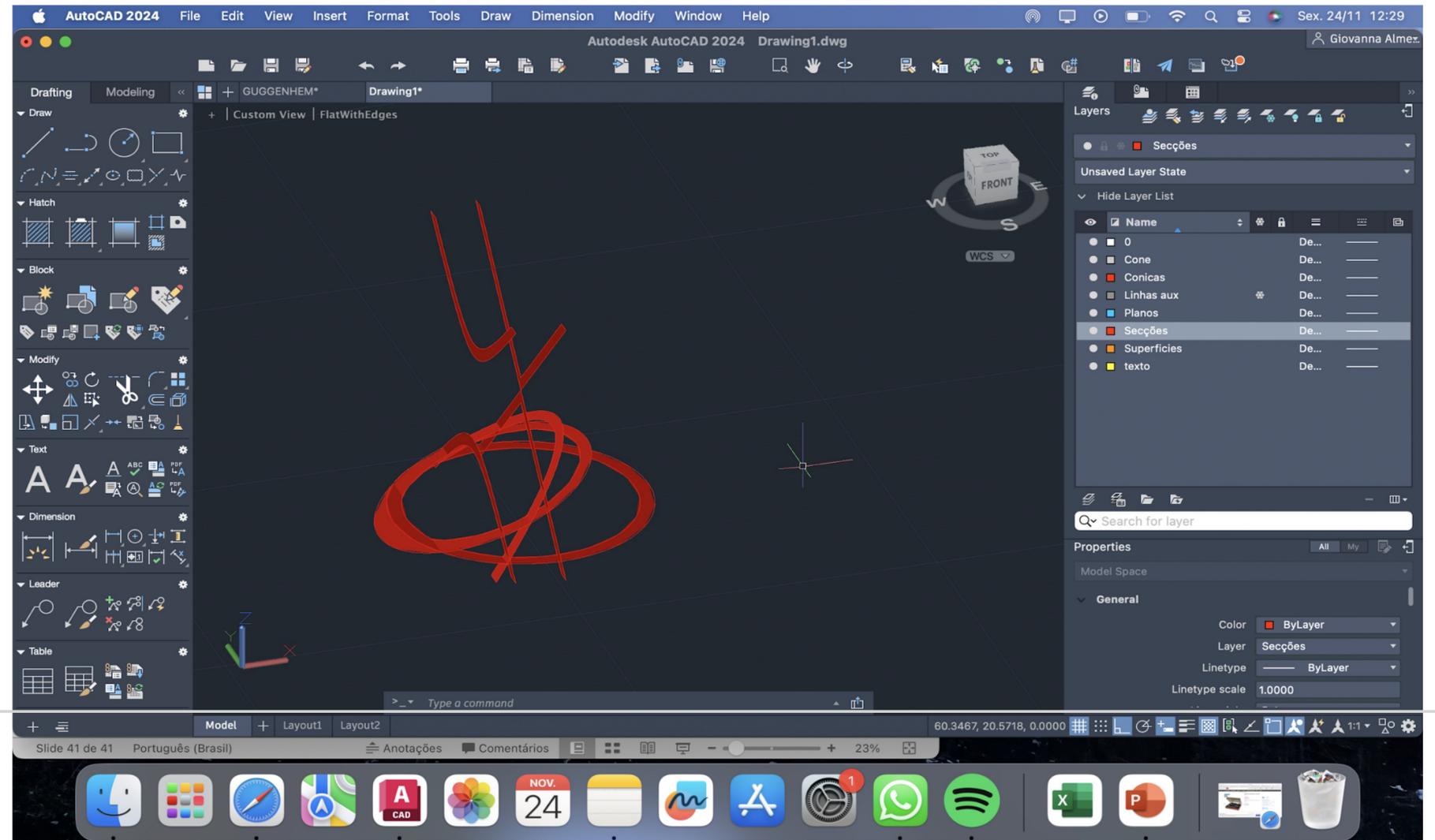
# SECÇÕES PLANAS EM UM CONE

- Fazer offset + rotate dos planos:



# SECÇÕES PLANAS EM UM CONE

- Com o comando SECTIONS delimitat as secções
- Fazer um copy, e em seguida eliminar o restante do objeto

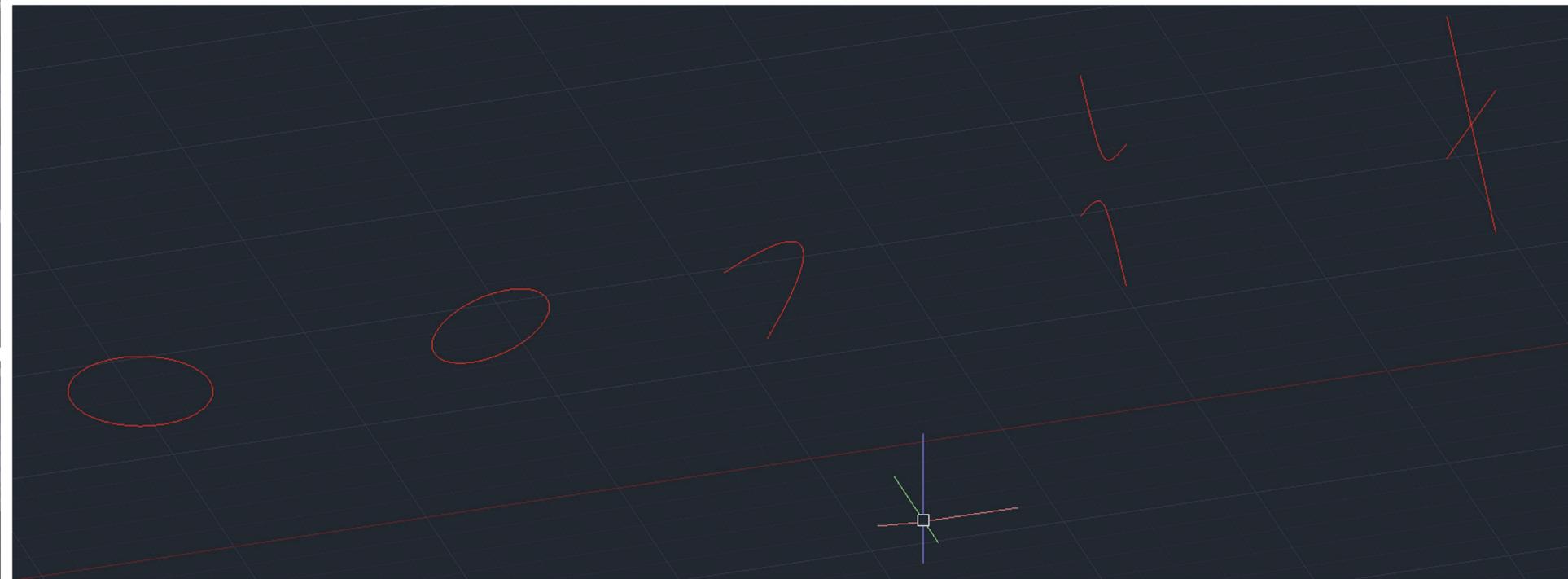
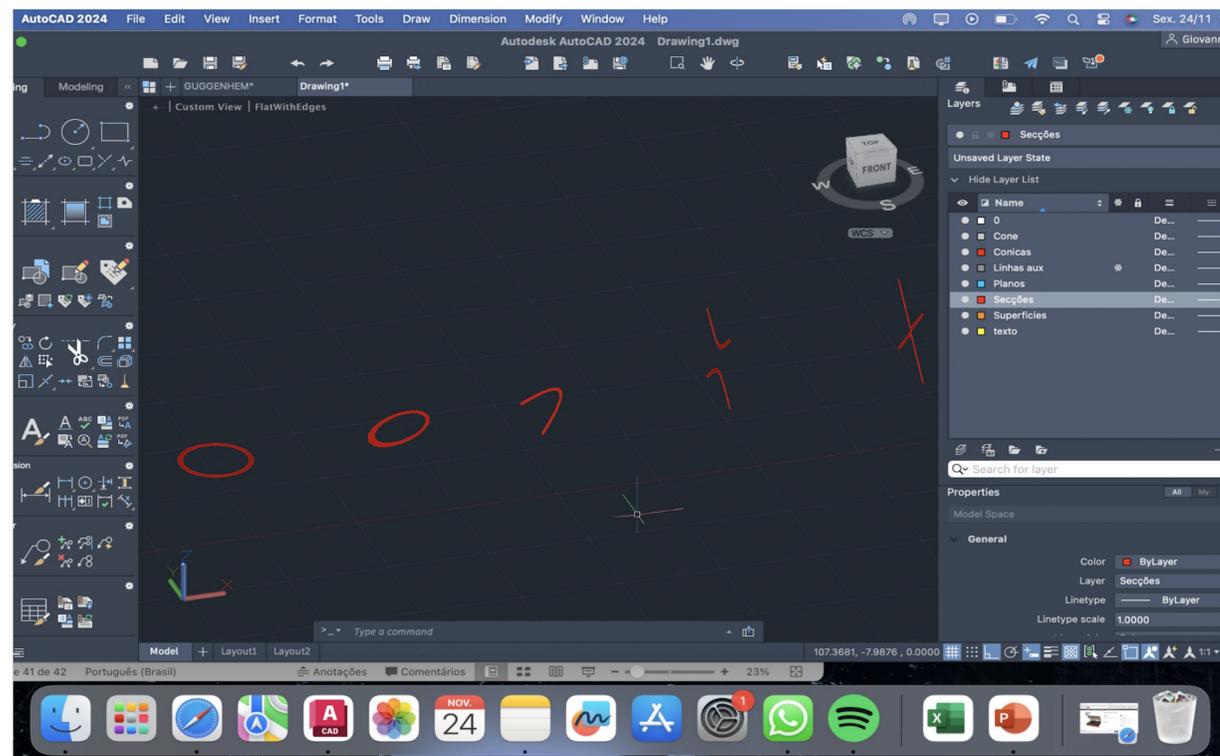


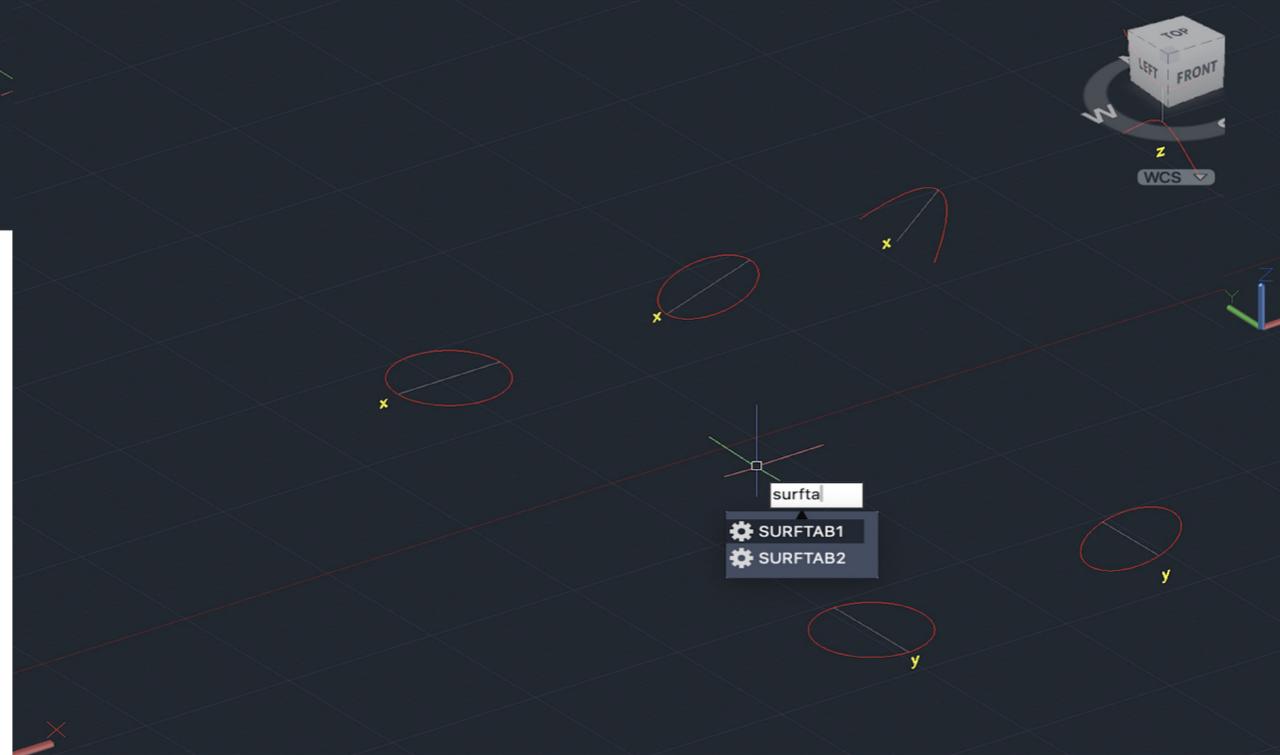
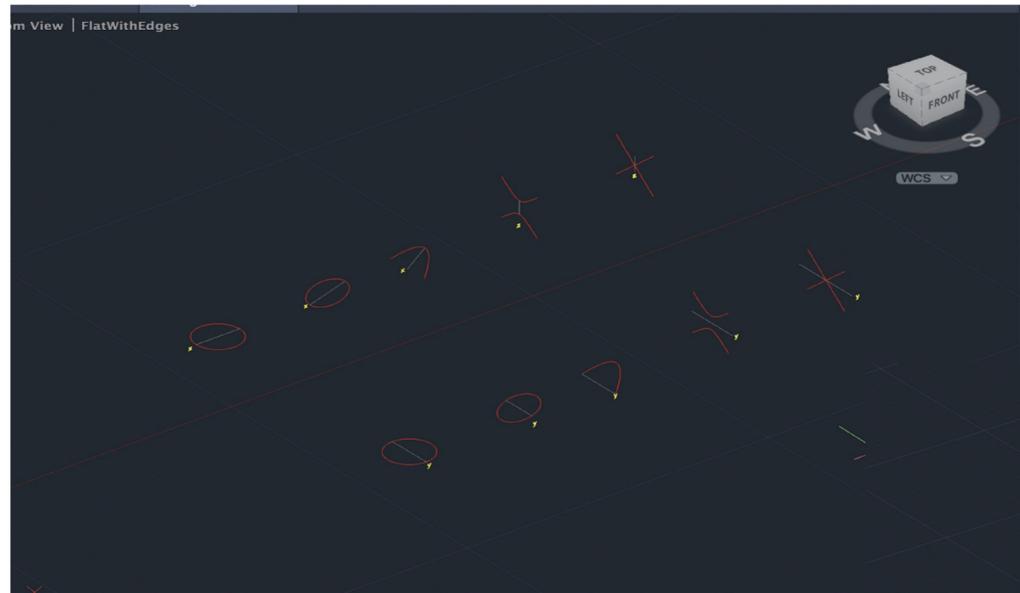
# SECÇÕES PLANAS EM UM CONE

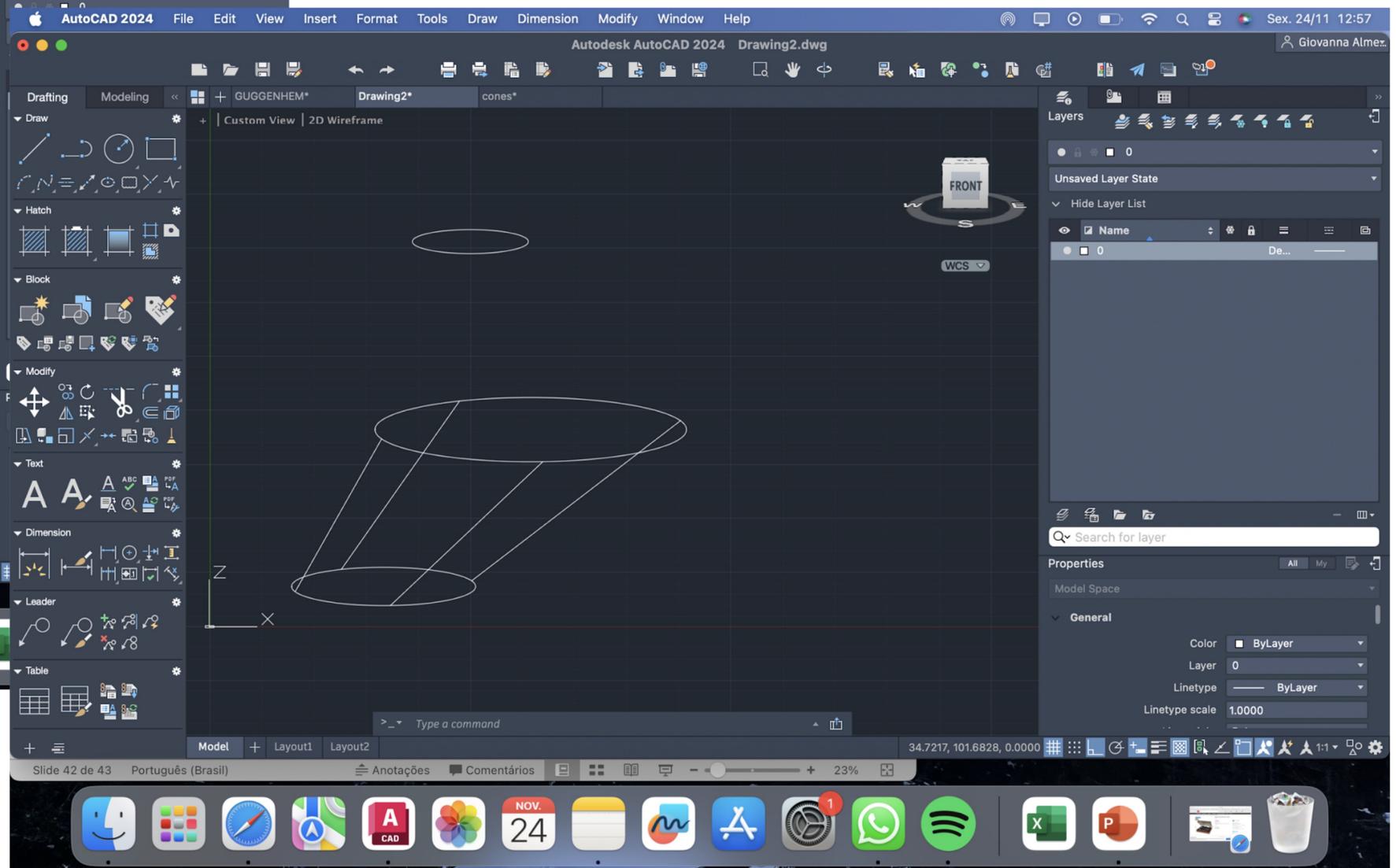
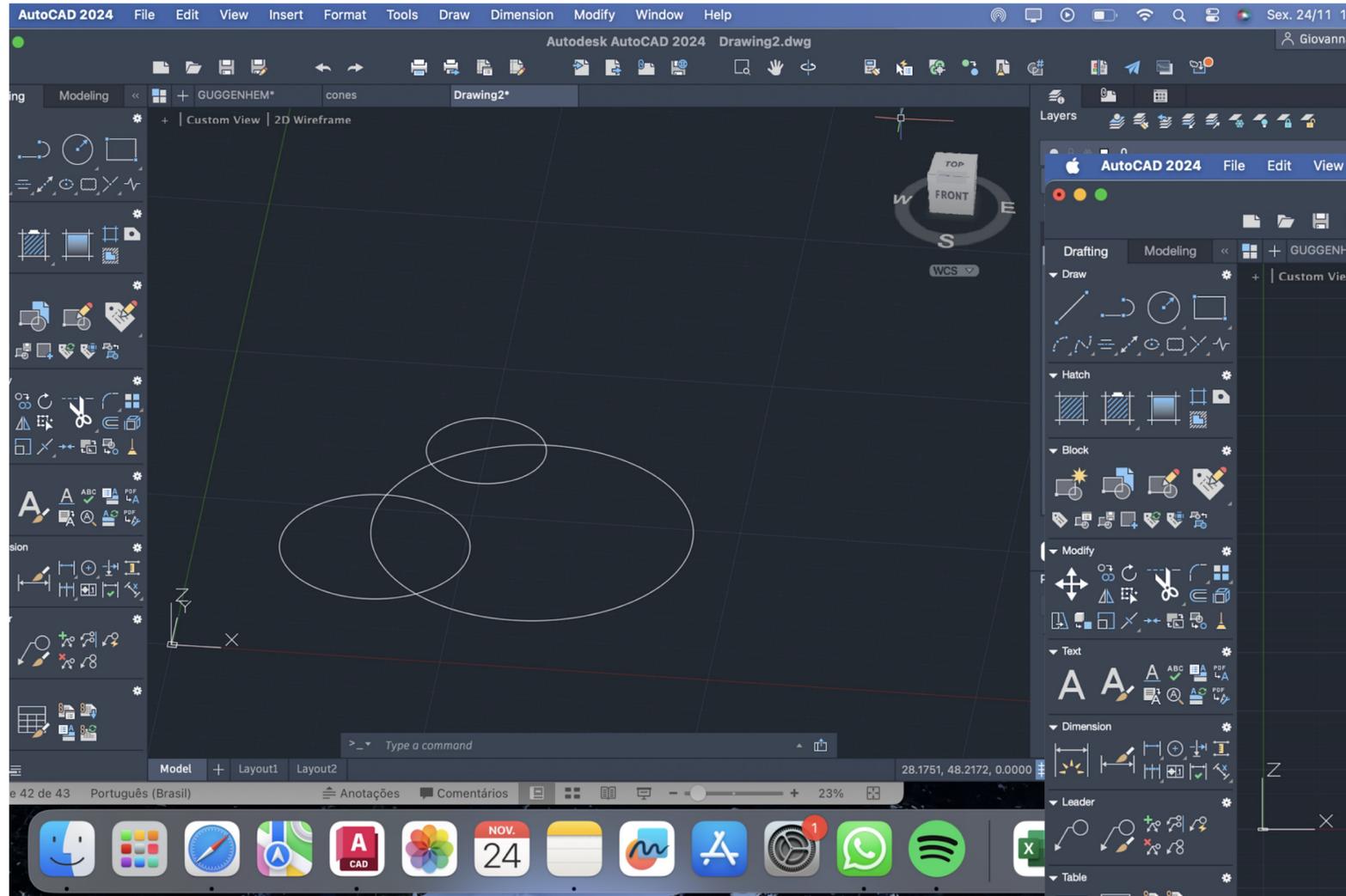
- Separar as secções criadas
- Comando EXPLODE (retira o hatch)

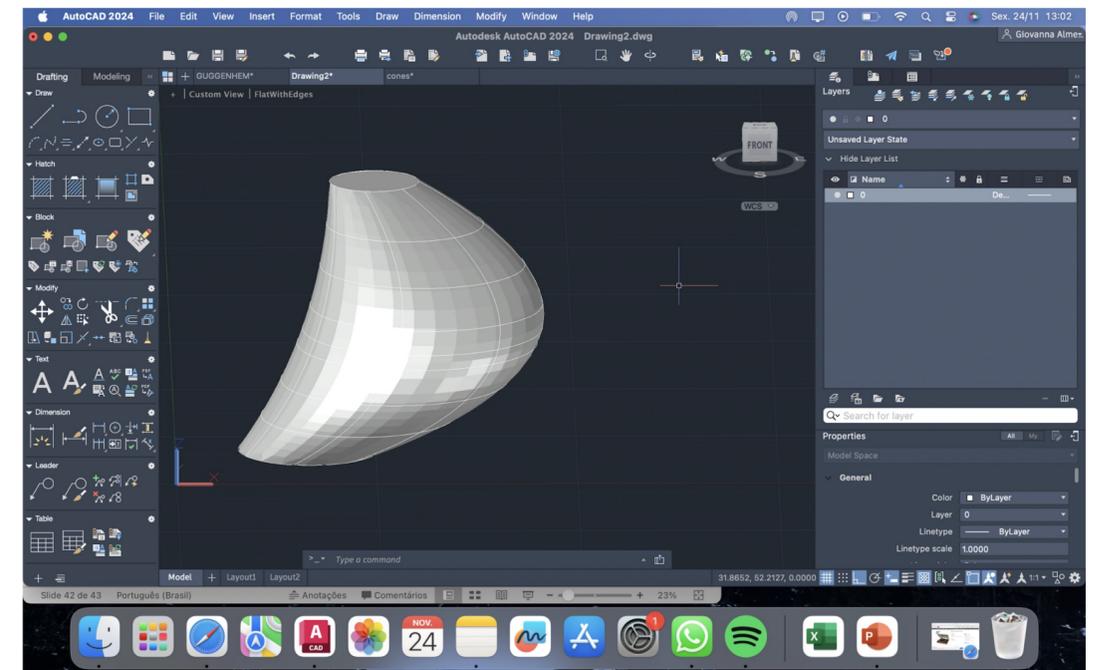
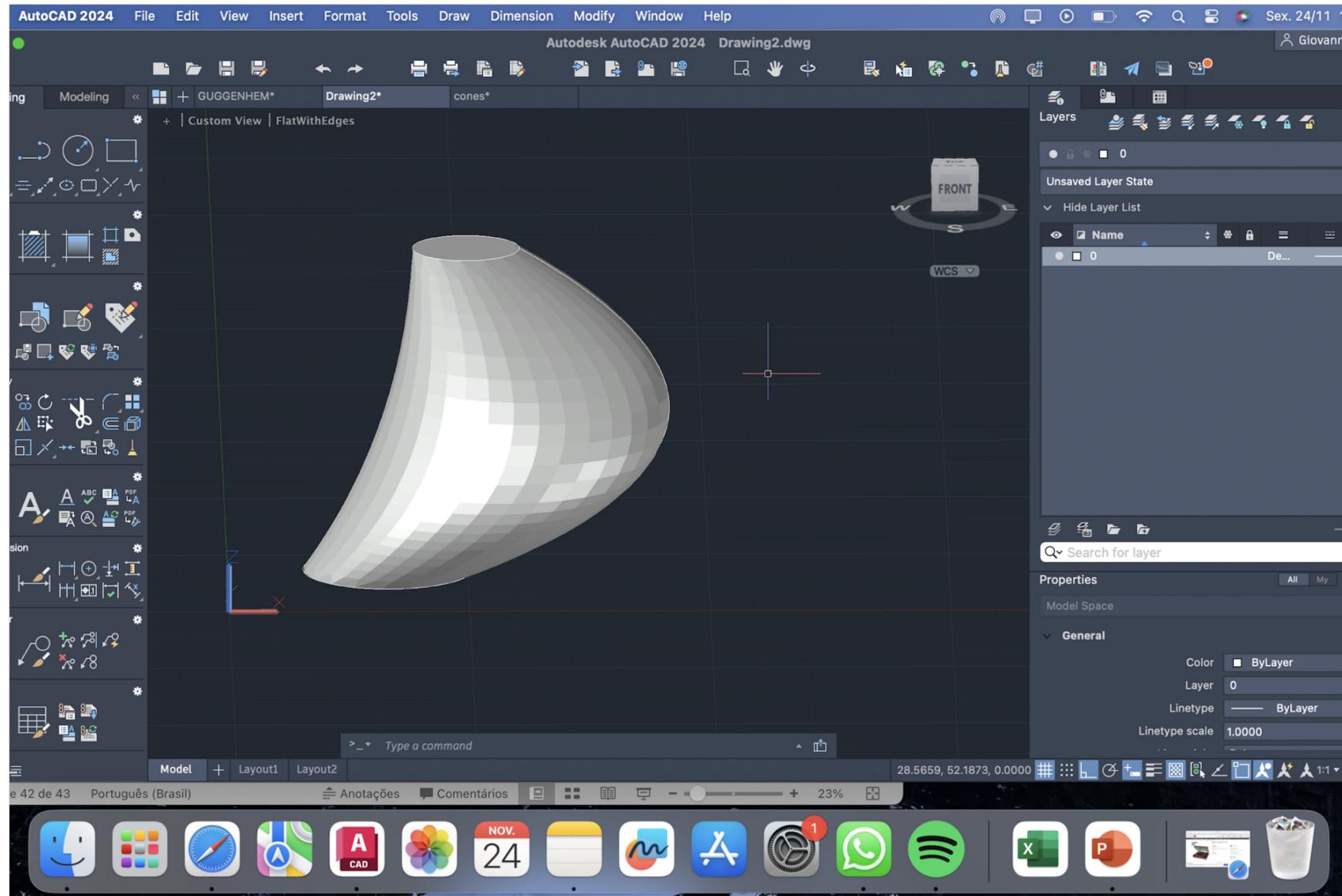
coroa circunferencial  
Coroa Eliptica  
Coros Parabolica  
Coroa Hiperbolica  
Angulos poligonais

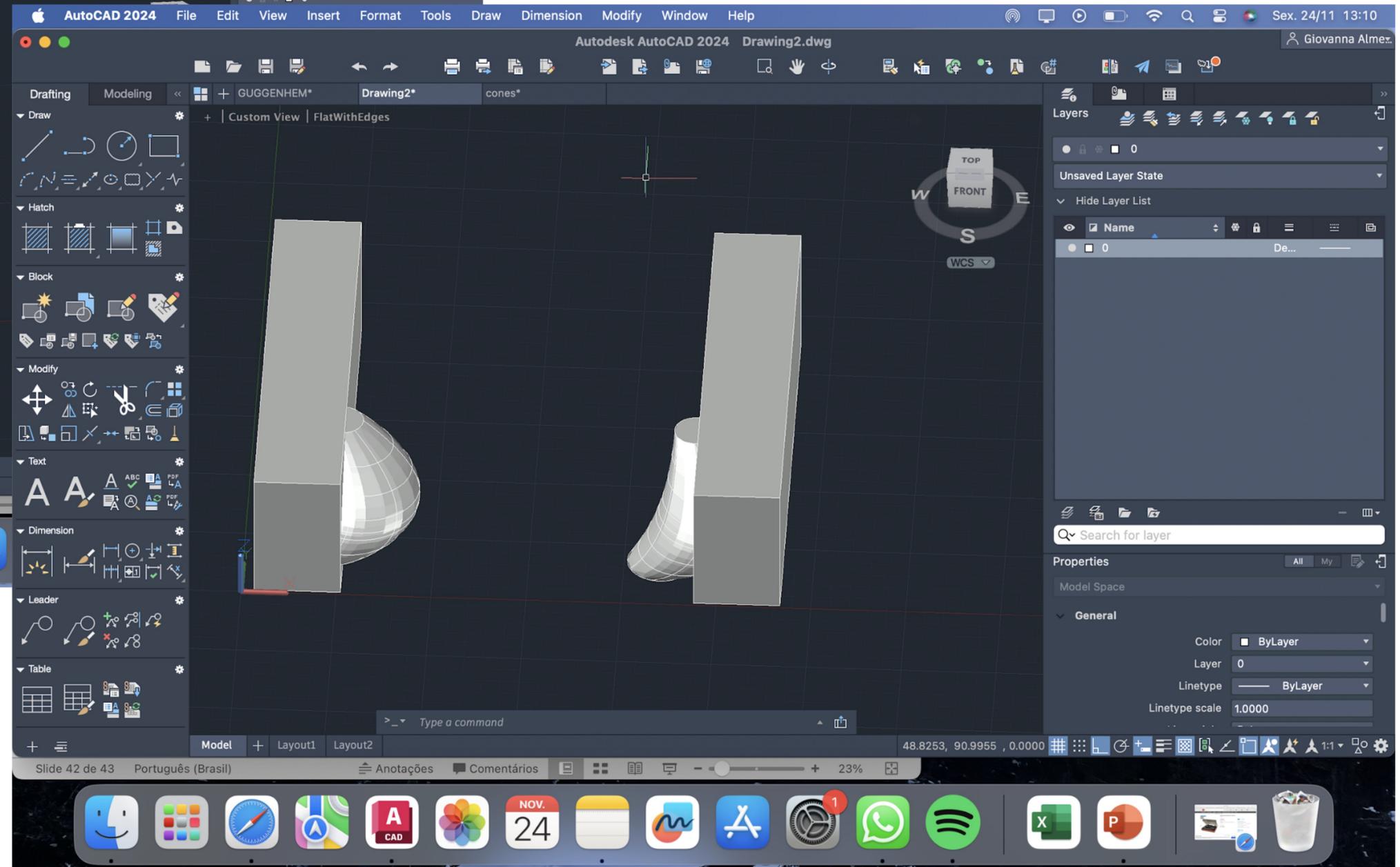
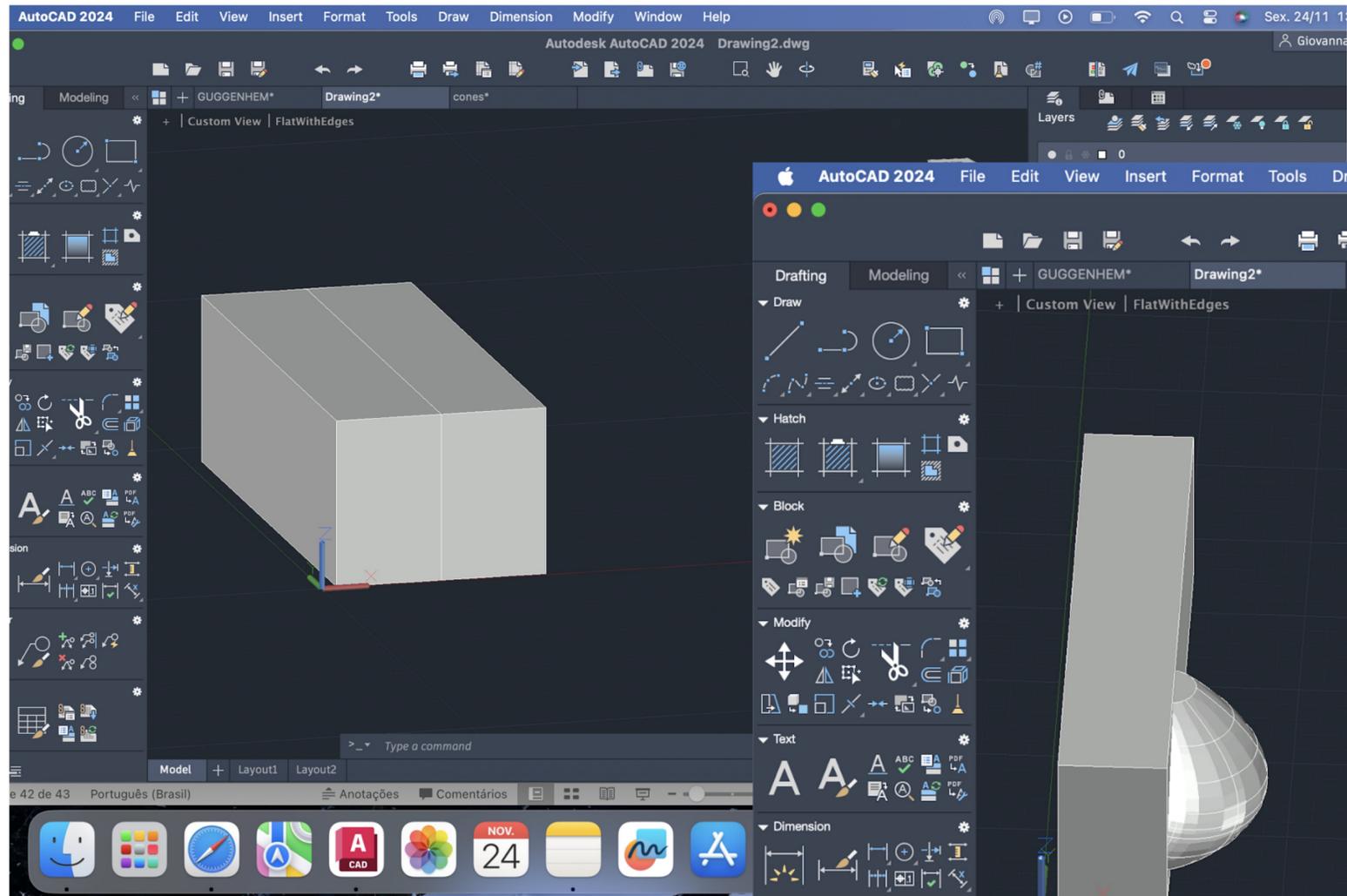
TEXTO: Secções planas do cone, circunferência, elipse, parábola, hipérbole, rectas





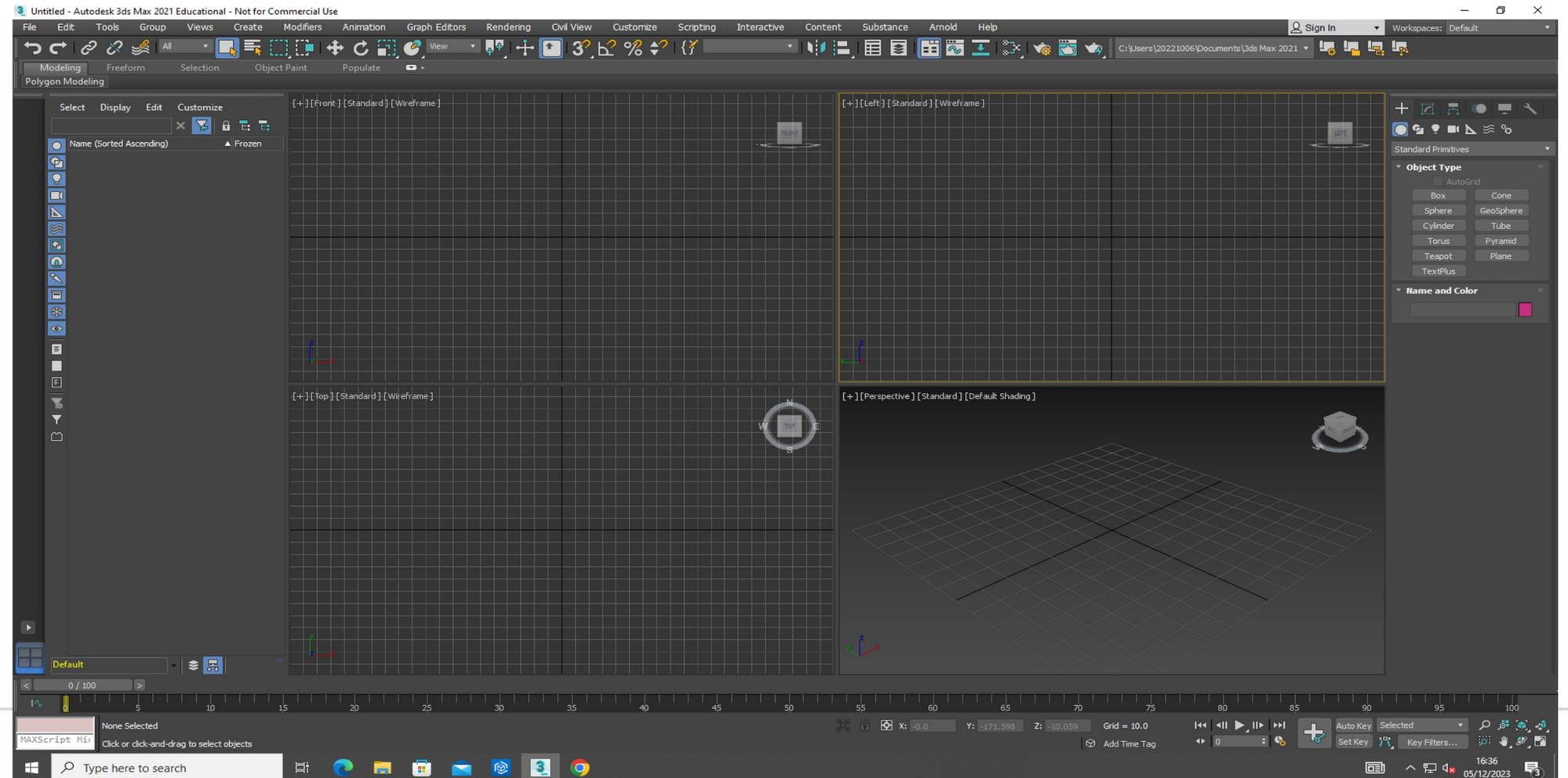




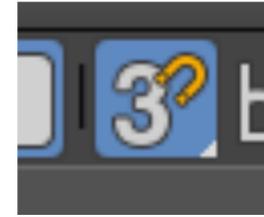


# 3D MAX

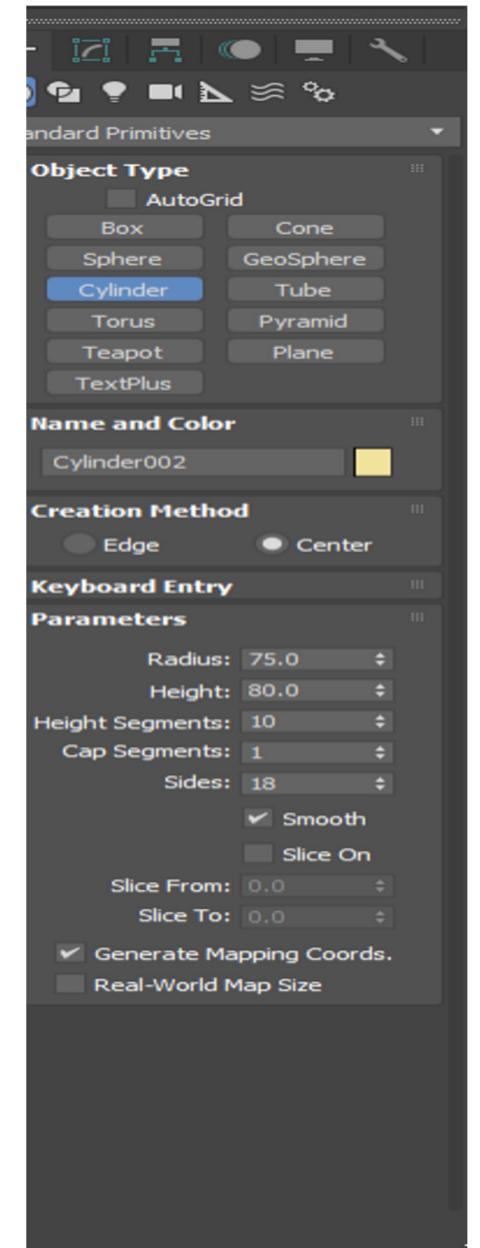
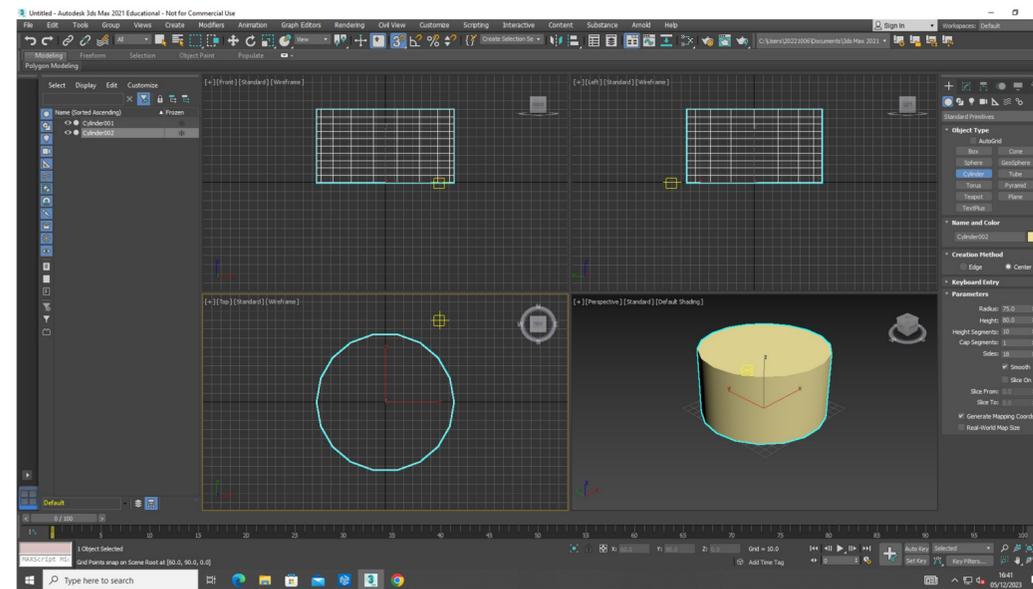
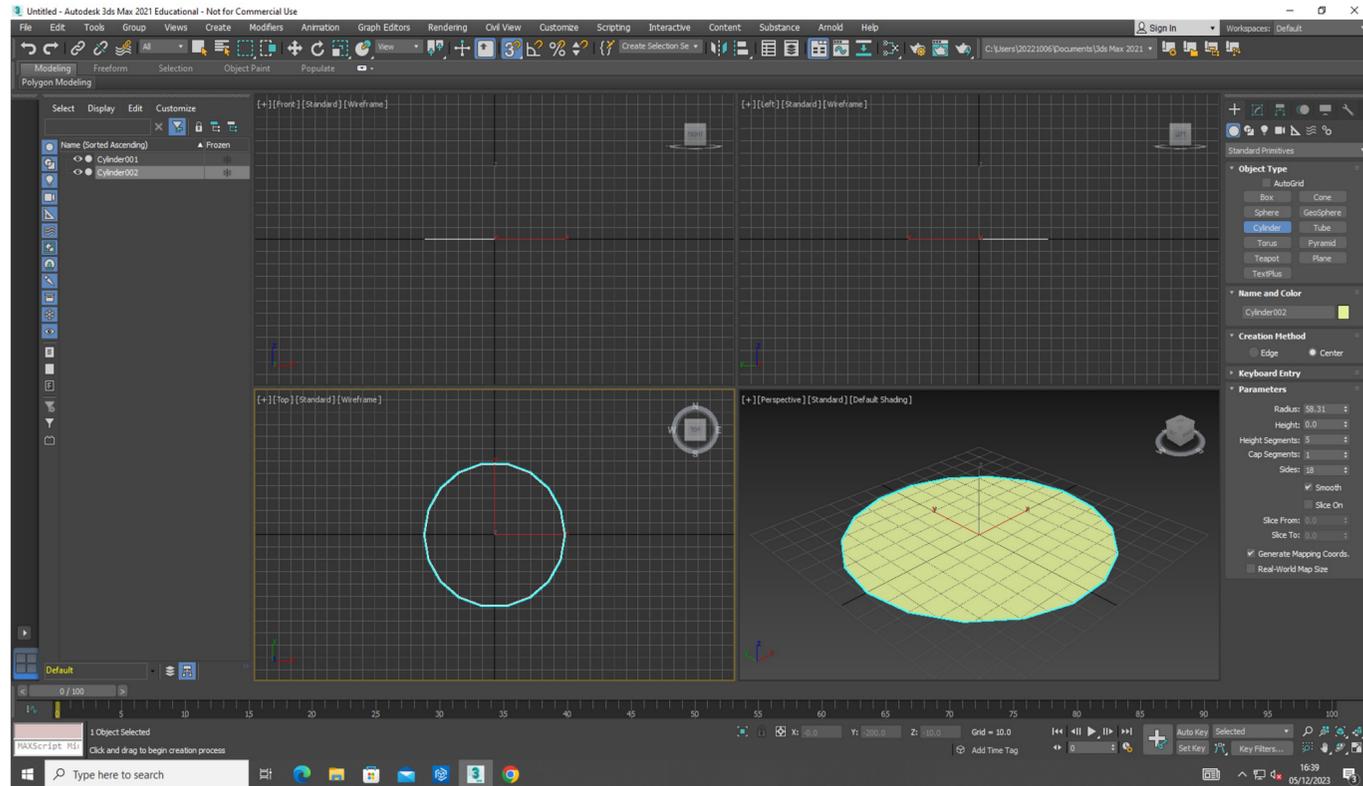
- 4 janelas
- Organizar: Front (esquerdo), LEFT (direito), TOP (em baixo) e Perpesctiva



# 3D MAX – BASE LAMPARINA

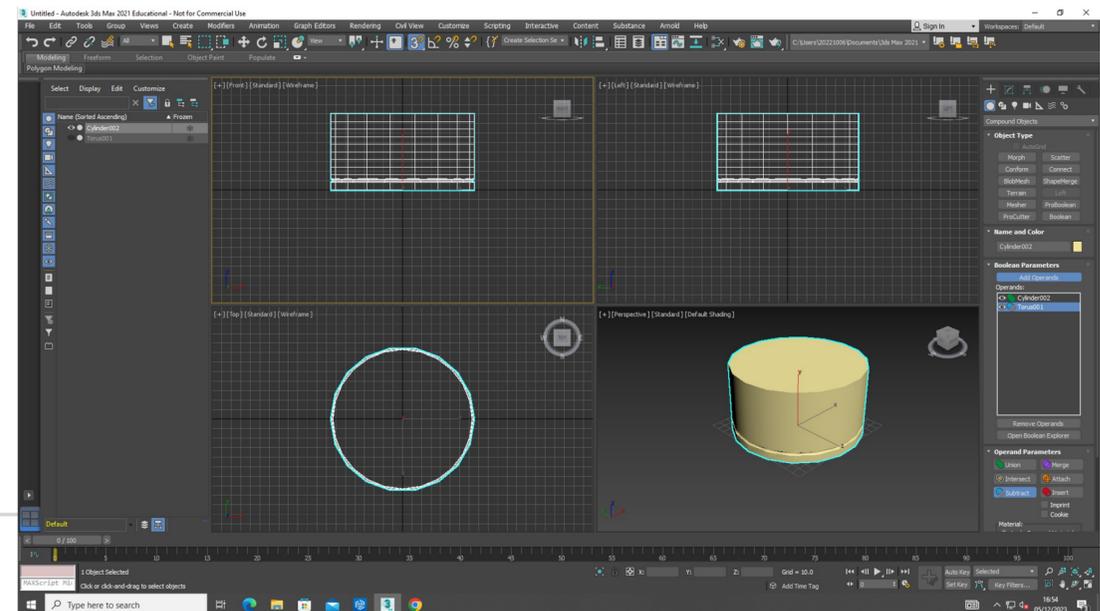
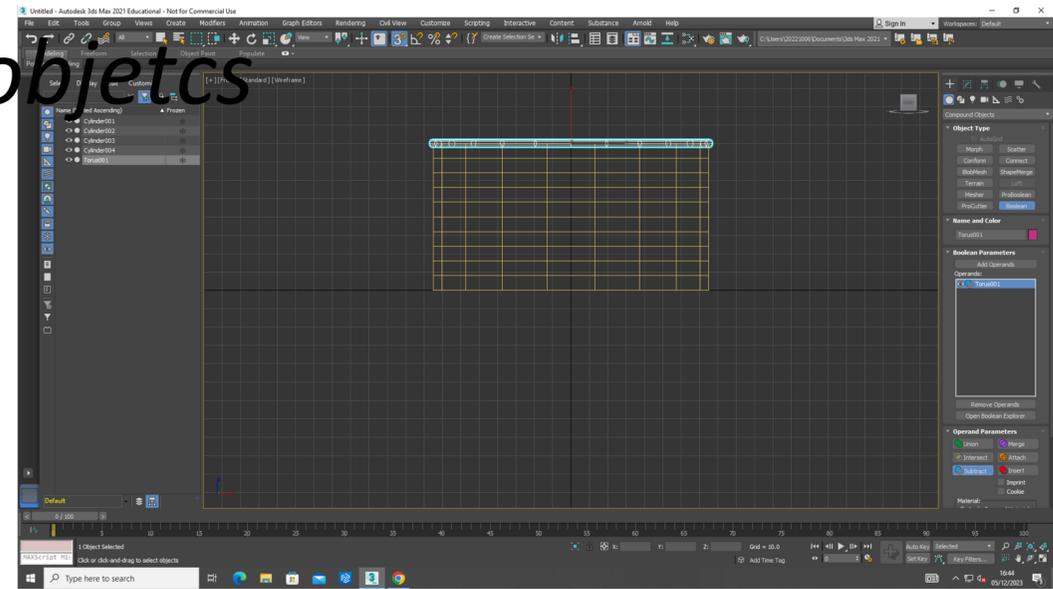
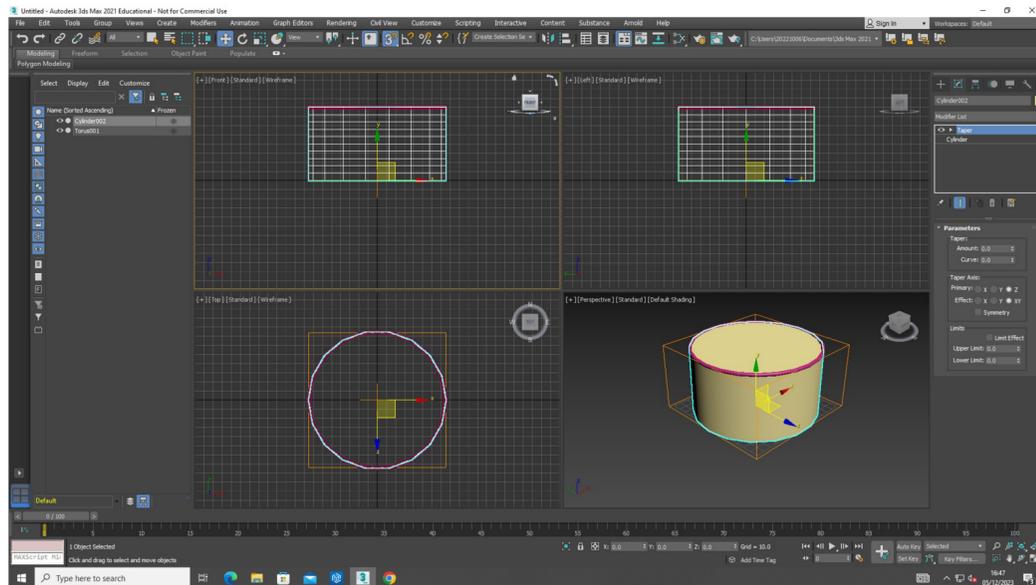


- Em geometria, escolher o “CILINDRO”
- Com ajuda do Snaps toogle (3D) paea seleccionar o meio



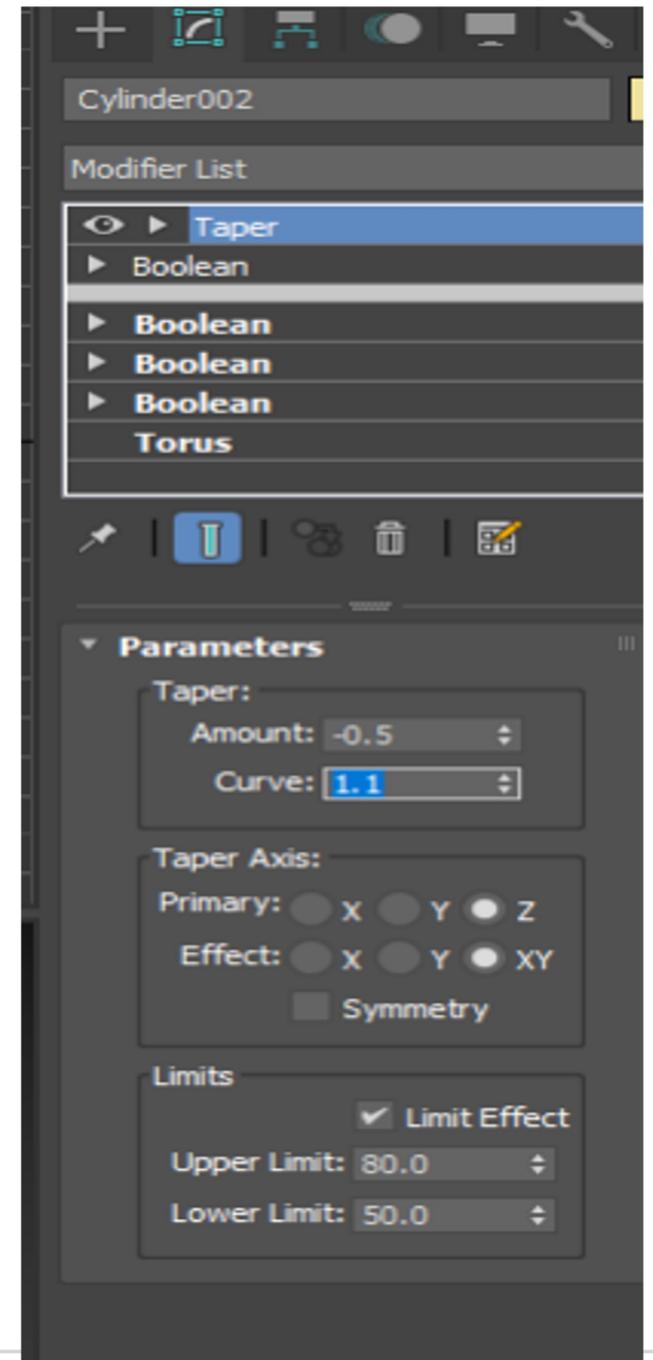
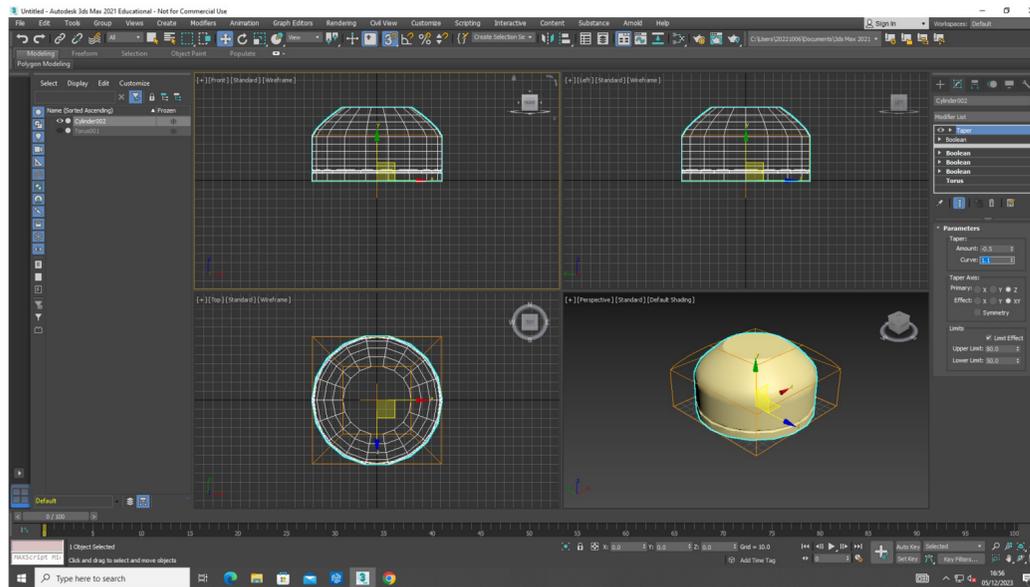
# 3D MAX – BASE LAMPARINA

- Em geometria, escolher o “TORUS” e posicionar no interior do cilindro
- **SUBTRAIR O TORUS DO CILINDRO**
- Alterar de *stand primitives* para *compound objects*
- Selecionar -> *operands* -> *subtract*

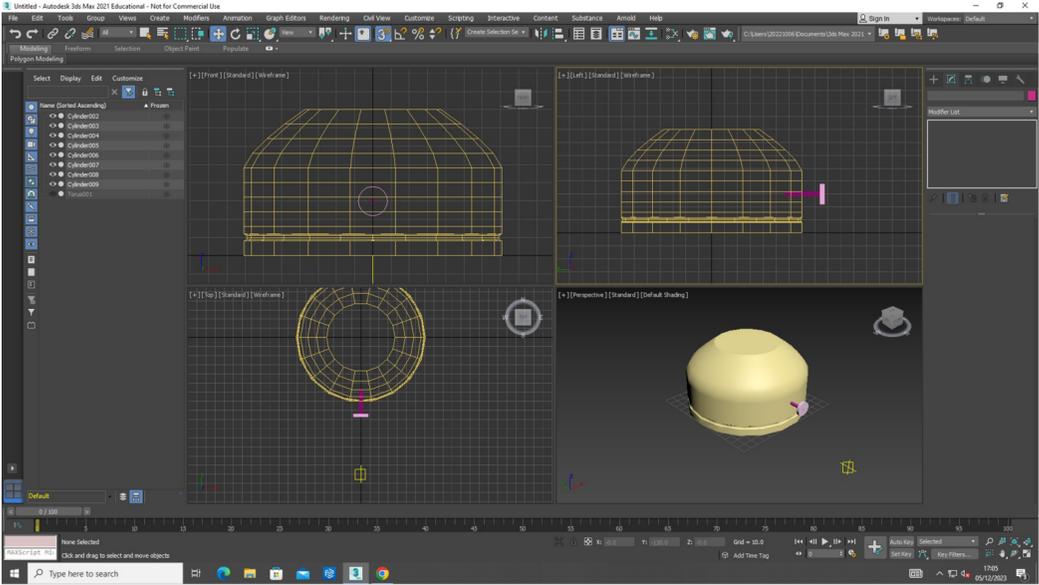
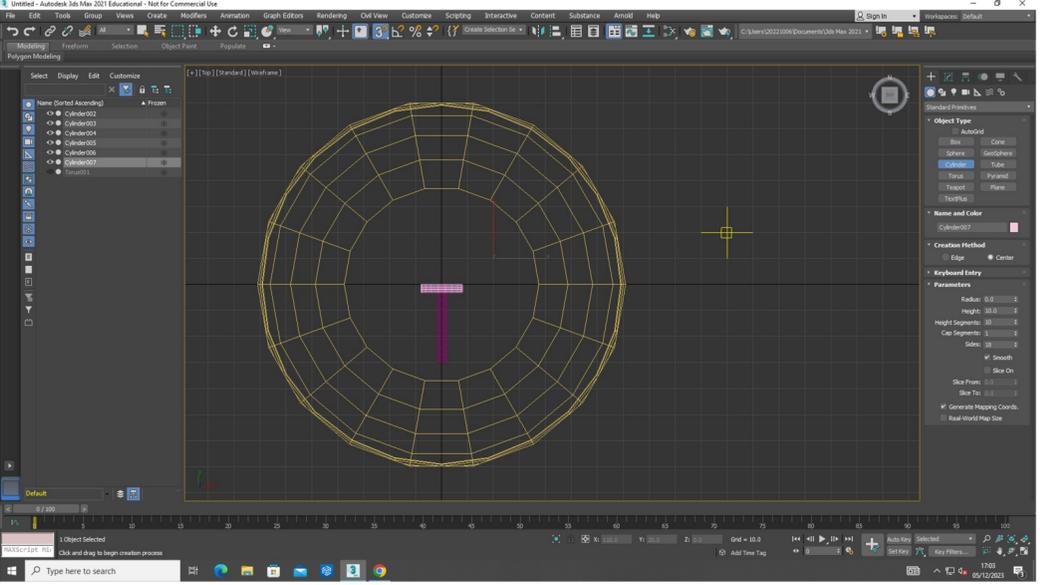
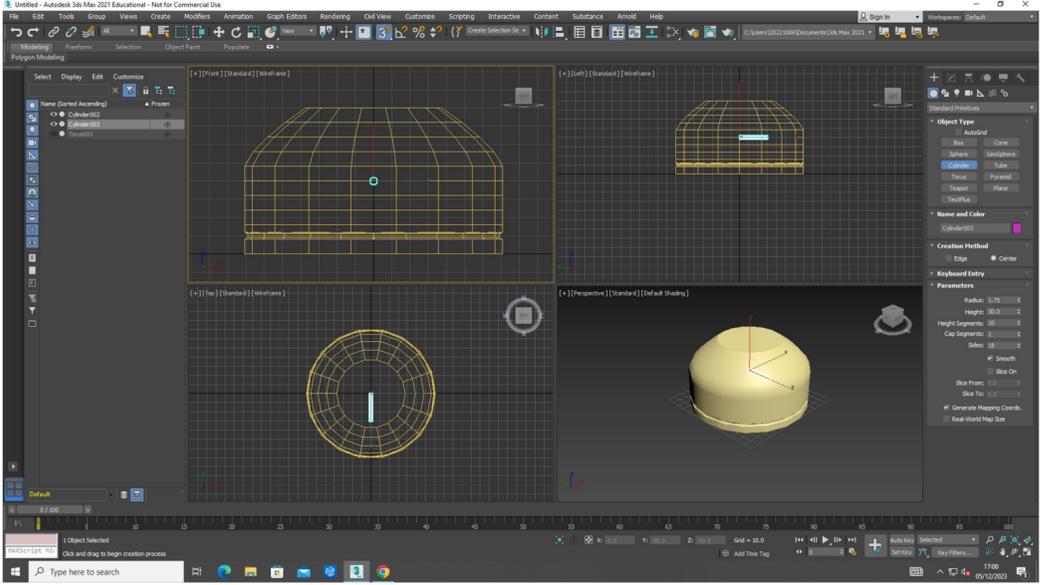


# 3D MAX – BASE DA LAMPARINA

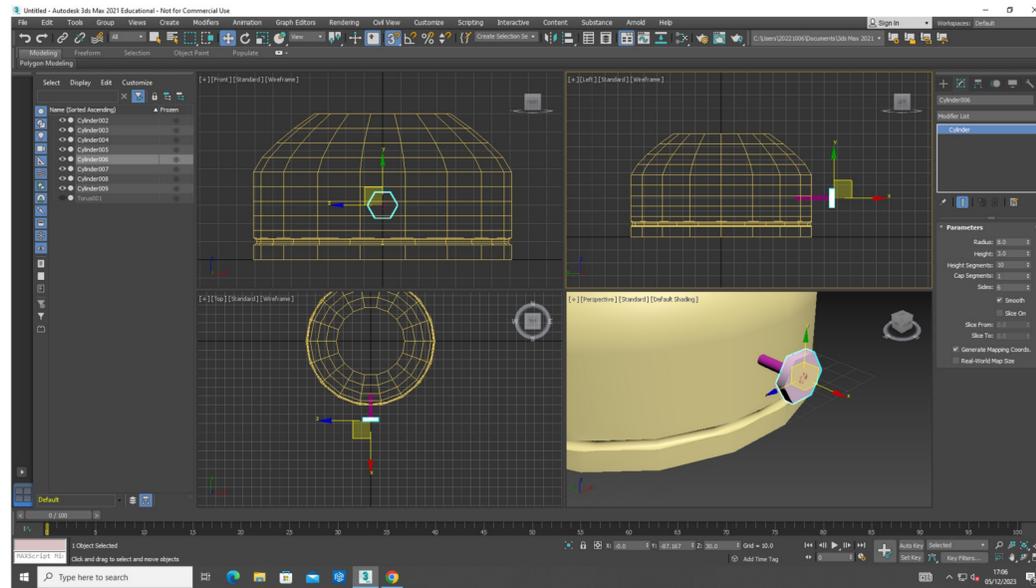
- Ir a MODIFY
- Em modifier list -> taper -> limit Effect



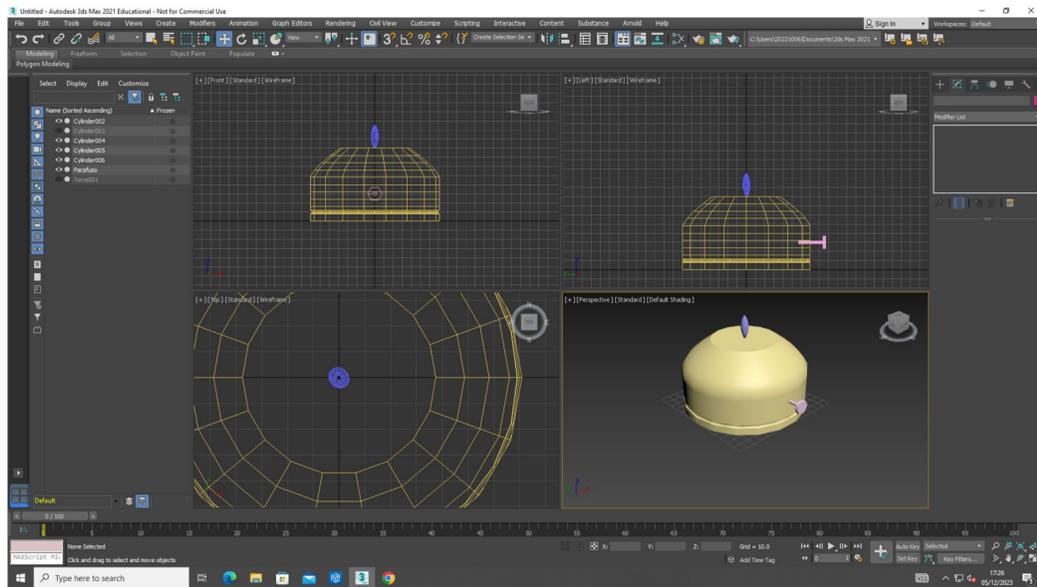
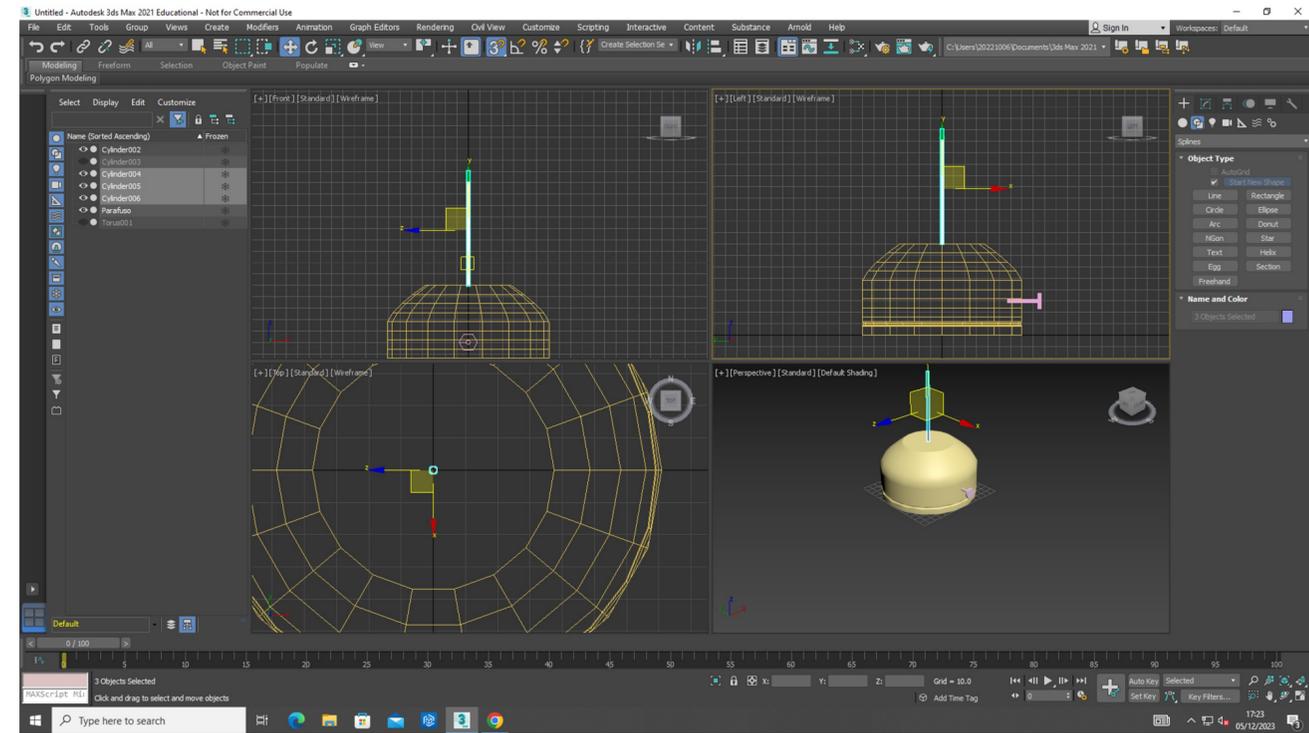
# 3D MAX – PARAFUSO



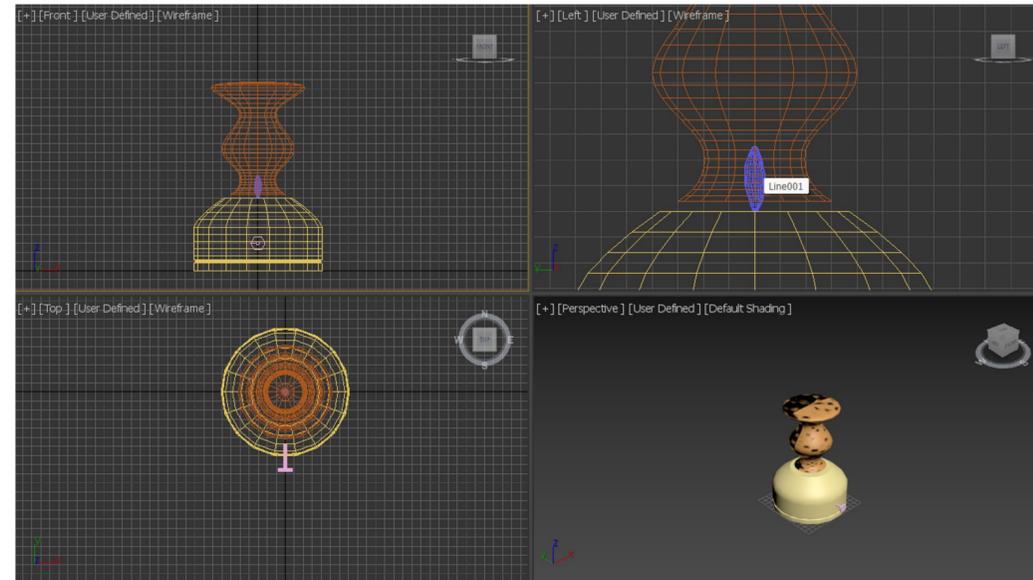
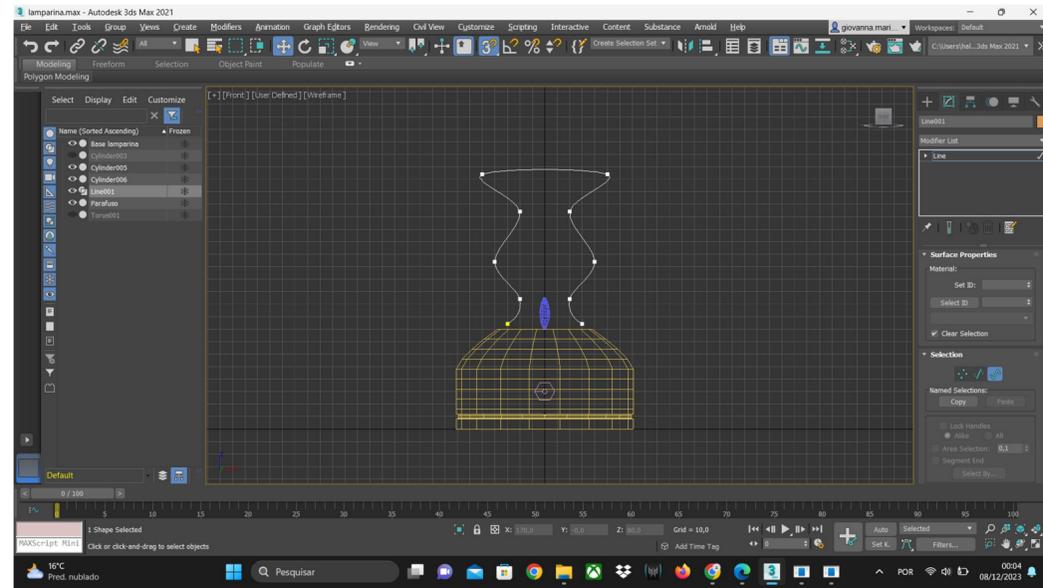
# 3D MAX – PARAFUSO



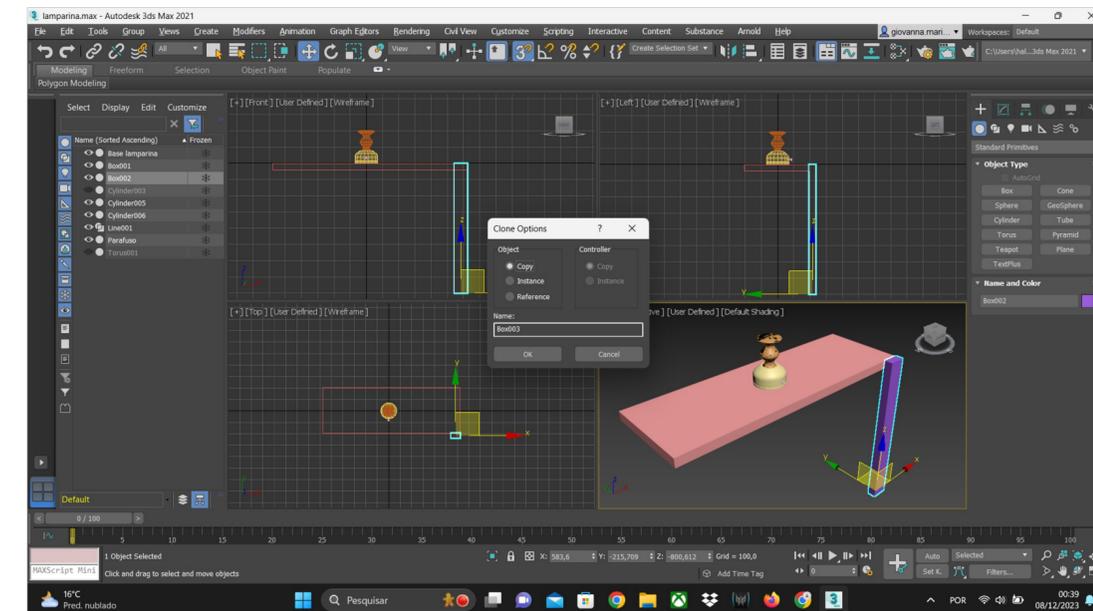
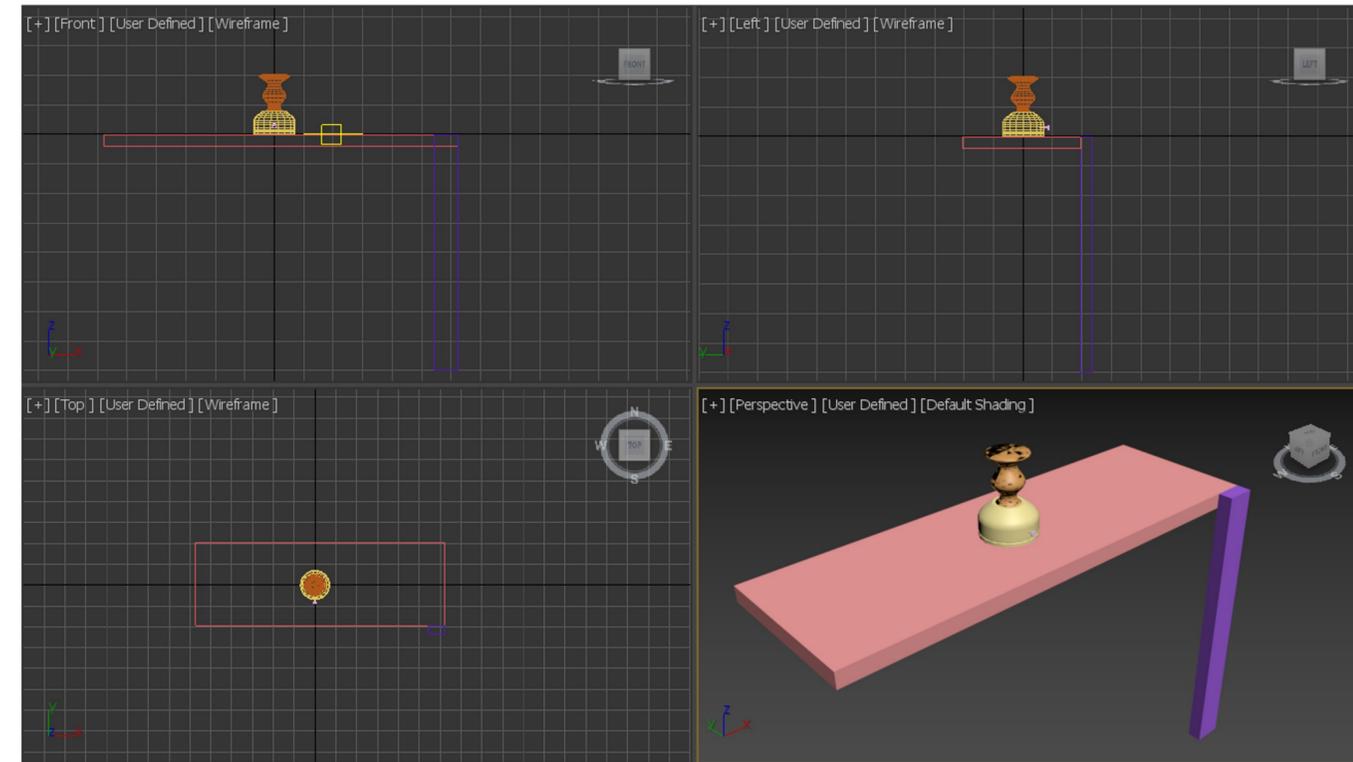
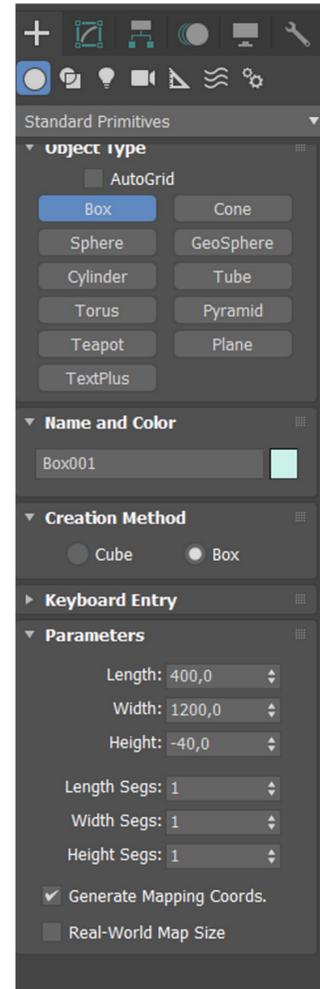
# 3D MAX – CHAMA



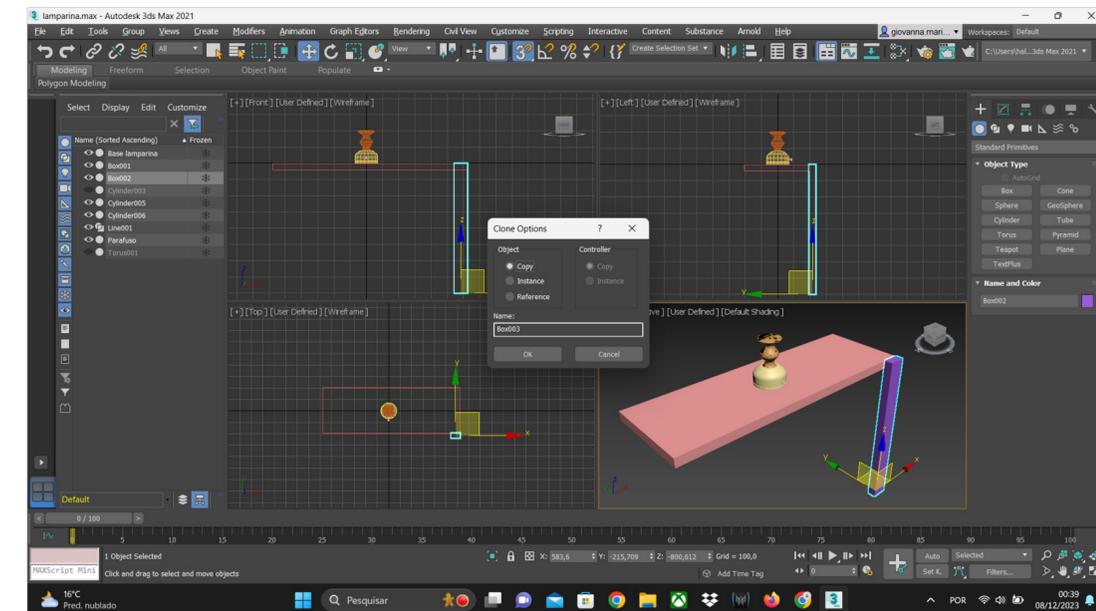
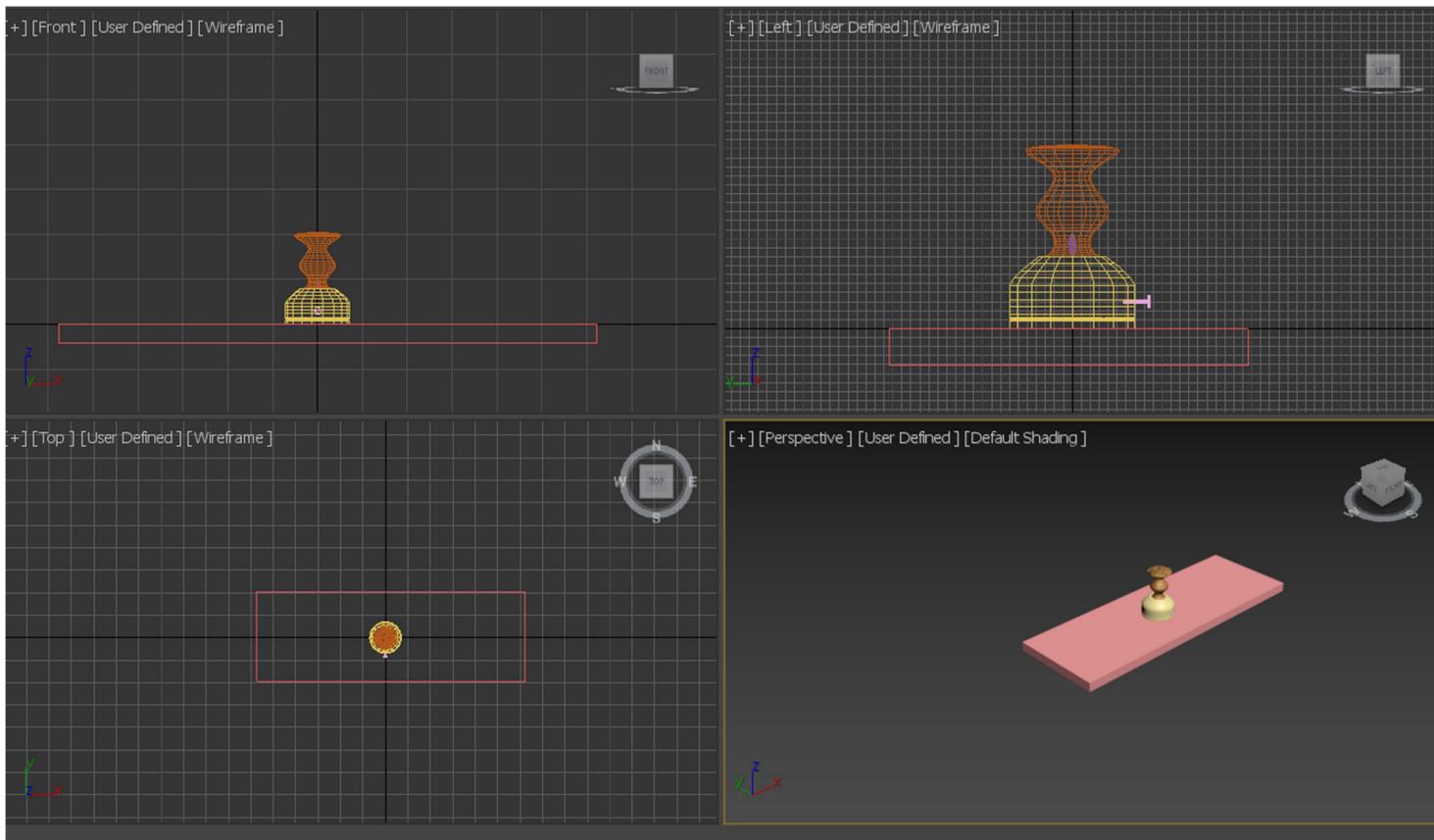
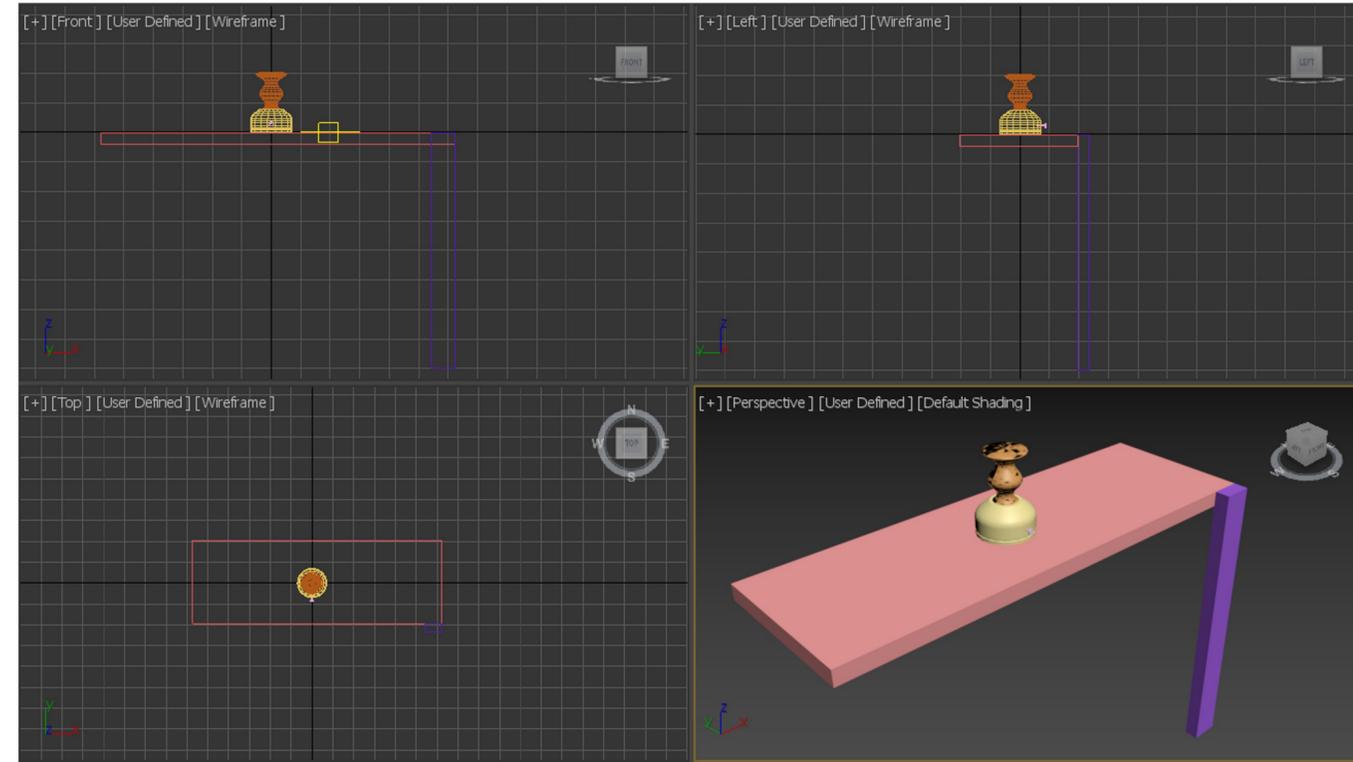
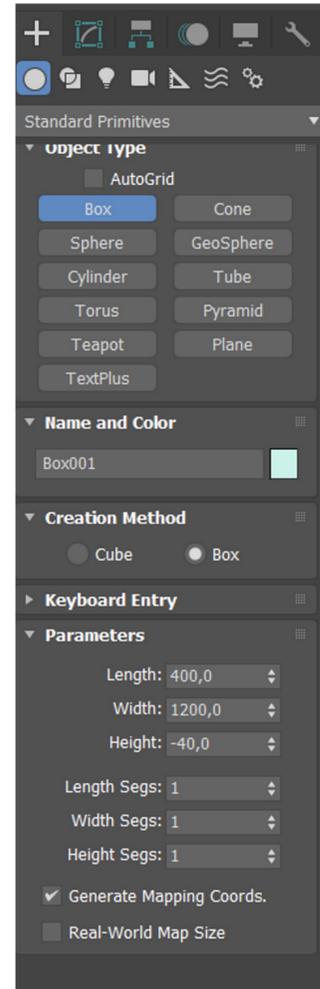
# 3D MAX – BOTIJA

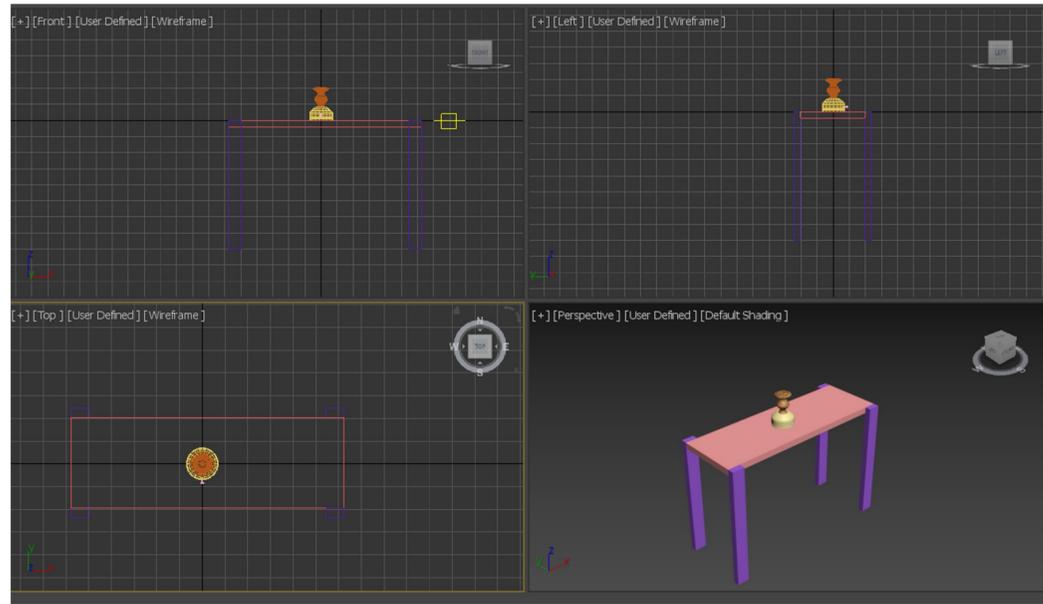


# 3D MAX – MESA



# 3D MAX – MESA





**Parameters**

Length: 2000,0

Width: 3000,0

Height: 100,0

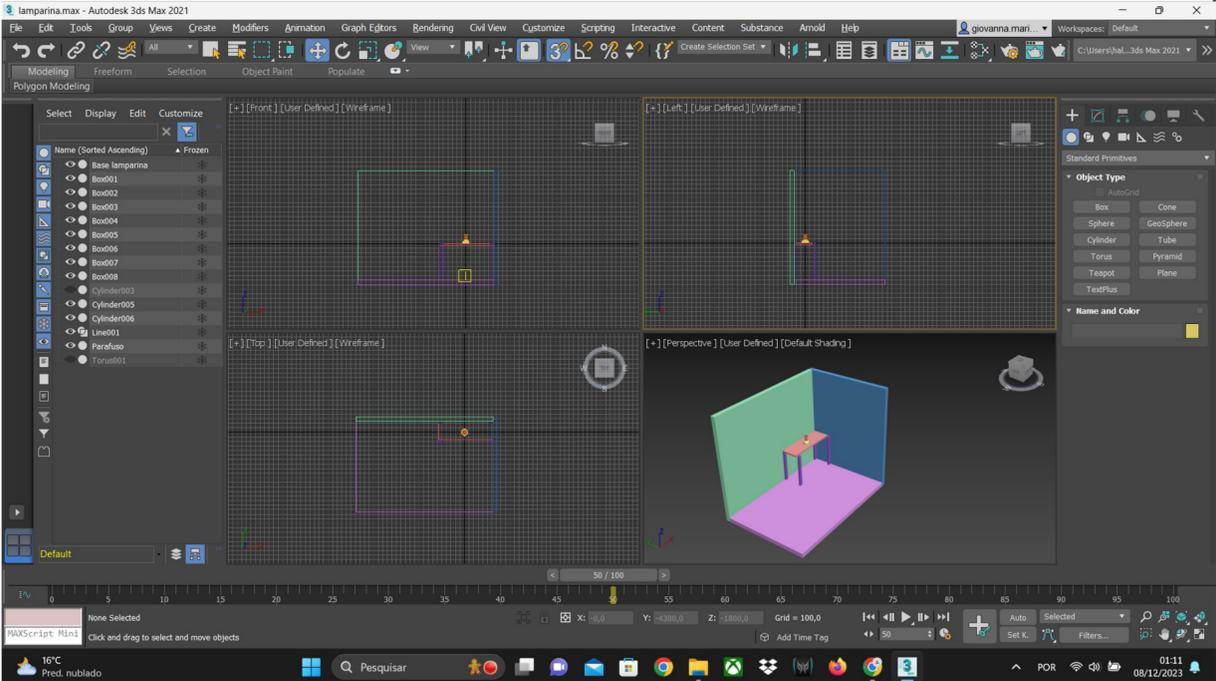
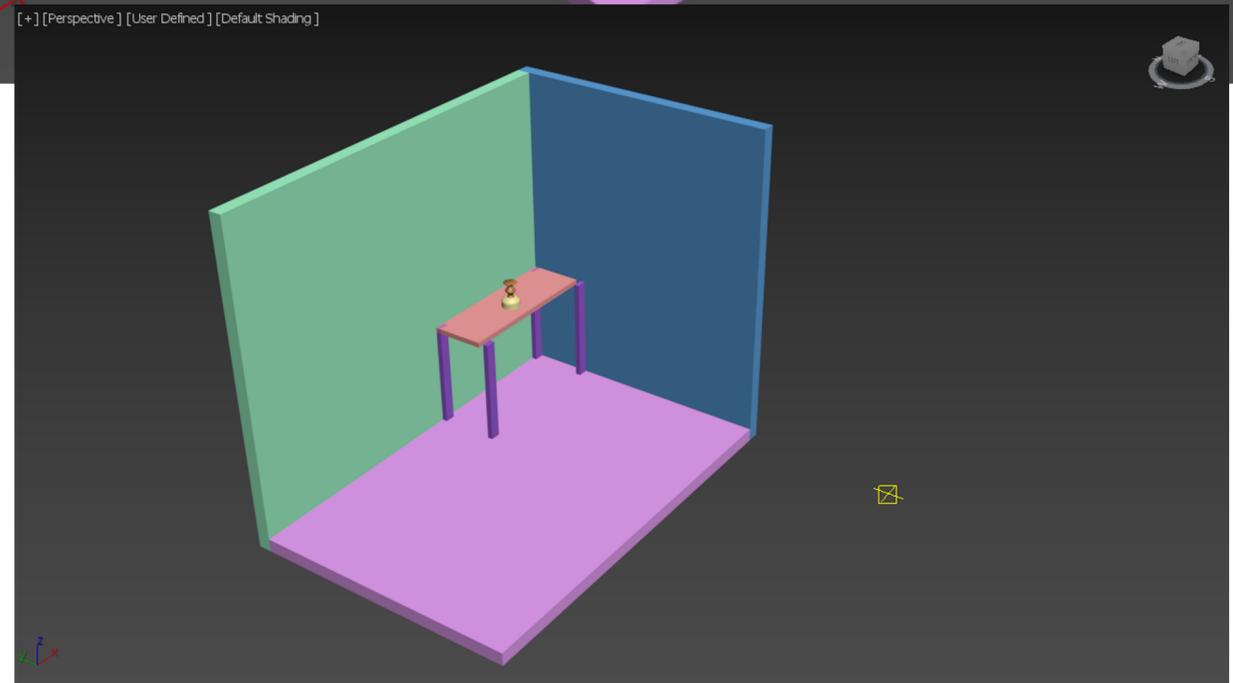
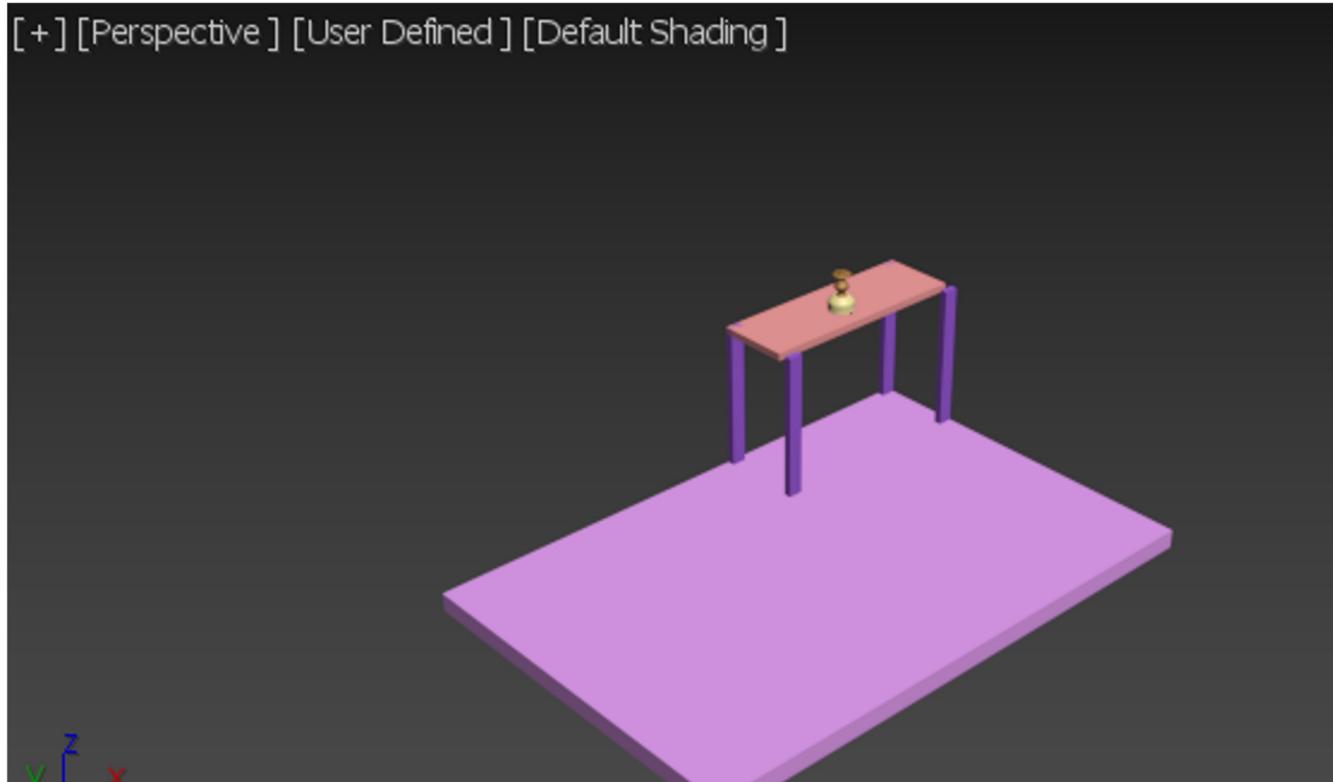
Length Segs: 1

Width Segs: 1

Height Segs: 1

Generate Mapping Coords.

Real-World Map Size



Select Display Edit Customize

Name (Sorted Ascending)	Frozen
Base lamparina	*
Box001	*
Box002	*
Box003	*
Chama	*
Cylinder003	*
Line001	*
Mesa	*
Parafuso	*
Perna 1	*
Perna 2	*
Perna 3	*
Perna 4	*
Torus001	*

# Adicionar materiais | Vidro

- Abrir janela de materiais (canto superior direito)
- Slate material

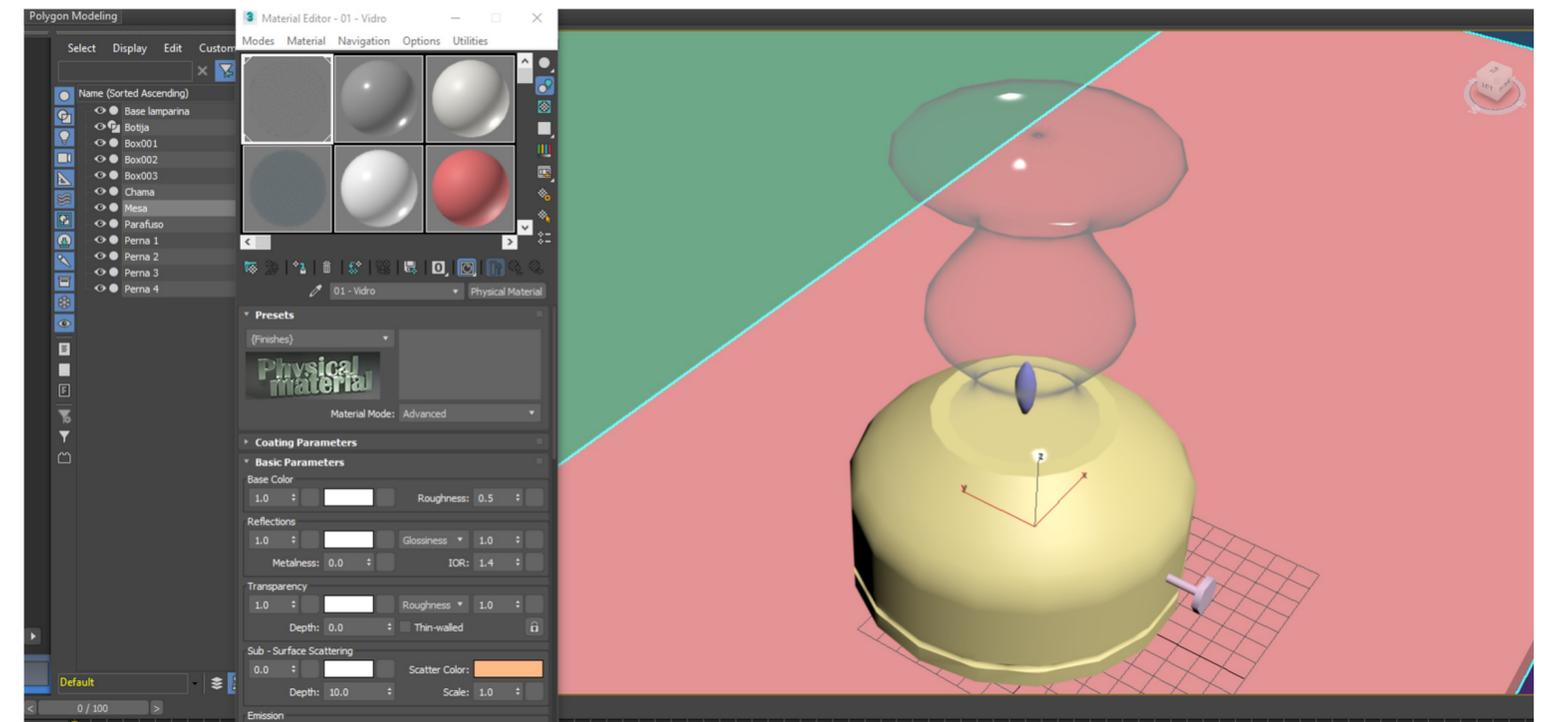
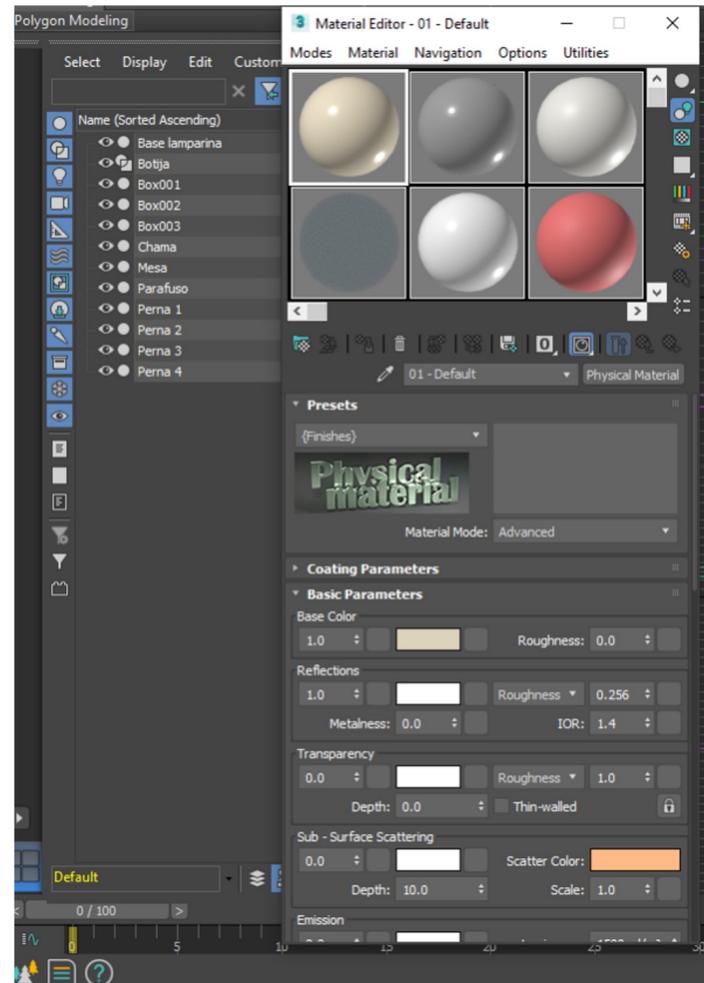
## 01 - Vidro

**Base color:** branco

**Roughness:** 0.5

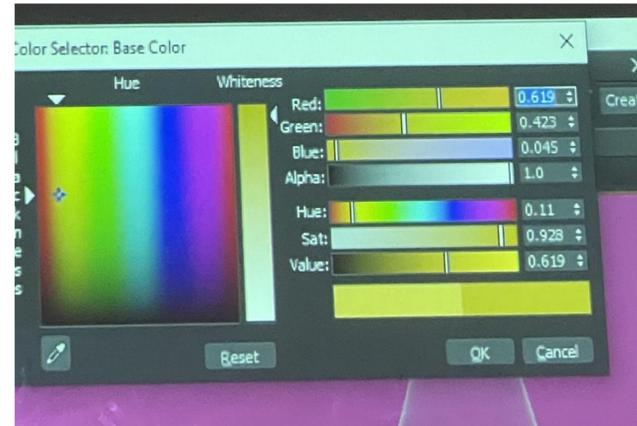
**Glossiness:** 0.99

Arrastar para a lamparina



# 02- Latão

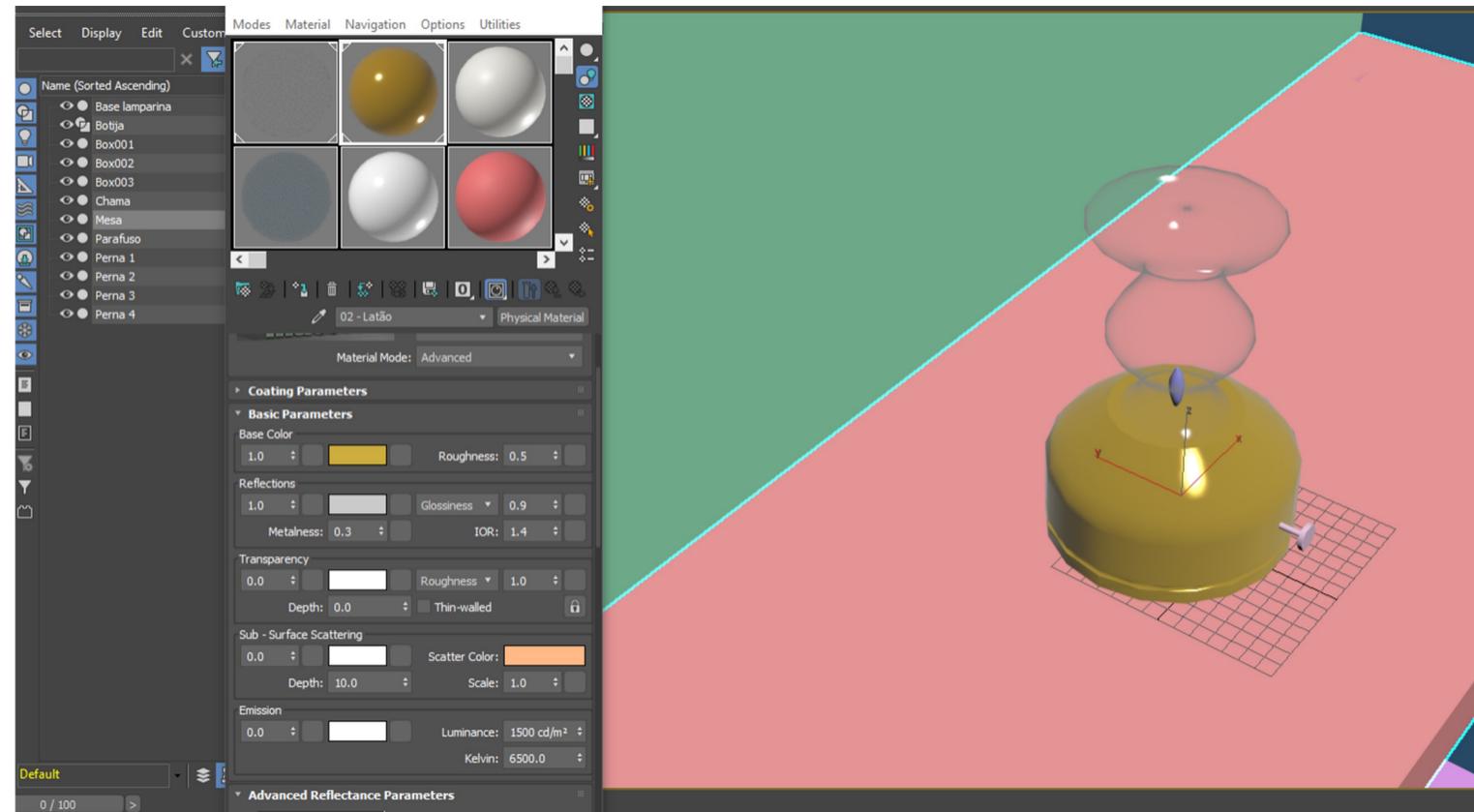
- Na segunda bola alterar para 02 – Latão
- Sera utilizado na base da lamparina



**Base color:** Um tom amarelado/dourado

**Glossines:** 0.9

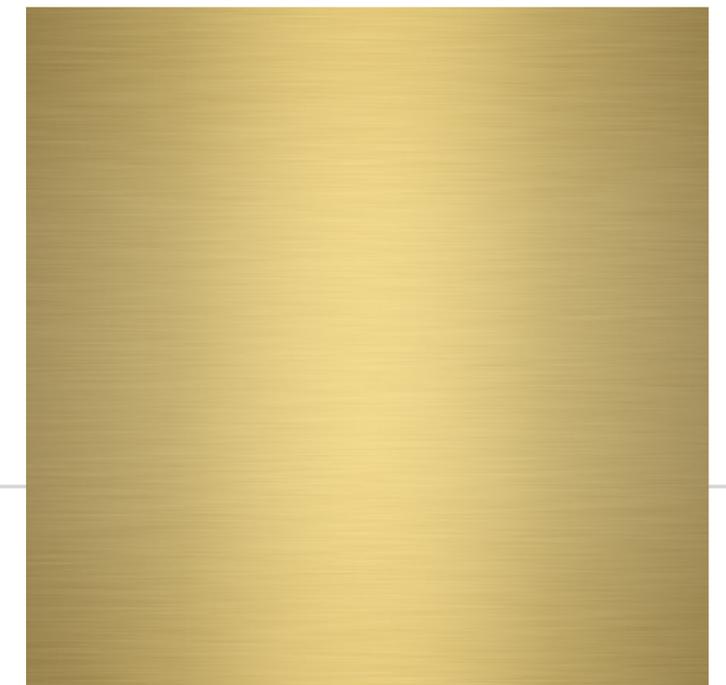
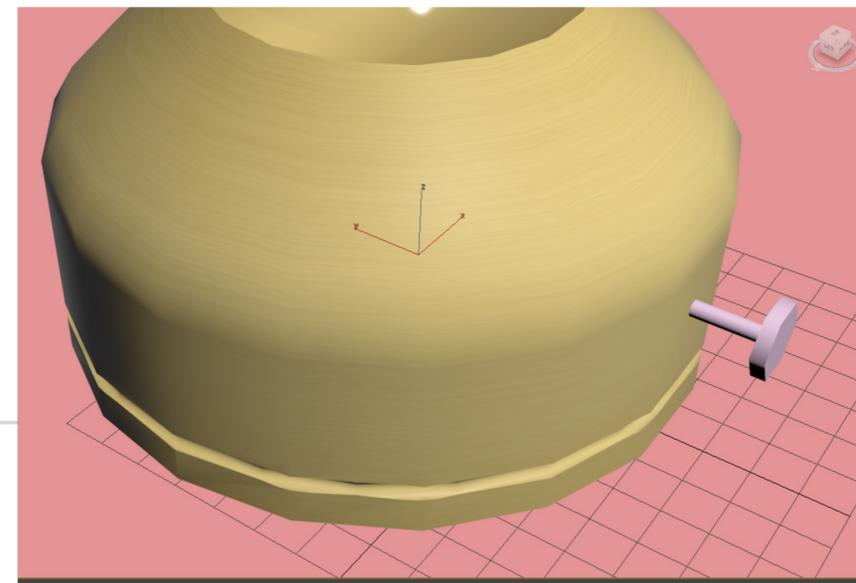
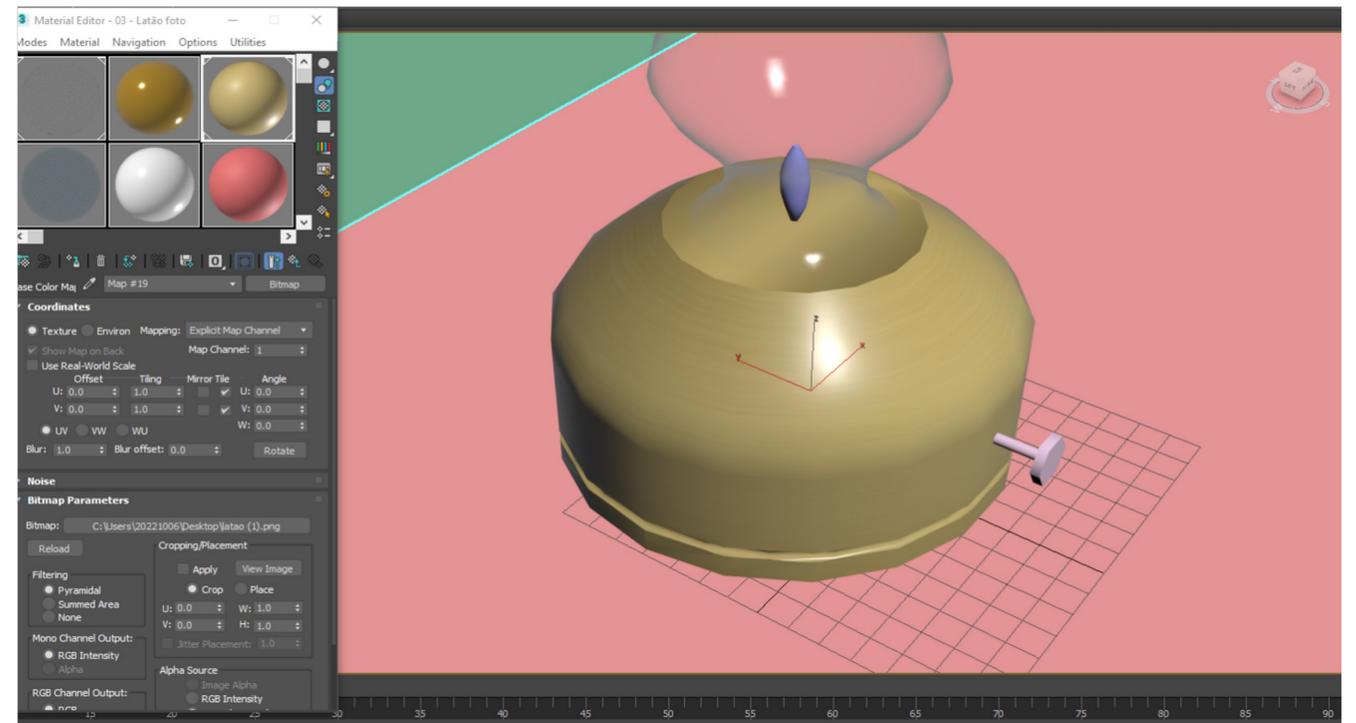
**Metalness:** 0.3



# 03- Latão FOTO

- Colocar o material baseado em fotos

- Pesquisar ao google “latão textura”
- Escolher um que não tenha tanta variação de tonalidade
- Adicionar a bola 03
- Descer até GENERIC MAPS -> BASE COLOR
- Clicar em NO MAP
- GENERAL -> BITMAP
- Adicionar imagem

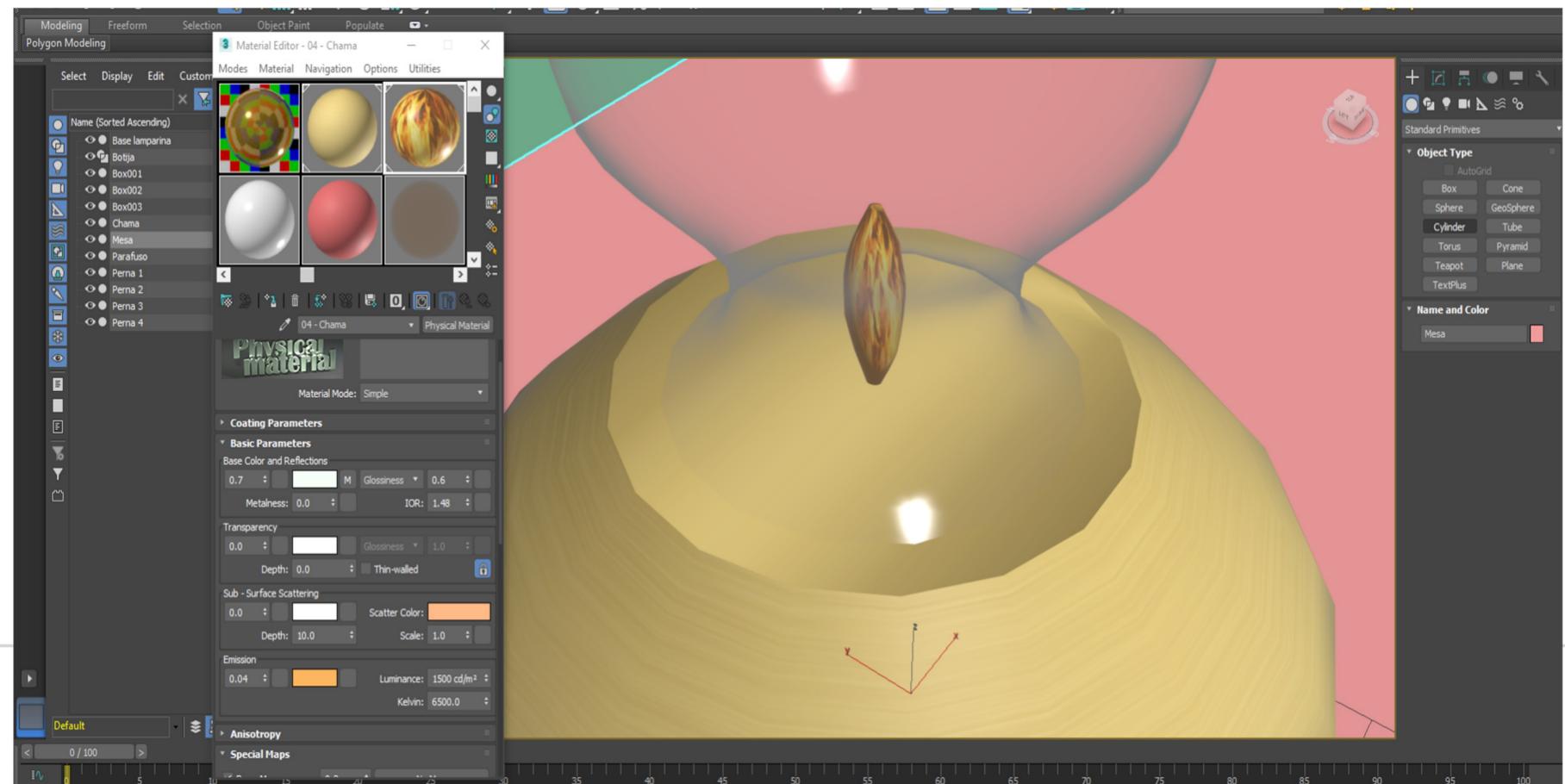


# CHAMA ( 04 – chama)

- Mesmo processo que o do latão para retirar uma imagem do google e colocar no **base color**
- Edita a imagem com um zoom para ajustar a chama

*Emission: 0.35 (para refletir uma “luz”)*

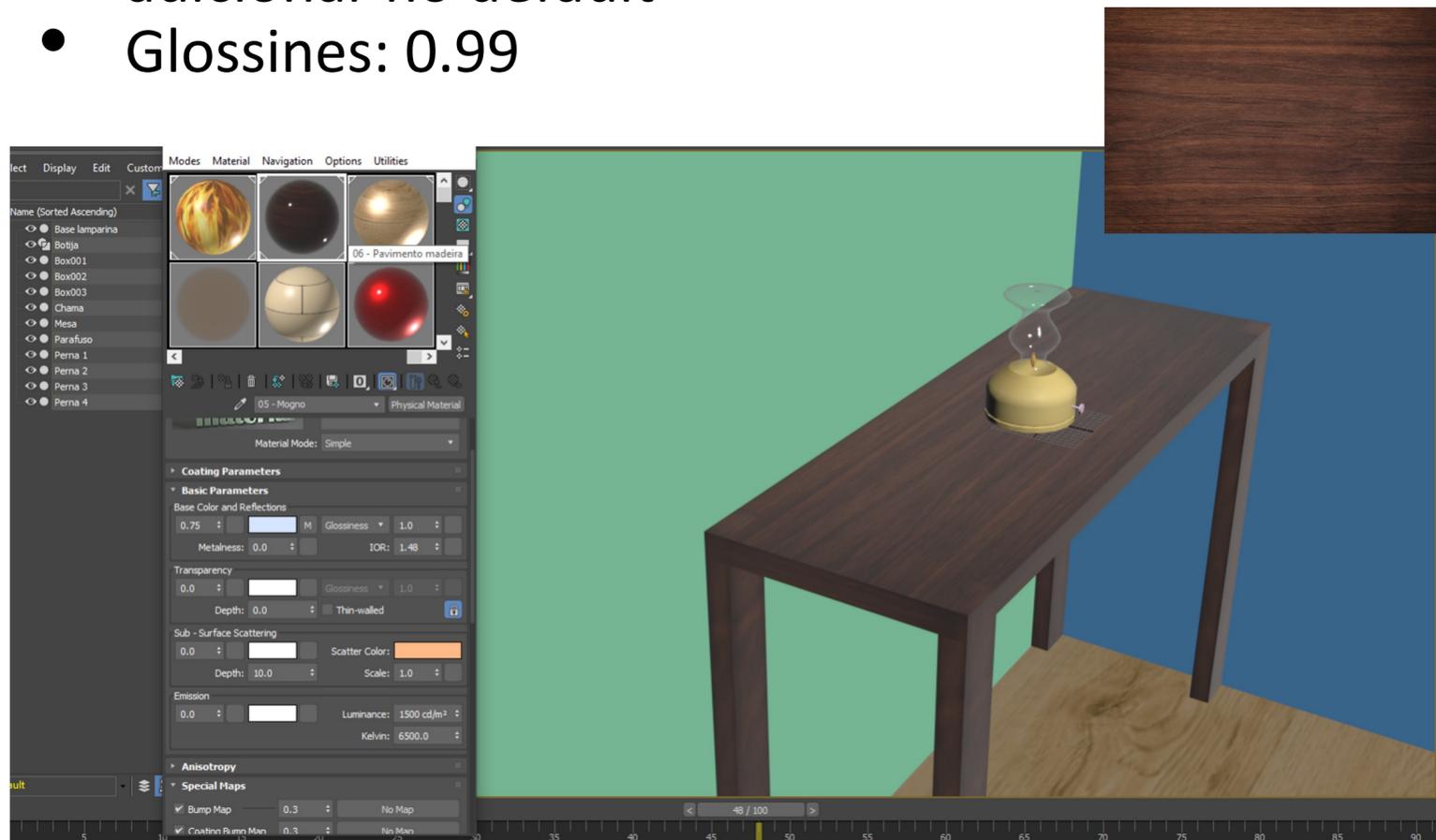
*Sub Surface : 0.0*



# MADEIRA

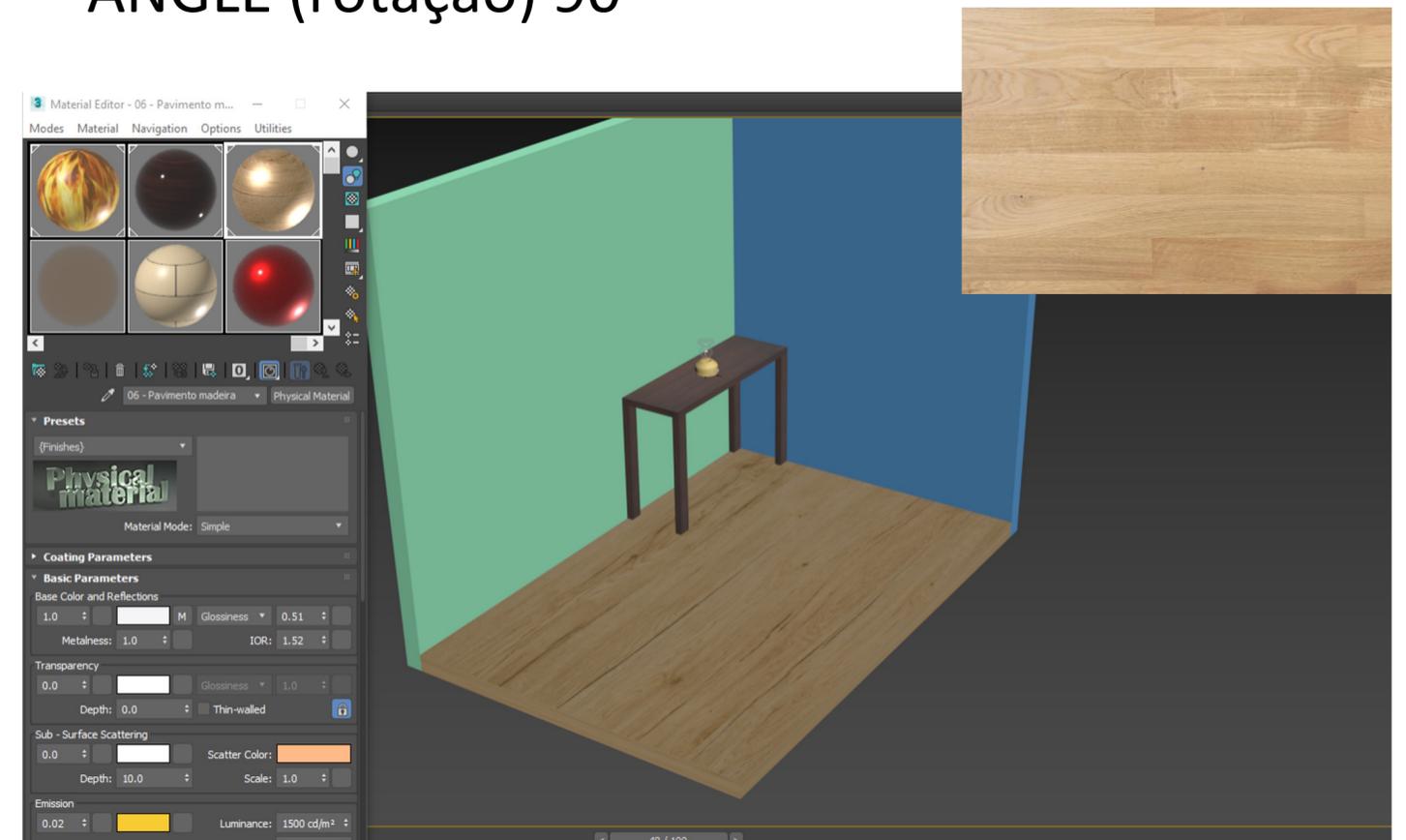
## 05 – MOGNO (mesa)

- Escolher na mesma uma foto da madeira, adicionar no default
- Glossines: 0.99



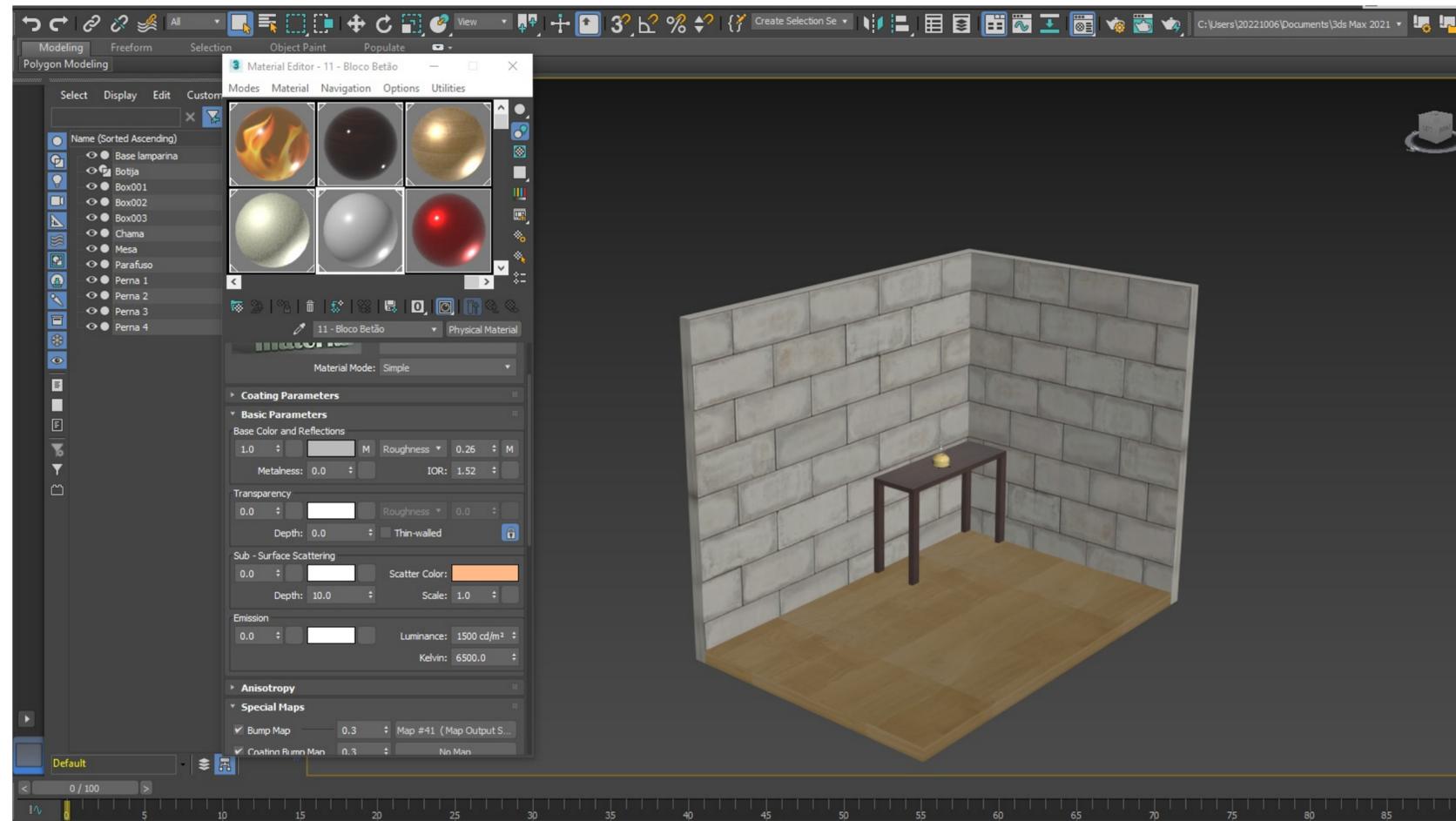
## 06 – Pavimento

- Criar um default de um outro tipo de madeira para o pavimento
- TILING (para repetir a imagem) 1.7
- ANGLE (rotação) 90



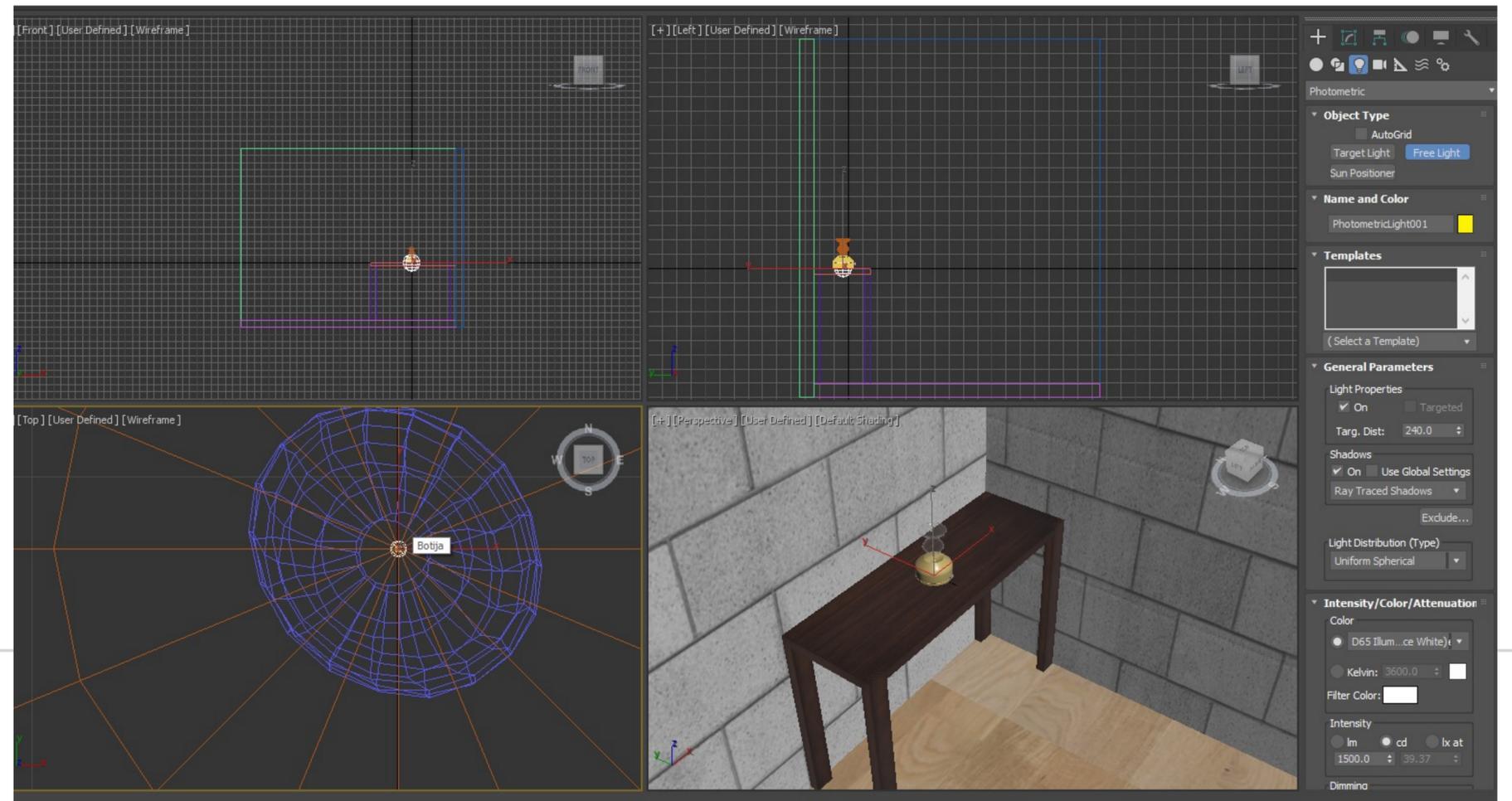
# Parede de betão

- Repitir o processo agora para as paredes
- Material : concreto



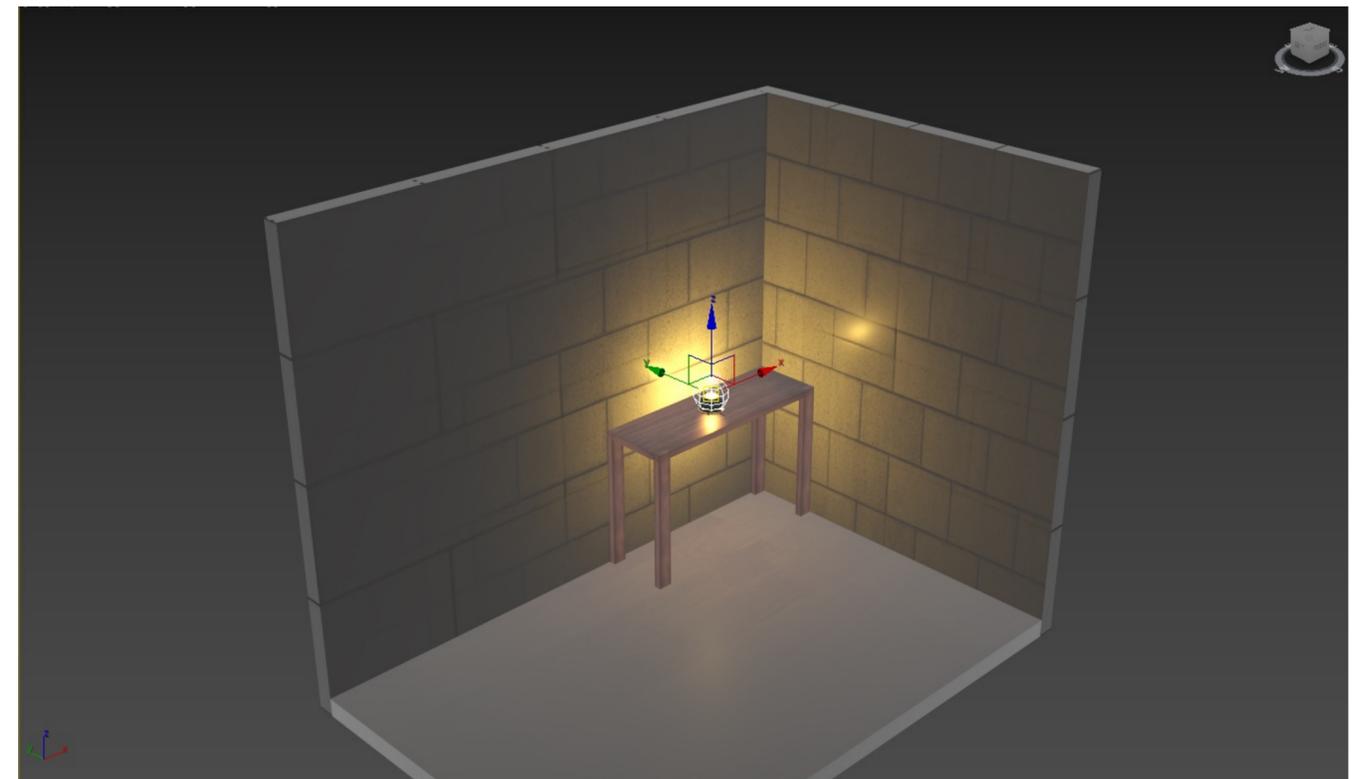
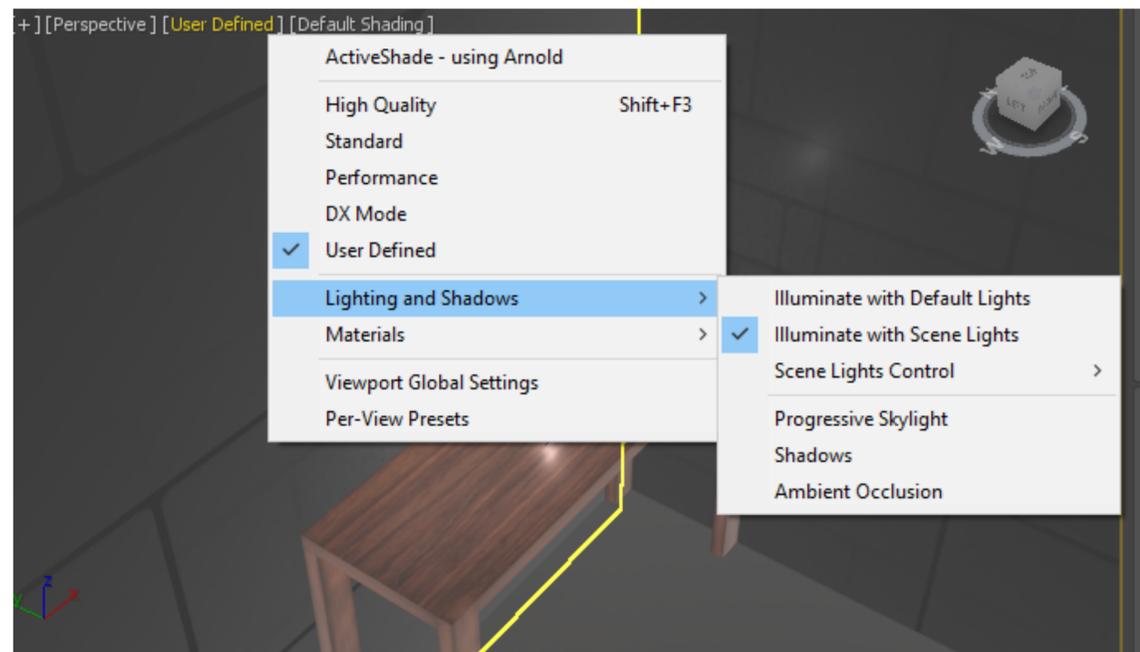
# Colocar luzes

- Lampada – **free light** / target (aponta)
- Coloca-la no centro da chama
- MOVE (luz selecionada)
- Na janela FRONT puxa para cima, na altura da vela



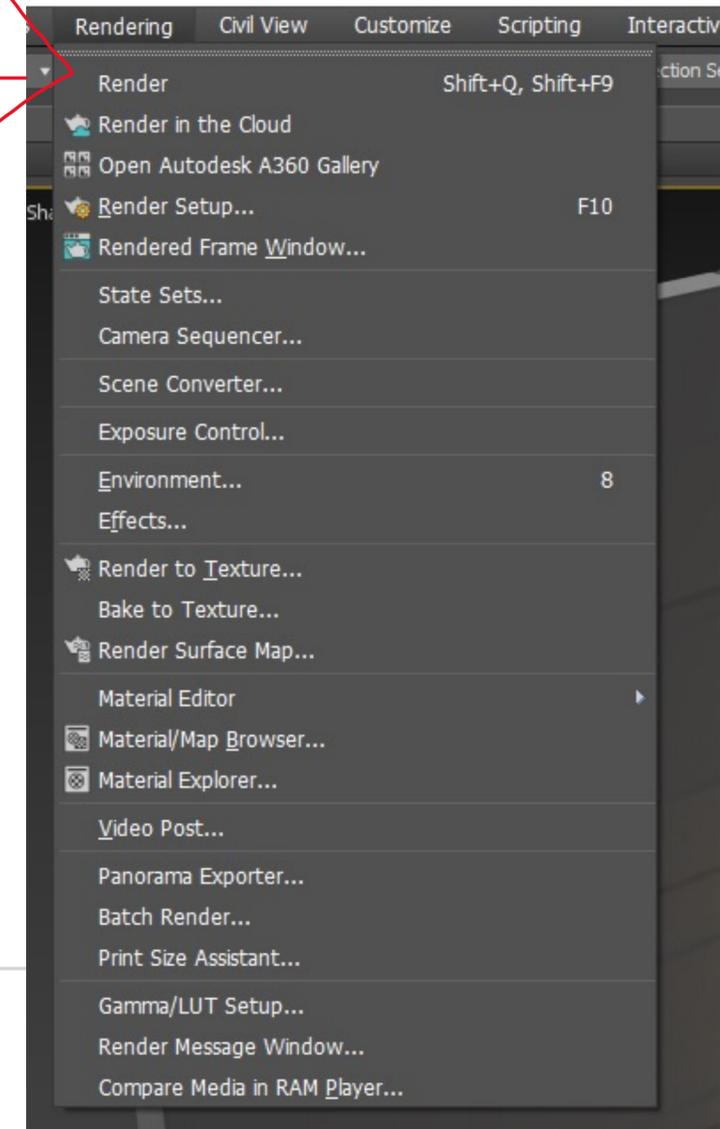
# Definir iluminação

- Para definir a iluminação basta alterar as configurações, fazendo com que a luz criada seja a que esta a iluminar



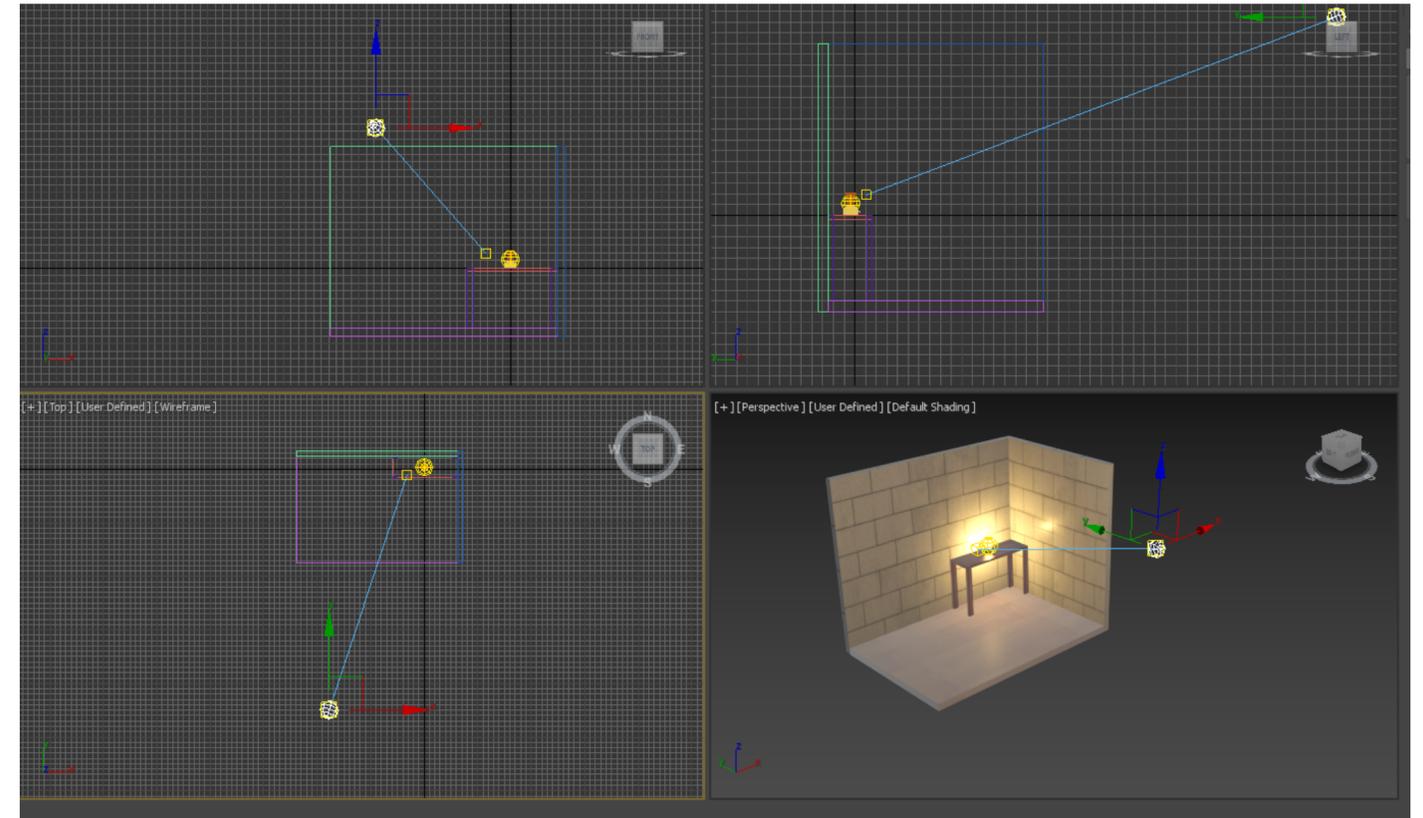
# Render

- Com o render fazer uma imagem mais realista da imagem
- Á principio (sem o uso de cameras) o render sera feito da visão em que a janela de perspectiva se encontra

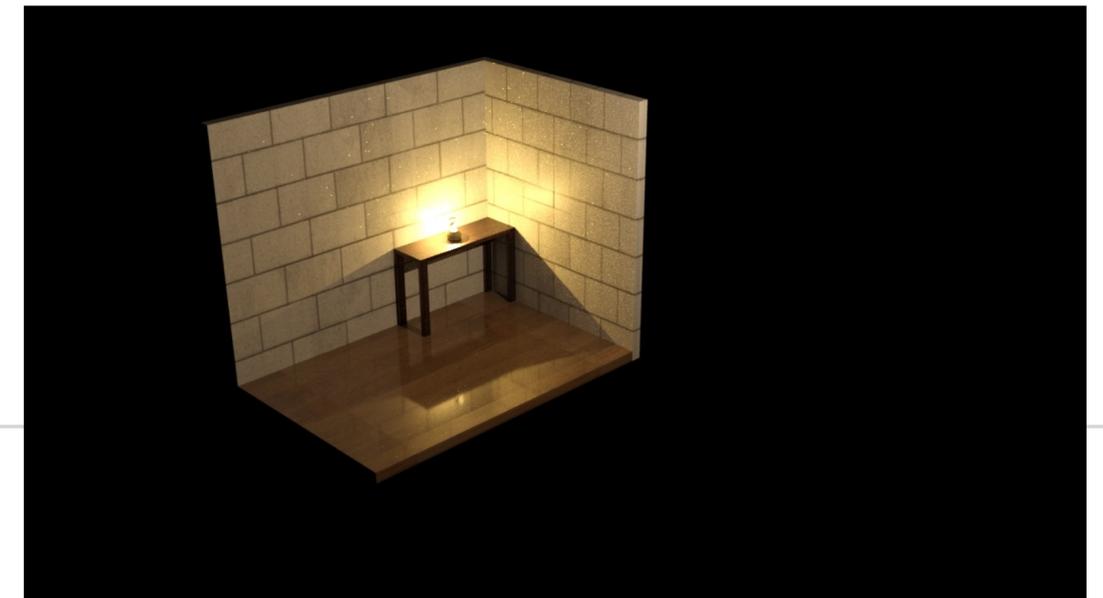


# Holofote de luz

- **LUZ TARGET** = criar um eixo de luz
- **SPOTLIGHT** = um cone de iluminação
- Mais pequeno = luz maxima
- Attenuation = end :3000 / star: 1800
- Intensity = 7000000 (cd)

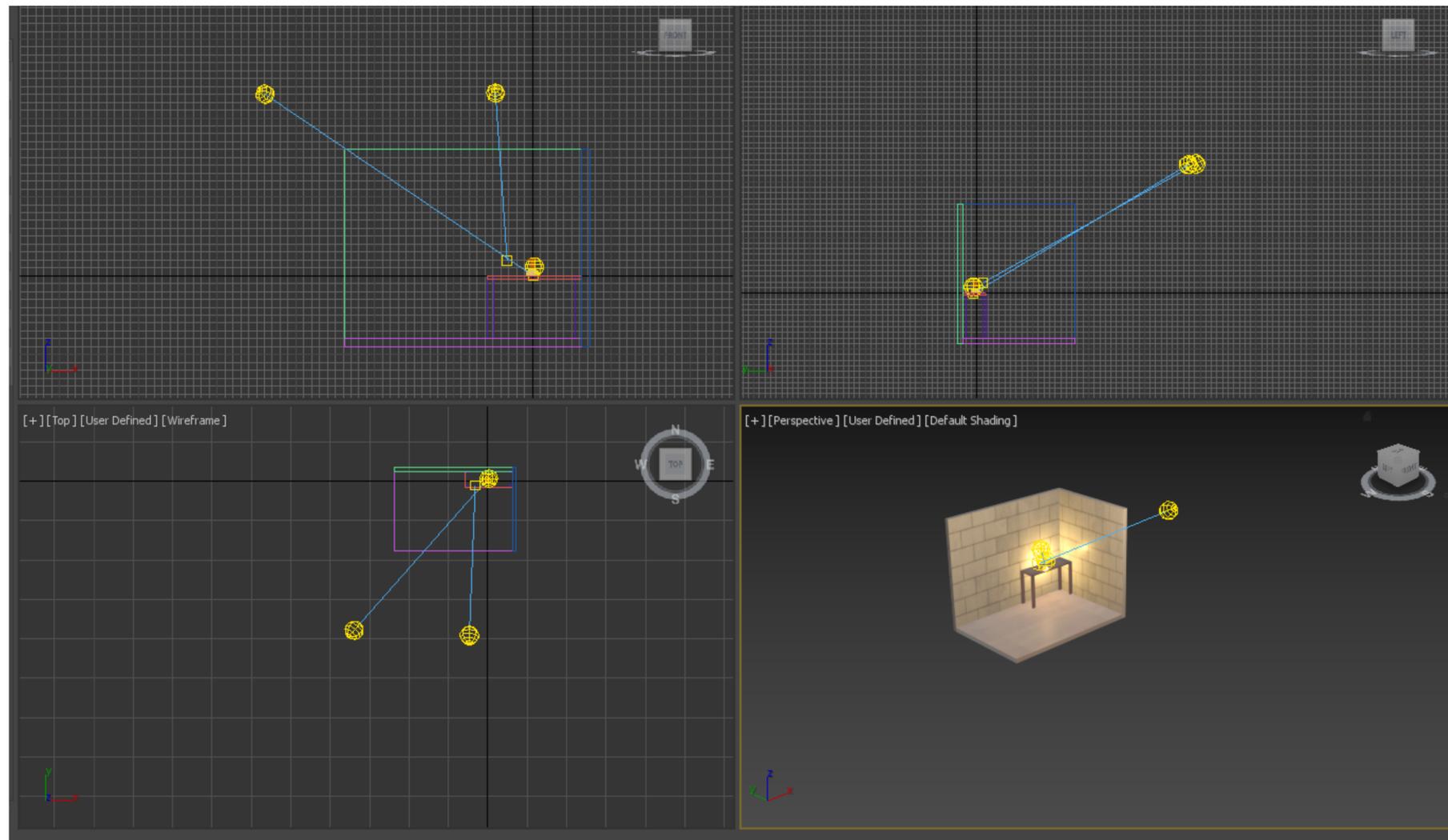


RENDER:

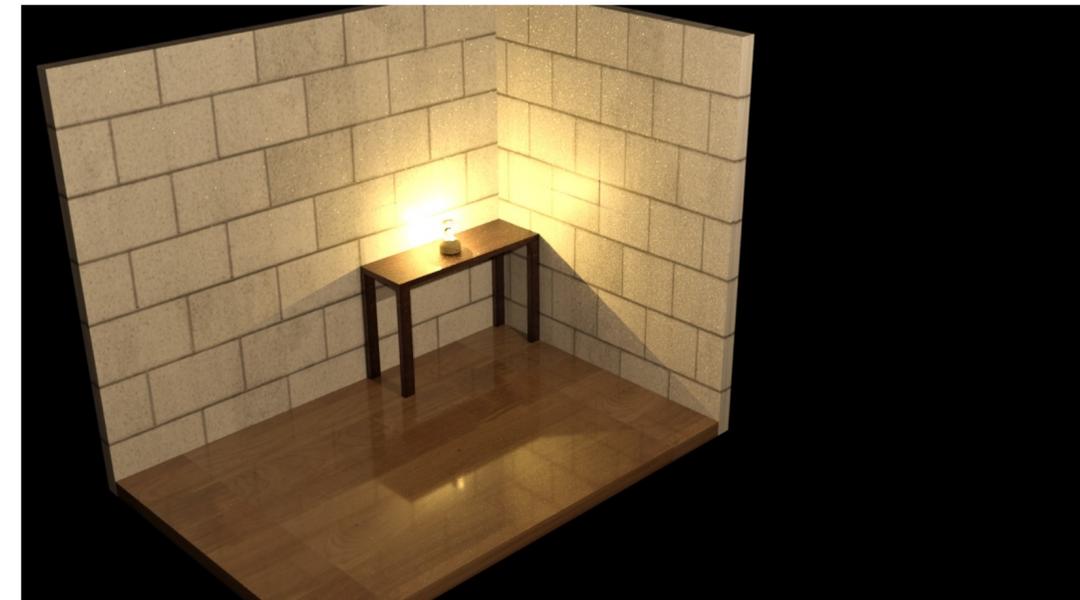


# 2º Holofote de luz

- Com mais luzes = melhor imagem

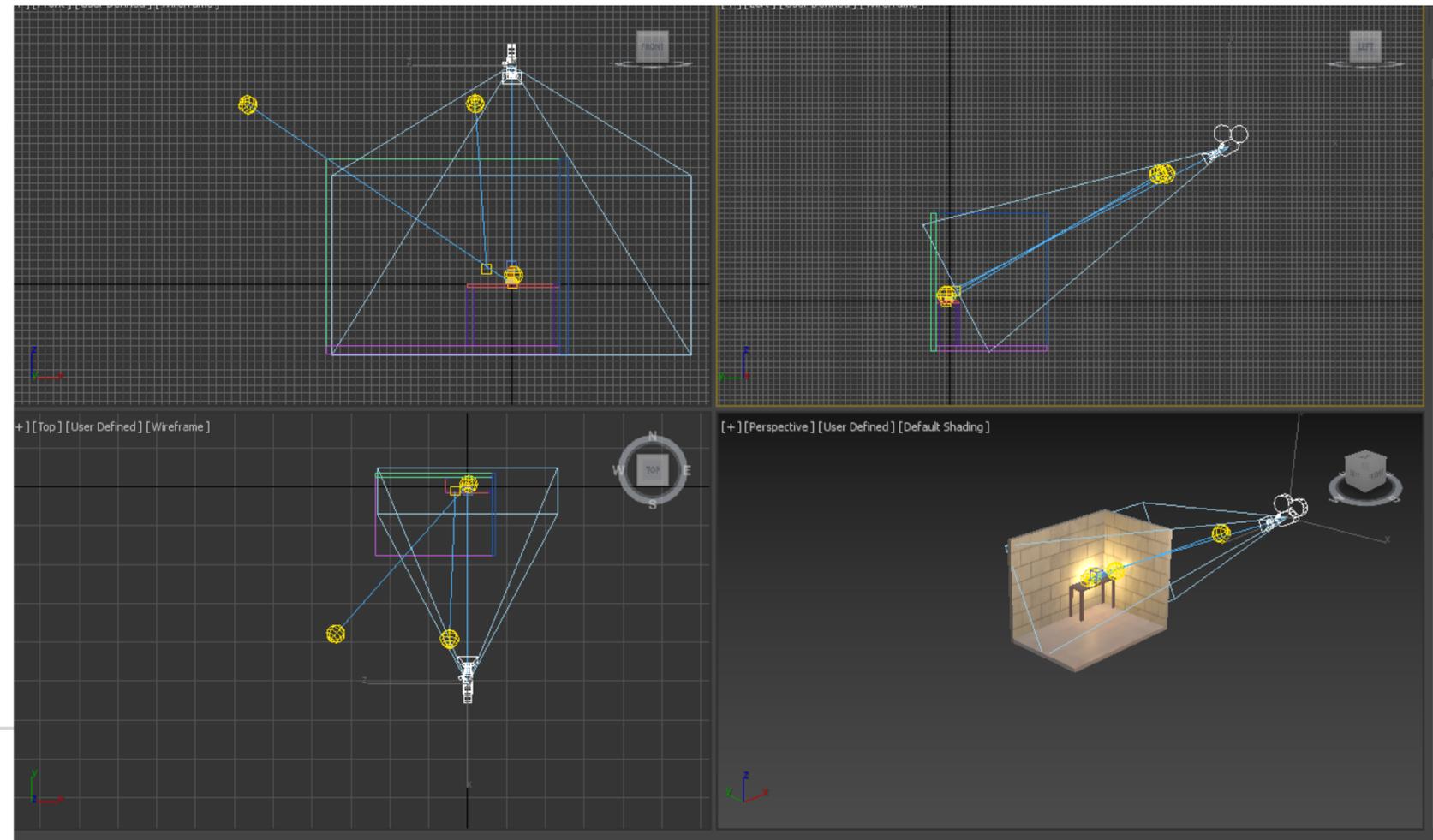


RENDER:



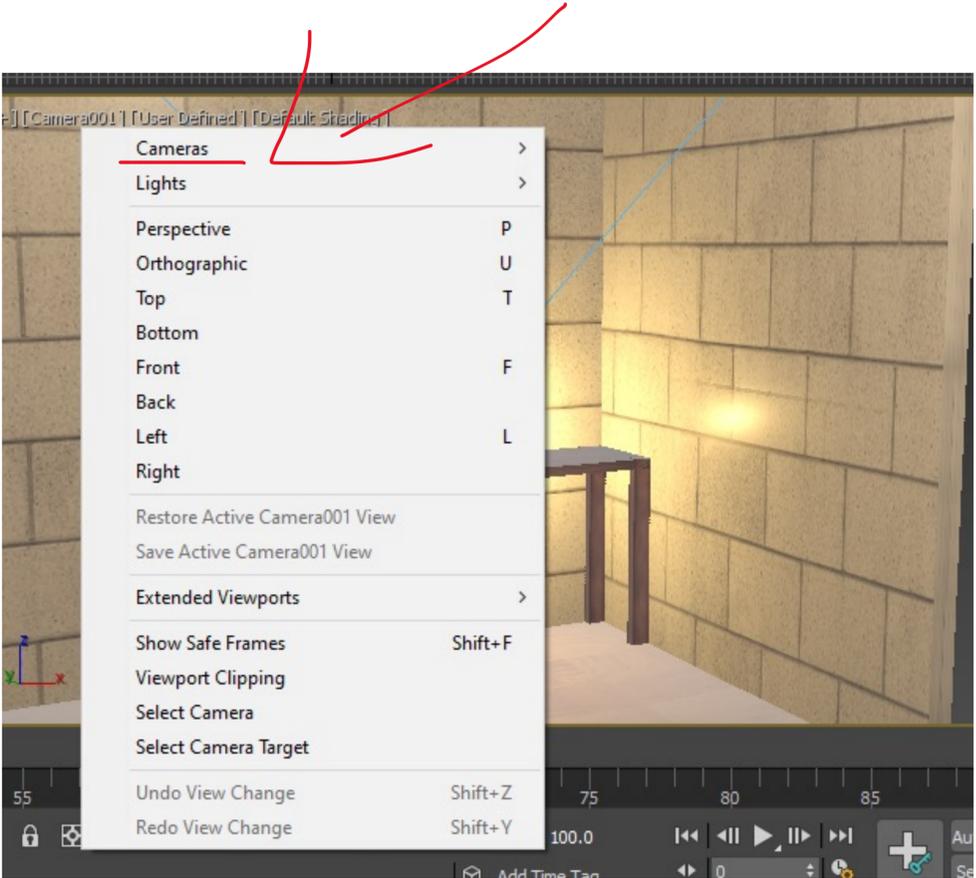
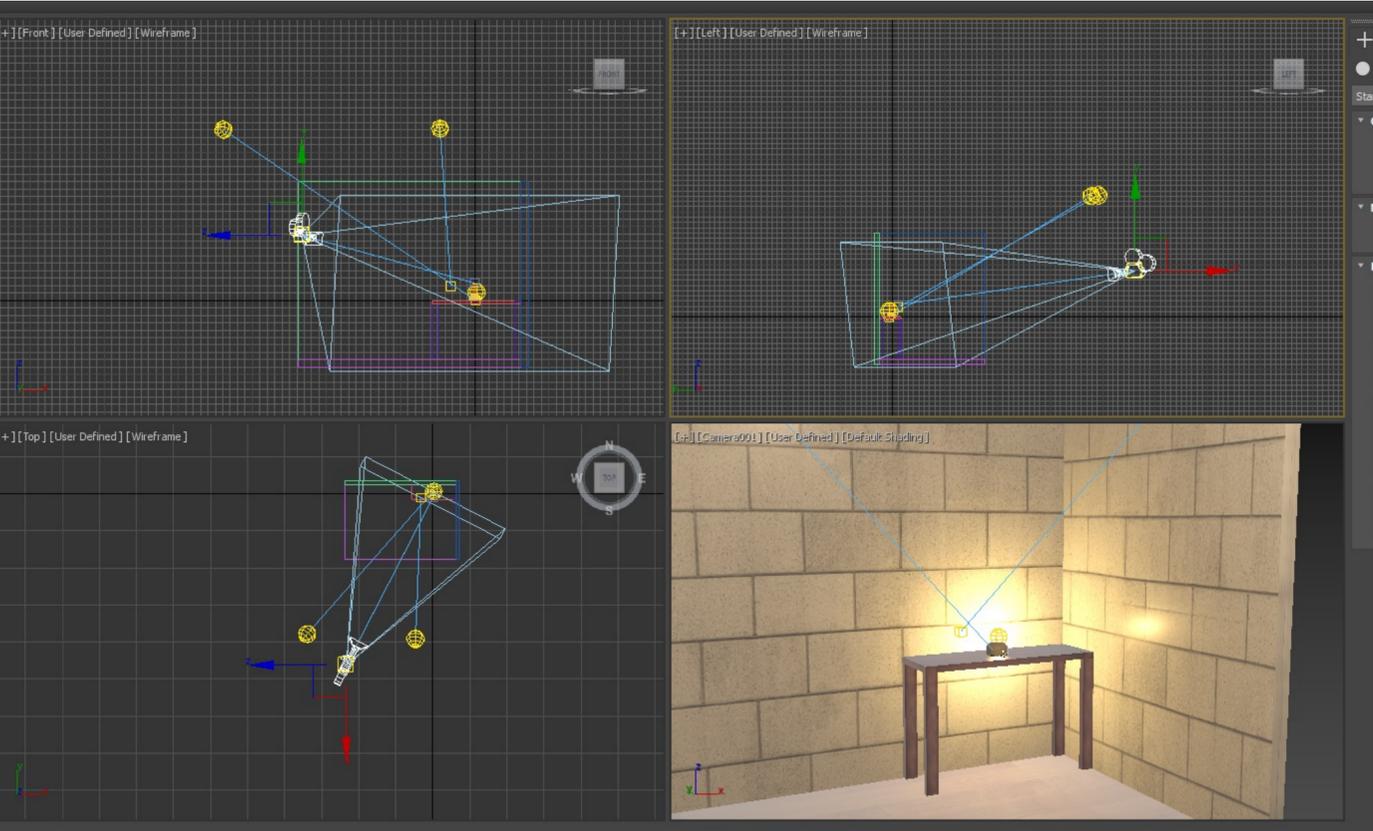
# CRIAR UMA CAMERA

- Selecionar o ícone da camera
- *Physical*
- Assim se cria um observador, logo os renders serão com essa perspectiva



# CAMERA

- Alterar a perspectiva para camera
- Agora o render terá a vista da camera



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