

DAI 320

DRAFTING & SKETCHING

INTRODUCTION

DRAWING: THE HEART OF THE DESIGN PROFESSIONS



MOKA ESPRESSO MAKER, MADE BY BIALETTI, ITALY.

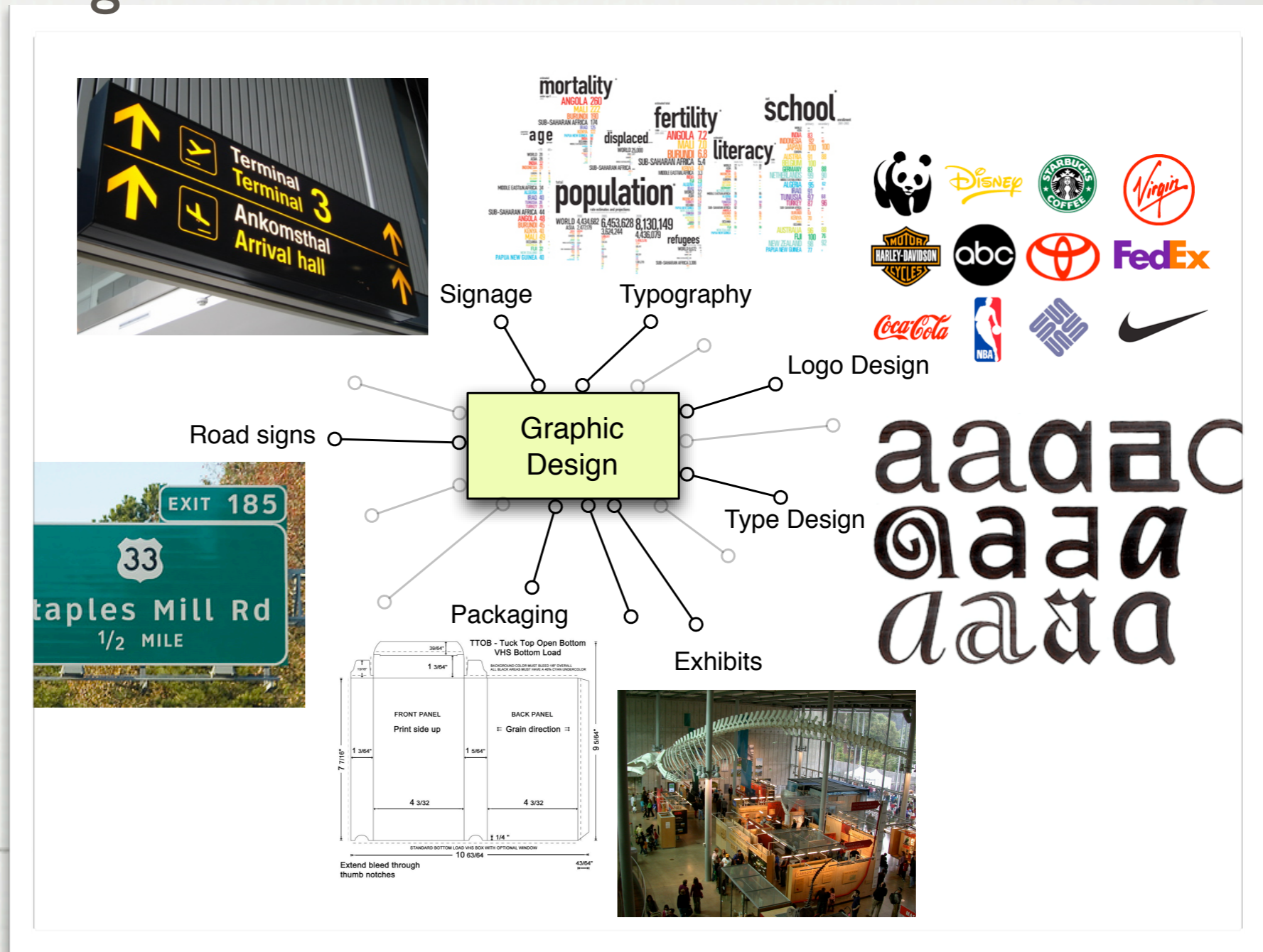
ORTHOGRAPHIC VIEWS OF THE MOKA.

DESIGN PROFESSIONS

- Graphic design
 - Industrial design
 - Engineering
 - Architecture
 - Fashion
 - Textiles
 - Etc.
-

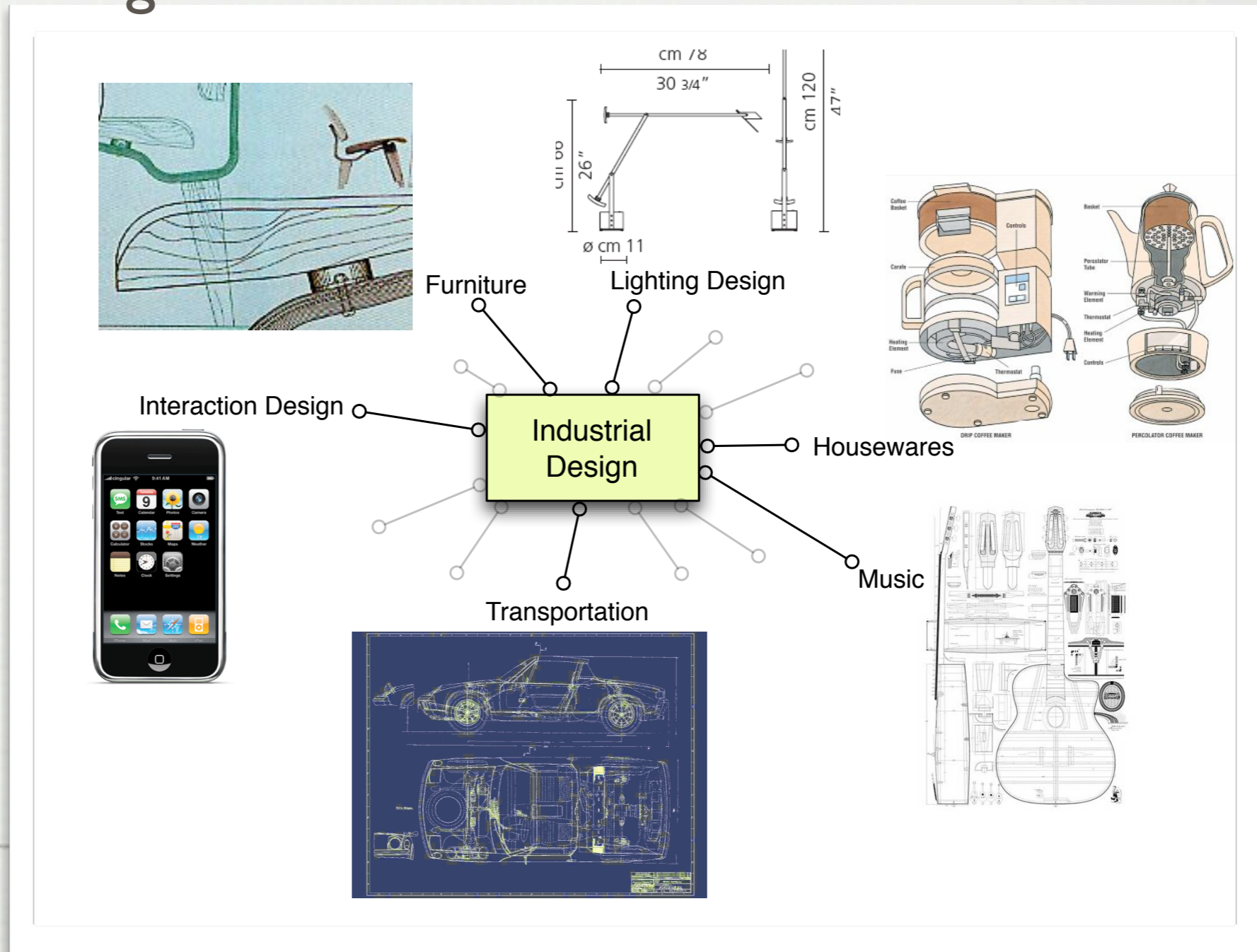
DESIGN PROFESSIONS

□ Graphic design



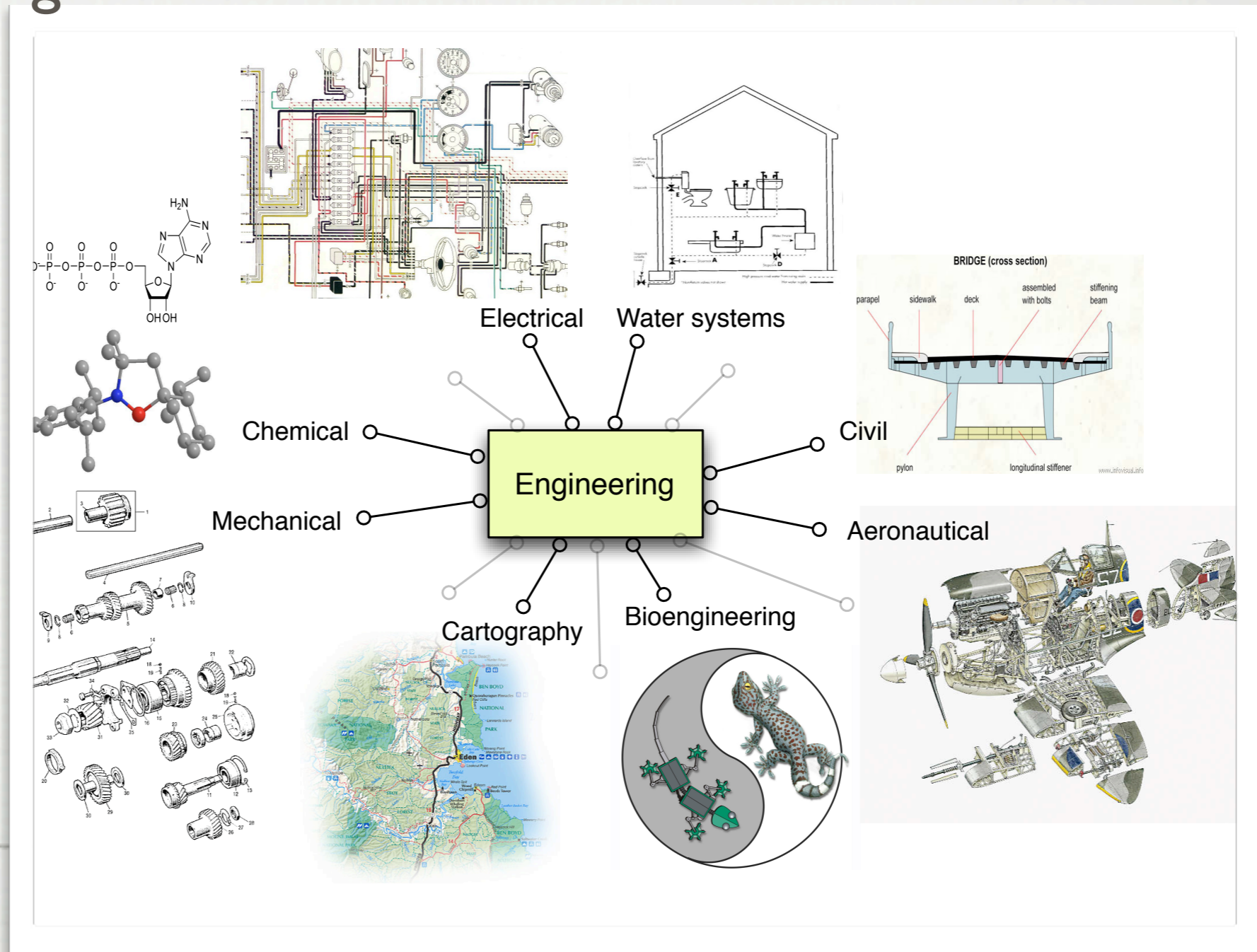
DESIGN PROFESSIONS

□ Industrial design



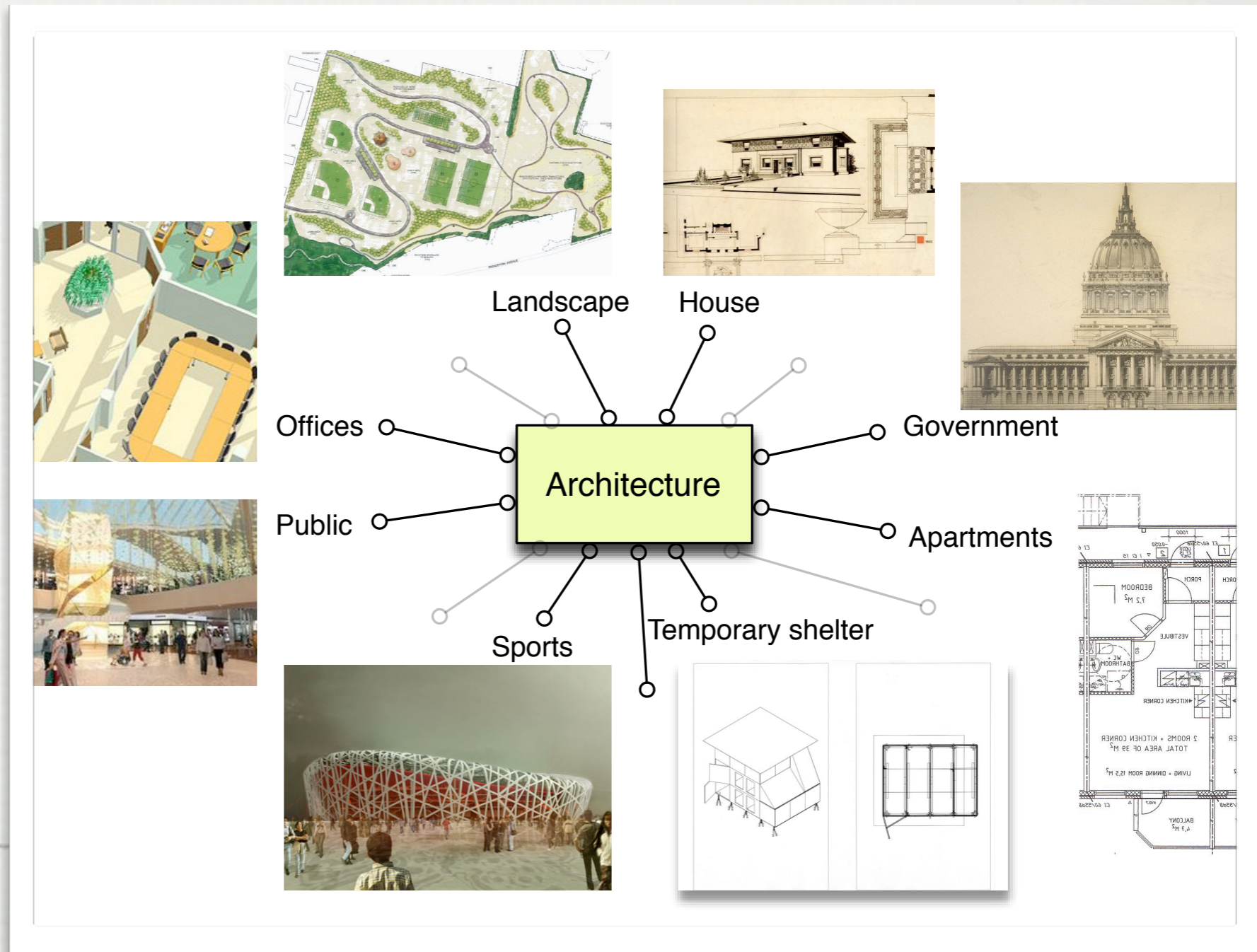
DESIGN PROFESSIONS

□ Engineering



DESIGN PROFESSIONS

□ Architecture



DRAWING AND DRAFTING STEPS

- Expression of ideas (sketches)
- Definition of the object (representations)
- Specifications of the object (fabrication drawings)

DRAWING AND DRAFTING STEPS

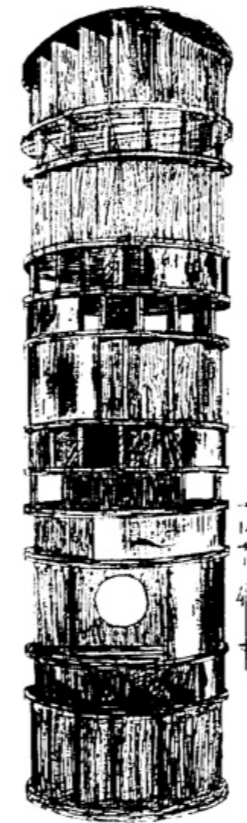
□ Expression of ideas (sketches)



SMOKE GLASS. Smoking and drinking with one hand. The other hand is left free to gesticulate while talking. Design by Joe Colombo.

Joe Colombo

Combi Center
(1963-1964, prod. Bernini).



Schizzo per
Combi Center.



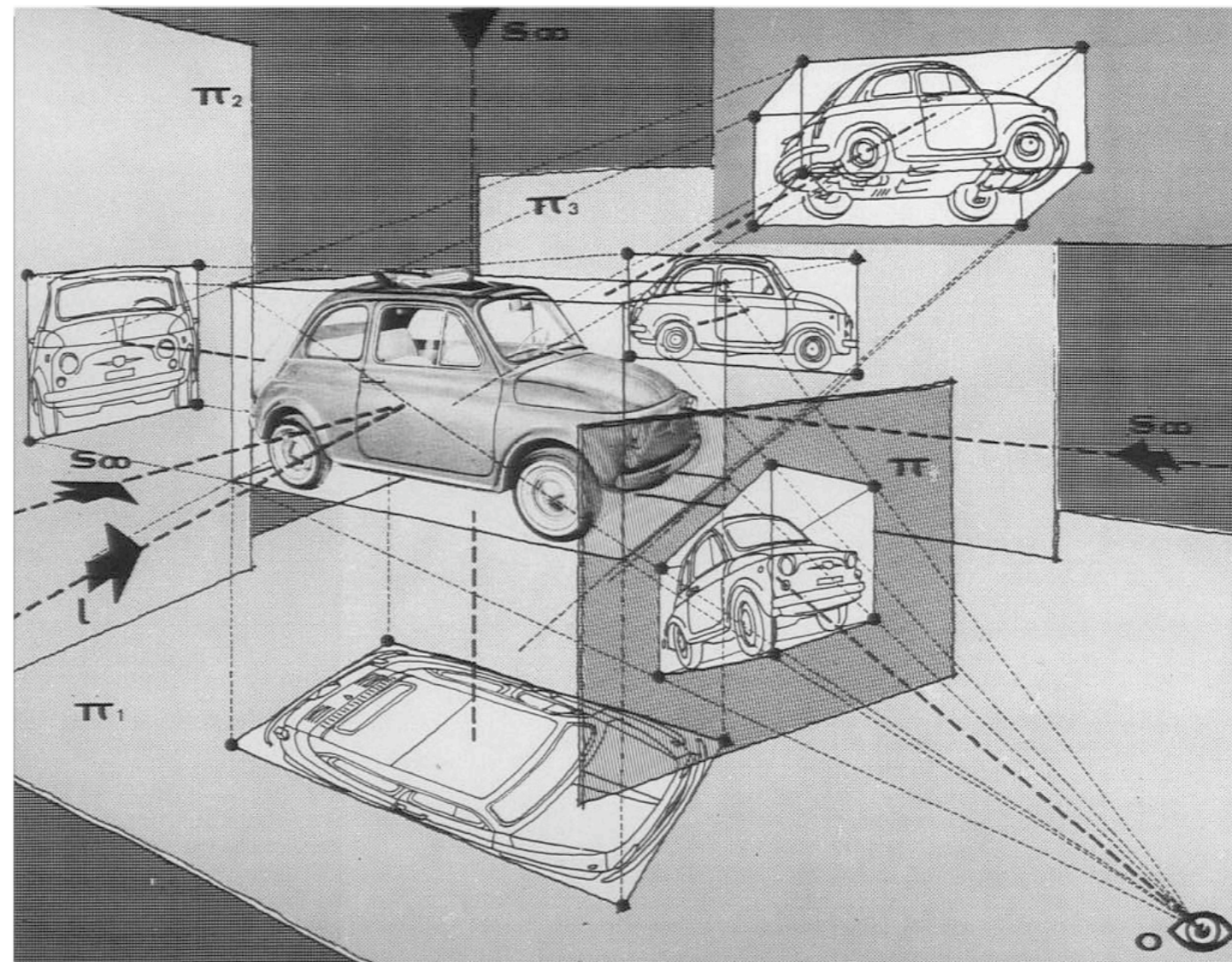
COMBI CENTER



DRAWING AND DRAFTING STEPS

Definition of the object (representations)

- Orthographic Projections
- Axonometric Projections
- Perspective

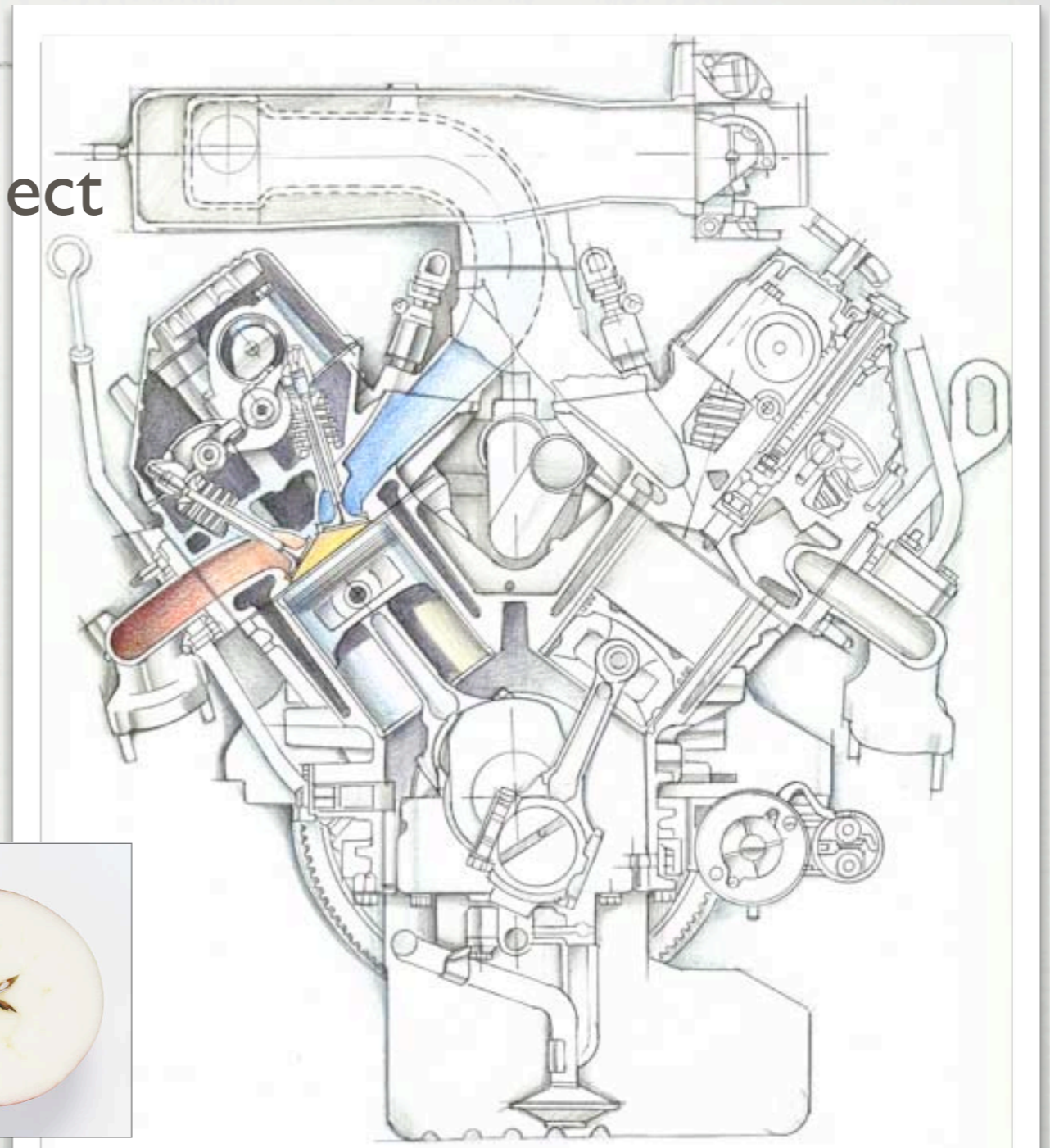
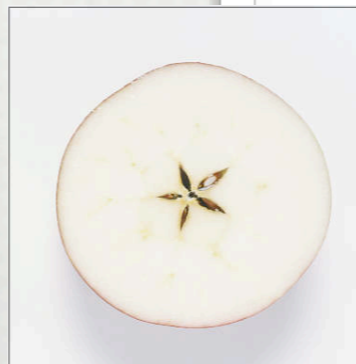


FIAT 500.
Drawing by Marcello Petrignani.

DRAWING AND DRAFTING STEPS

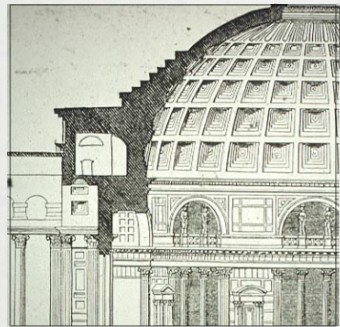
- Specifications of the object
(fabrication drawings)

- Shop drawings
- Cross-sections
- Dimensions
- Notes



Isuzu engine cross-section.

TYPES OF REPRESENTATION



Analytical
(Instructions for construction)

- Orthographic projections
- Cross-sections
- Fold-outs (templates)

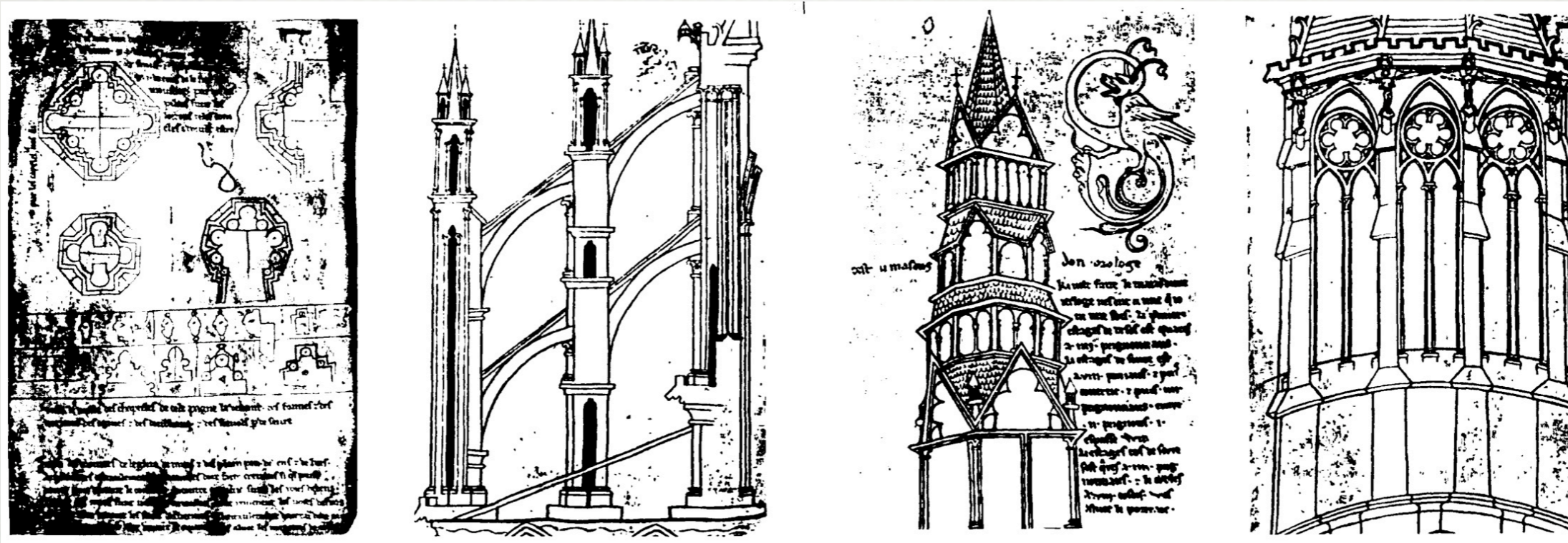
Note: today, digital prototyping and manufacturing equipment, as well as the application of digital tools in product development, have blurred the lines between types of drawings. The same data can be used to output a drawing, create a virtual model, a 3D solid model, or sent to the manufacturing process.



Pictorial
(Looks like the object)

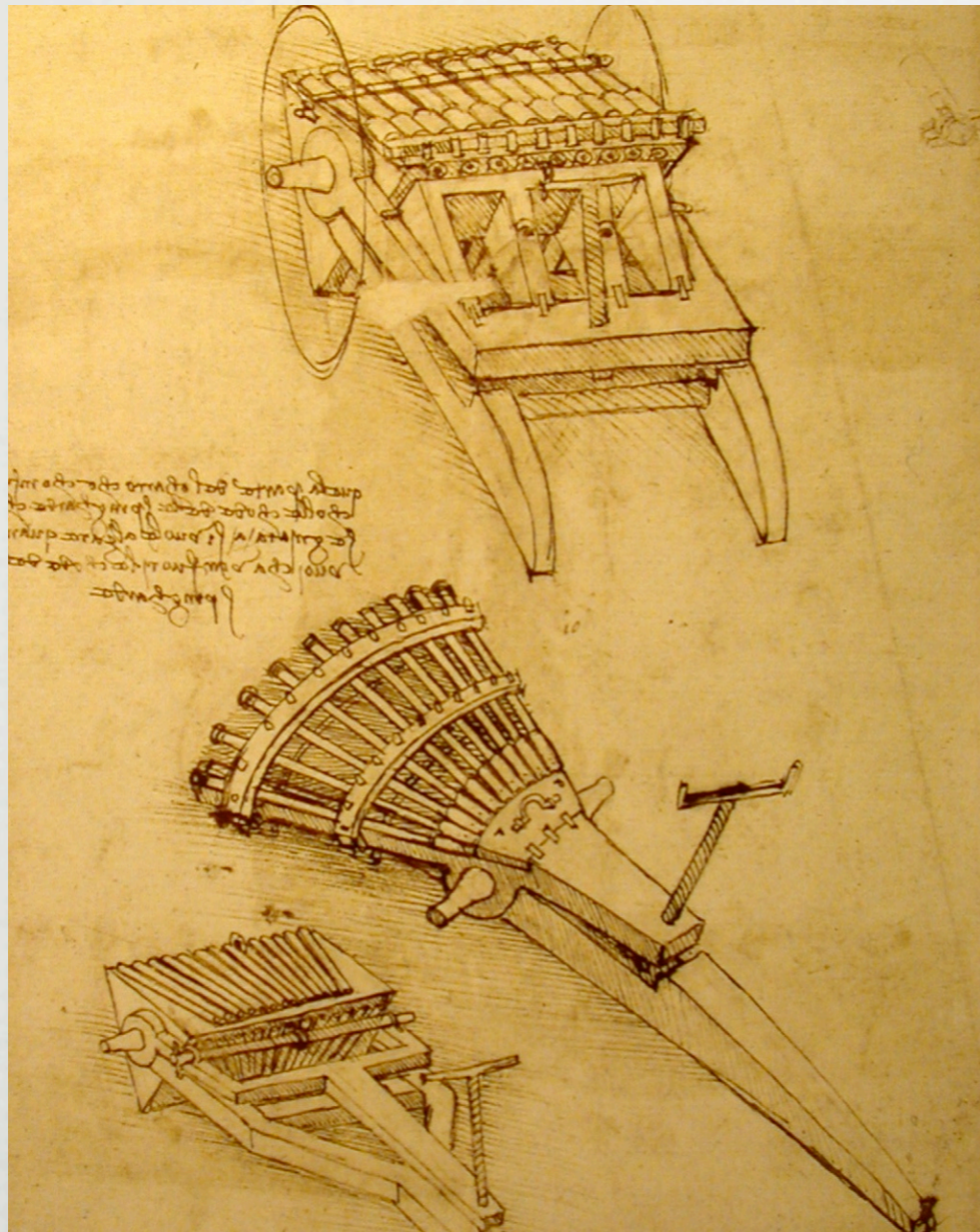
- Axonometric projections
- Perspectives
- Renderings
- Exploded views
- Cut-out views

TRADITION OF PEN & INK

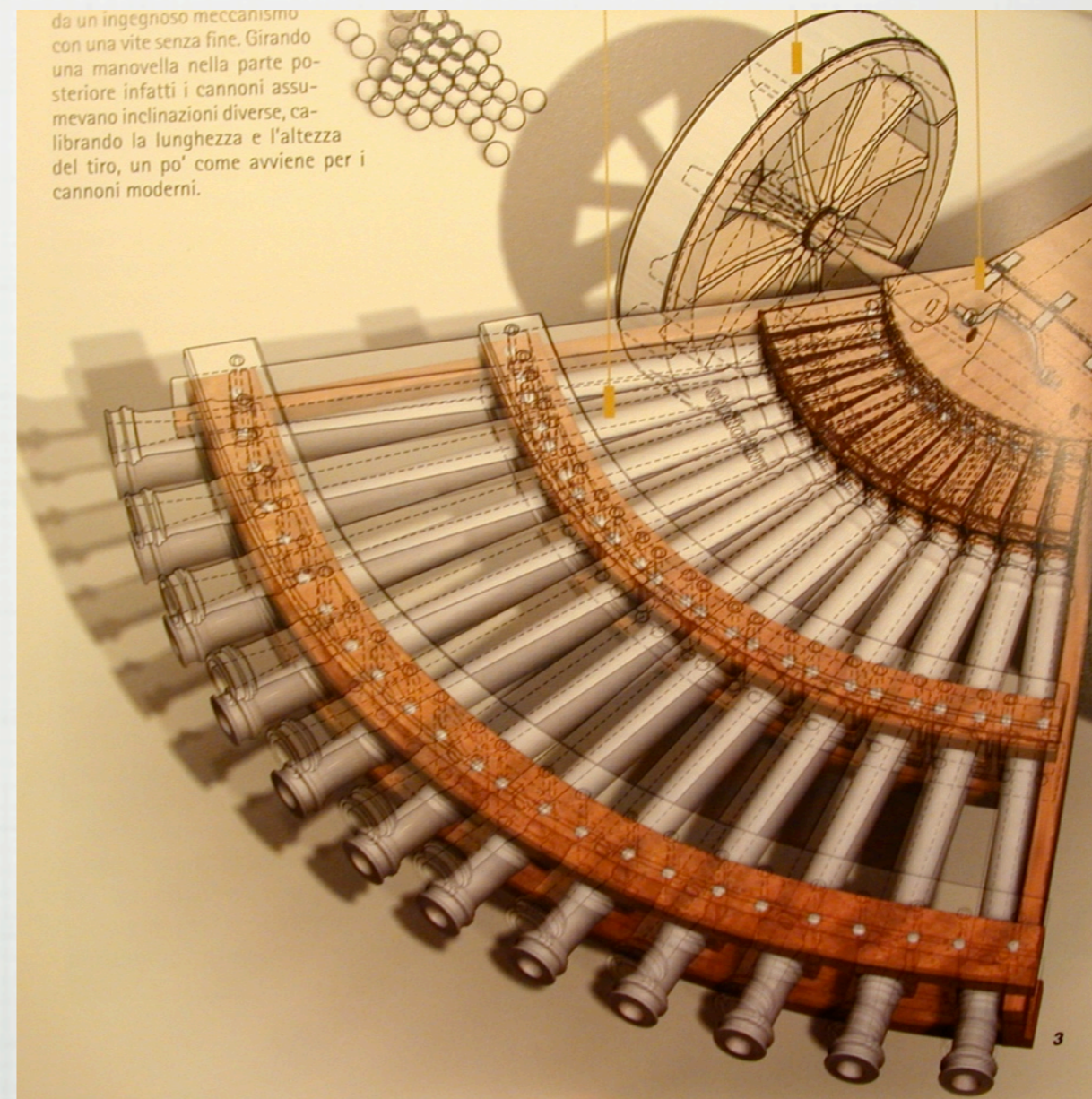


Drawings by Villard de Honnecourt. France, 1235.
Clear separation between “design” and “execution”.

LEONARDO



Drawing by Leonardo of a multiple cannon machine. Circa 1482.

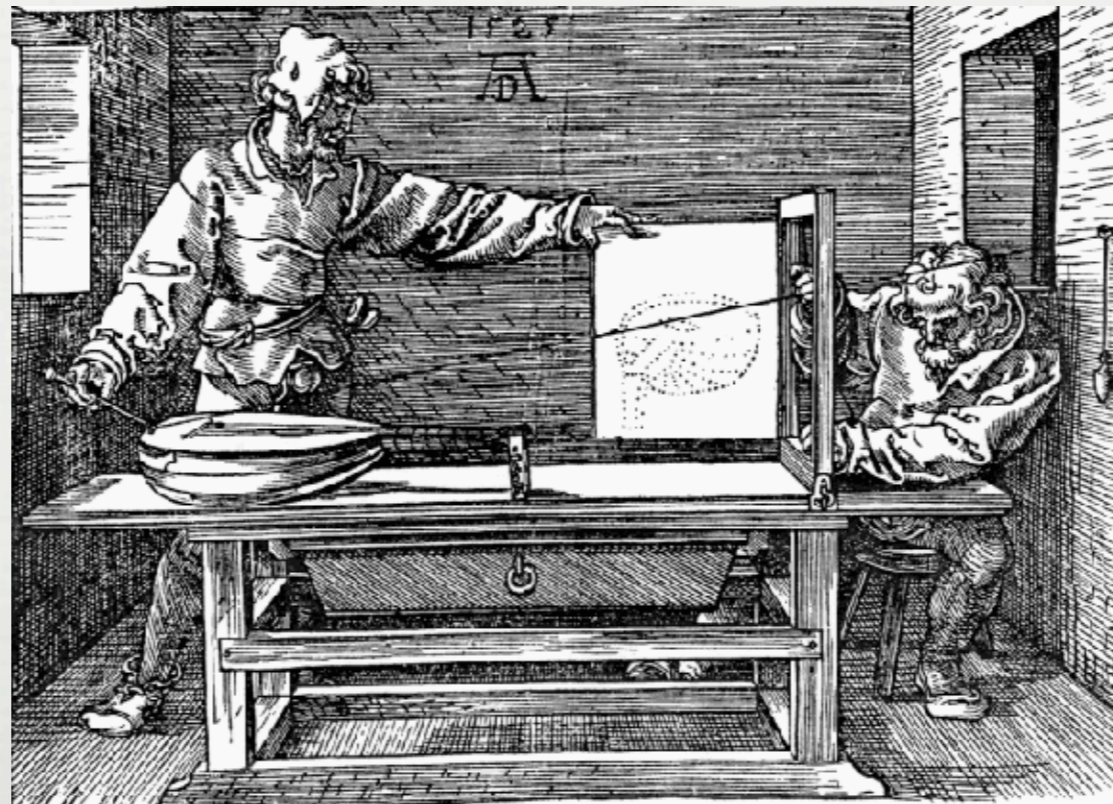


da un ingegnoso meccanismo con una vite senza fine. Girando una manovella nella parte posteriore infatti i cannoni assumevano inclinazioni diverse, calibrando la lunghezza e l'altezza del tiro, un po' come avviene per i cannoni moderni.

Computer reconstruction of the machine. Taddei & Zanon, 2005.

THE PICTURE PLANE

- Drawing: the connecting of points given by the intersection of imaginary lines (projecting from the object) with the plane of representation (window pane).



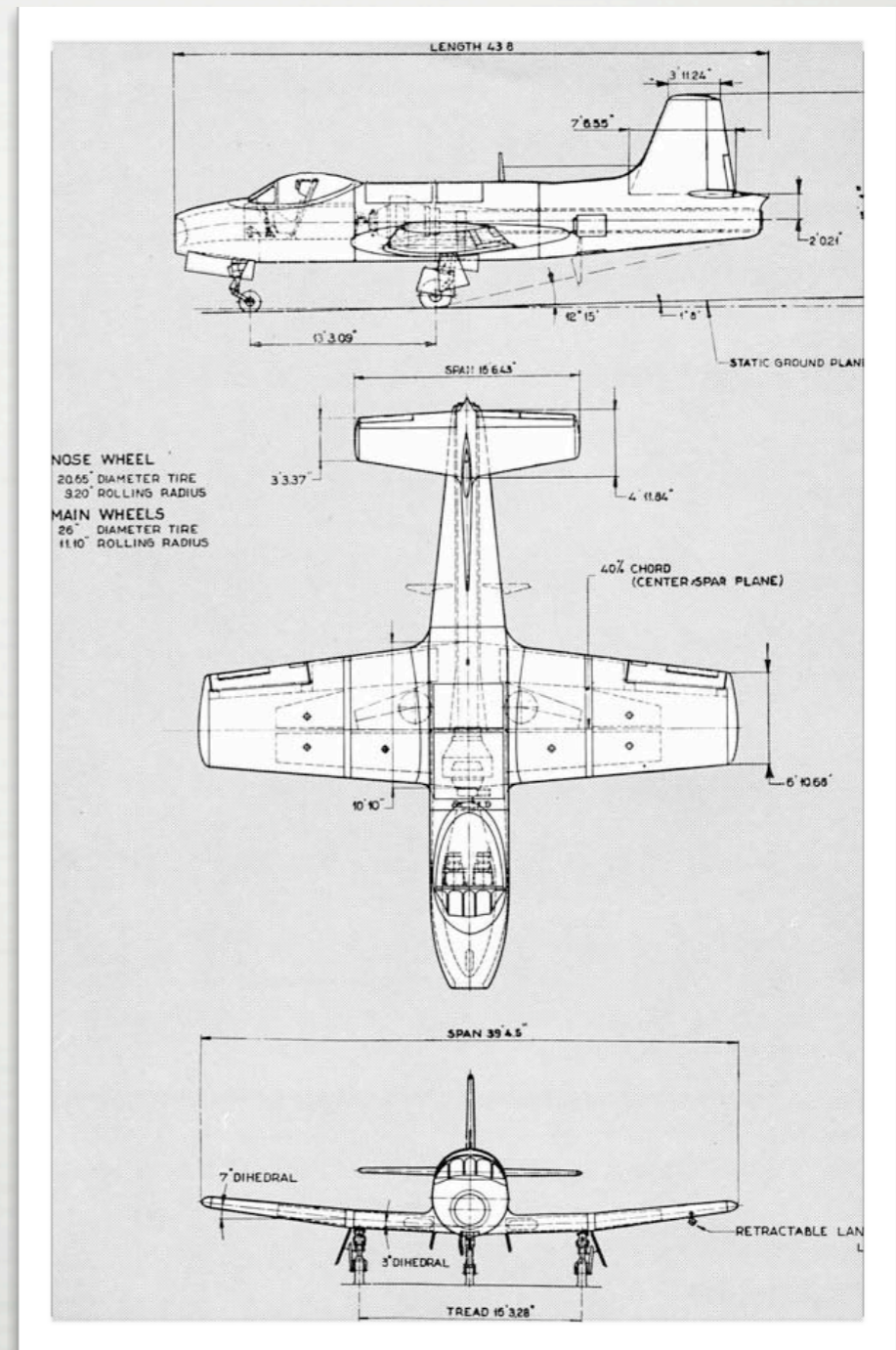
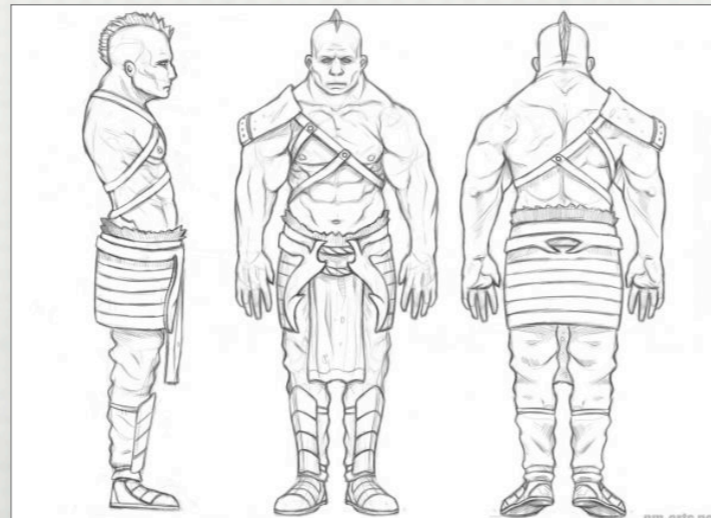
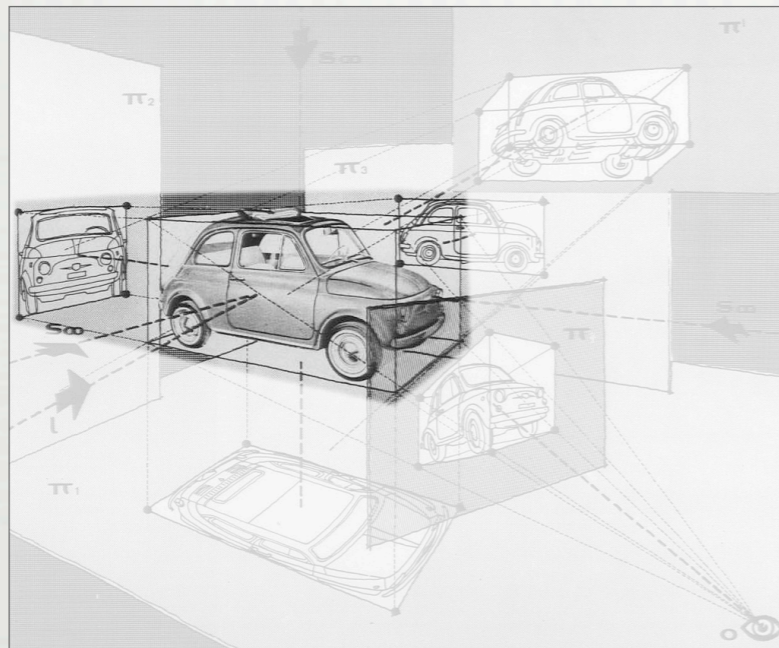
ALBRECHT DÜRER

PROJECTION LINES & THE PLANE

- Orthographic projection
Projection lines are parallel (they meet at infinite). The plane is usually parallel to the object, so the projection lines are perpendicular to the plane.
- Axonometric projection
Projection lines are parallel but at an angle with respect to the plane. The plane is at an angle in relation to the object.
- Perspective
Projection lines converge at a finite point (observer).

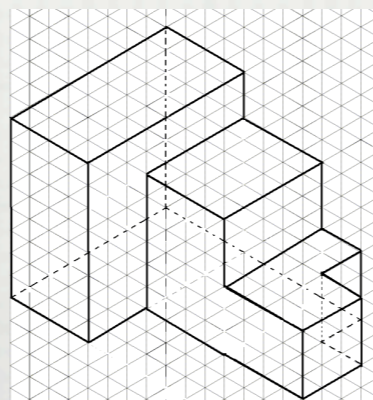
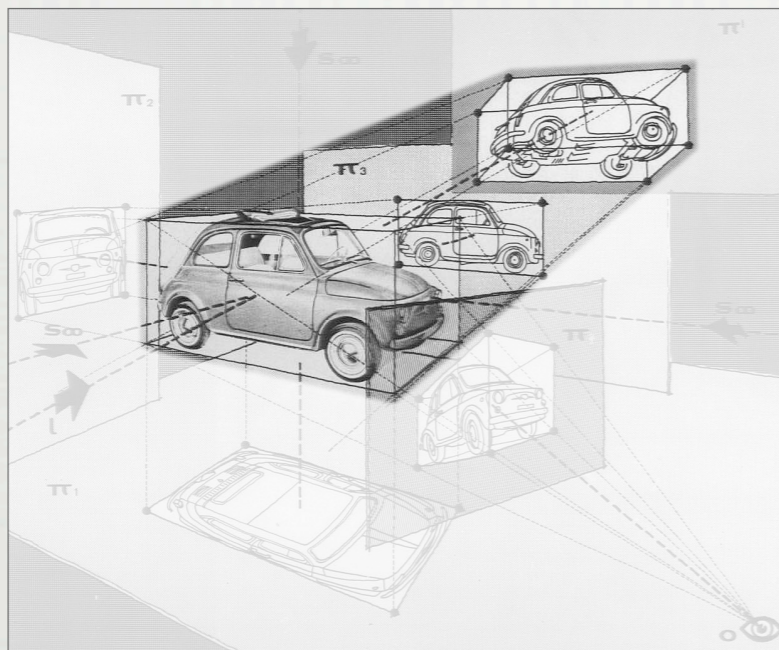
PROJECTION LINES & THE PLANE

□ Orthographic projection

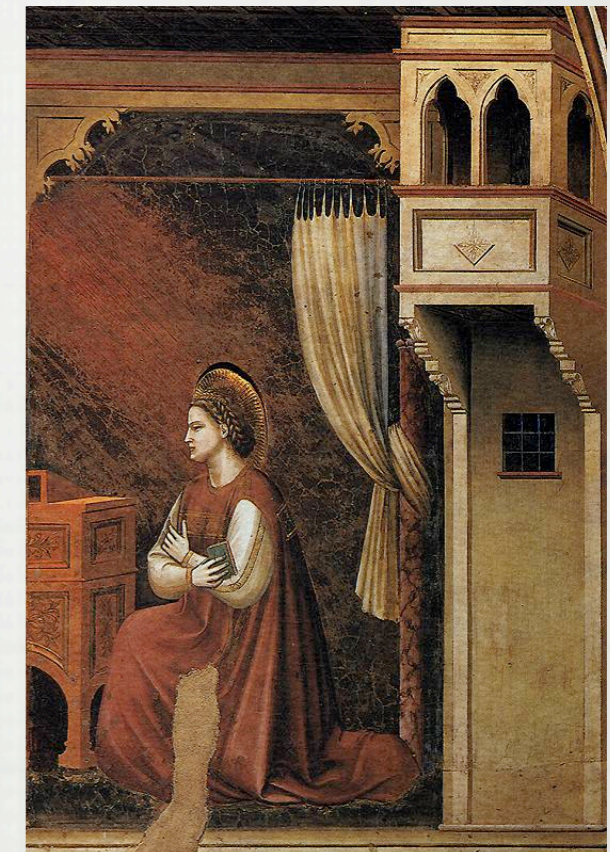
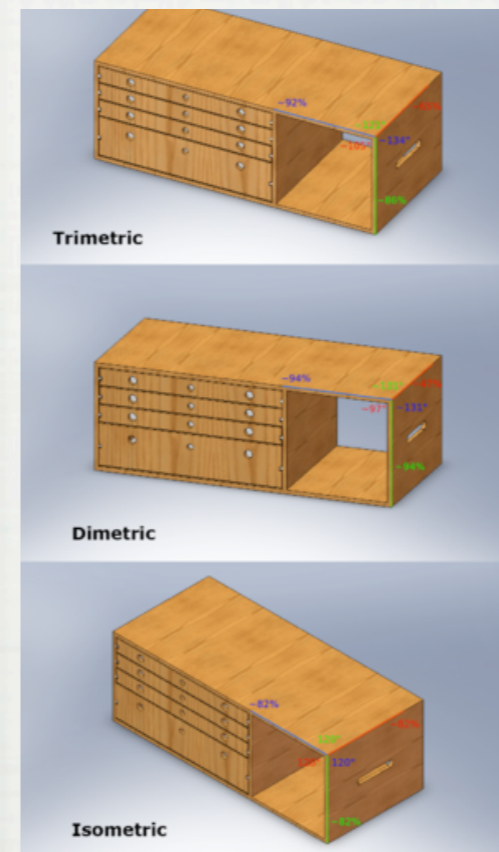


PROJECTION LINES & THE PLANE

□ Axonometric projection



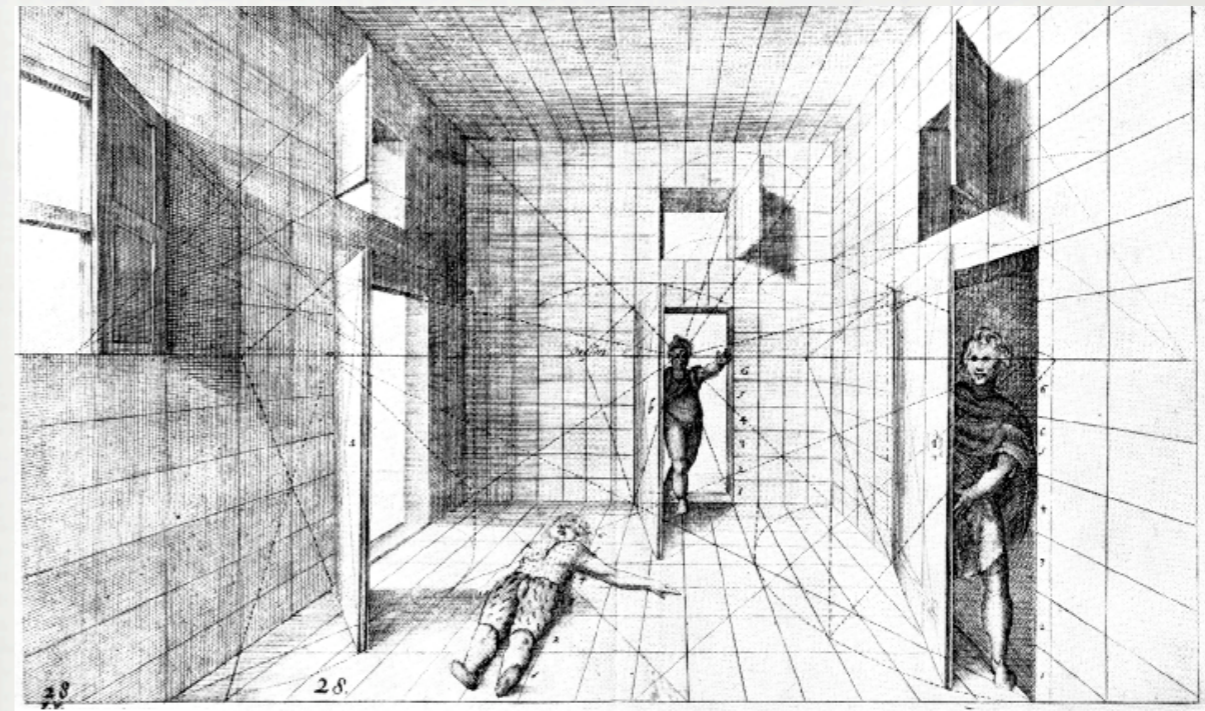
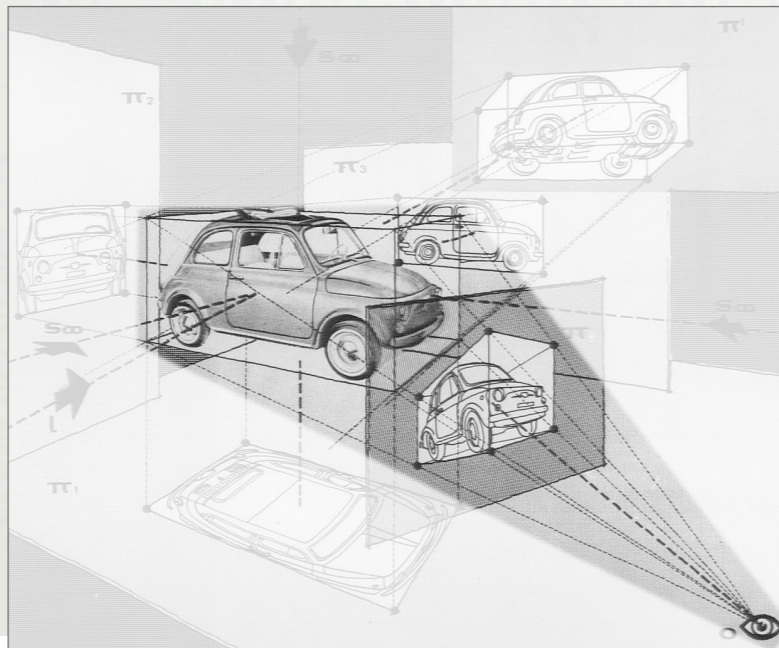
ISOMETRIC



ANNUNCIATION
Giotto

PROJECTION LINES & THE PLANE

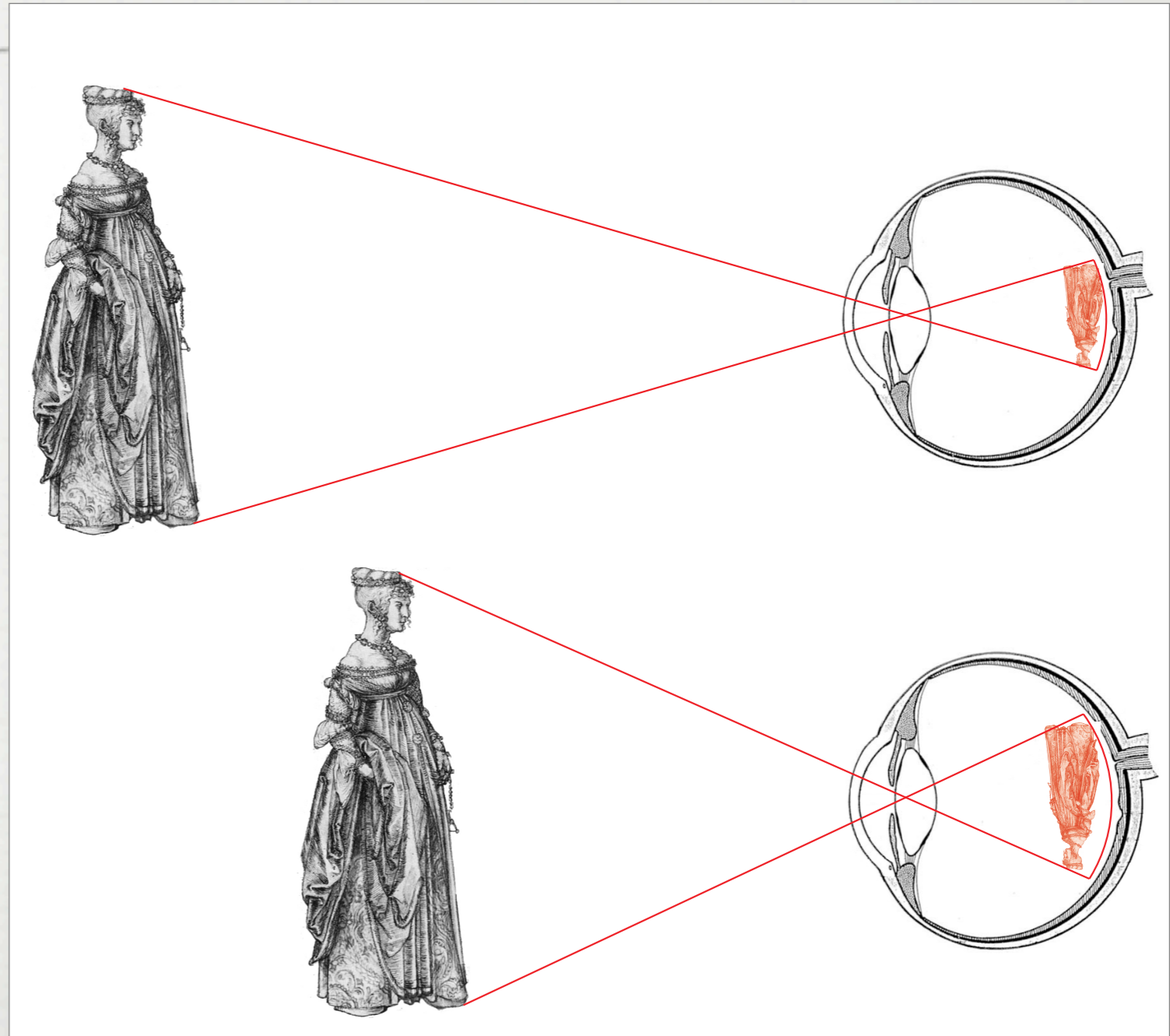
□ Perspective



CITTA' IDEALE.
(Ideal city).

PERSPECTIVE & OPTICS

- Perspective drawing is based on the simple observation that objects further away tend to look smaller. This is because the actual retinal image (image size) of the object varies depending on the distance of the object. The lens projects an image based on the laws of optics.



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