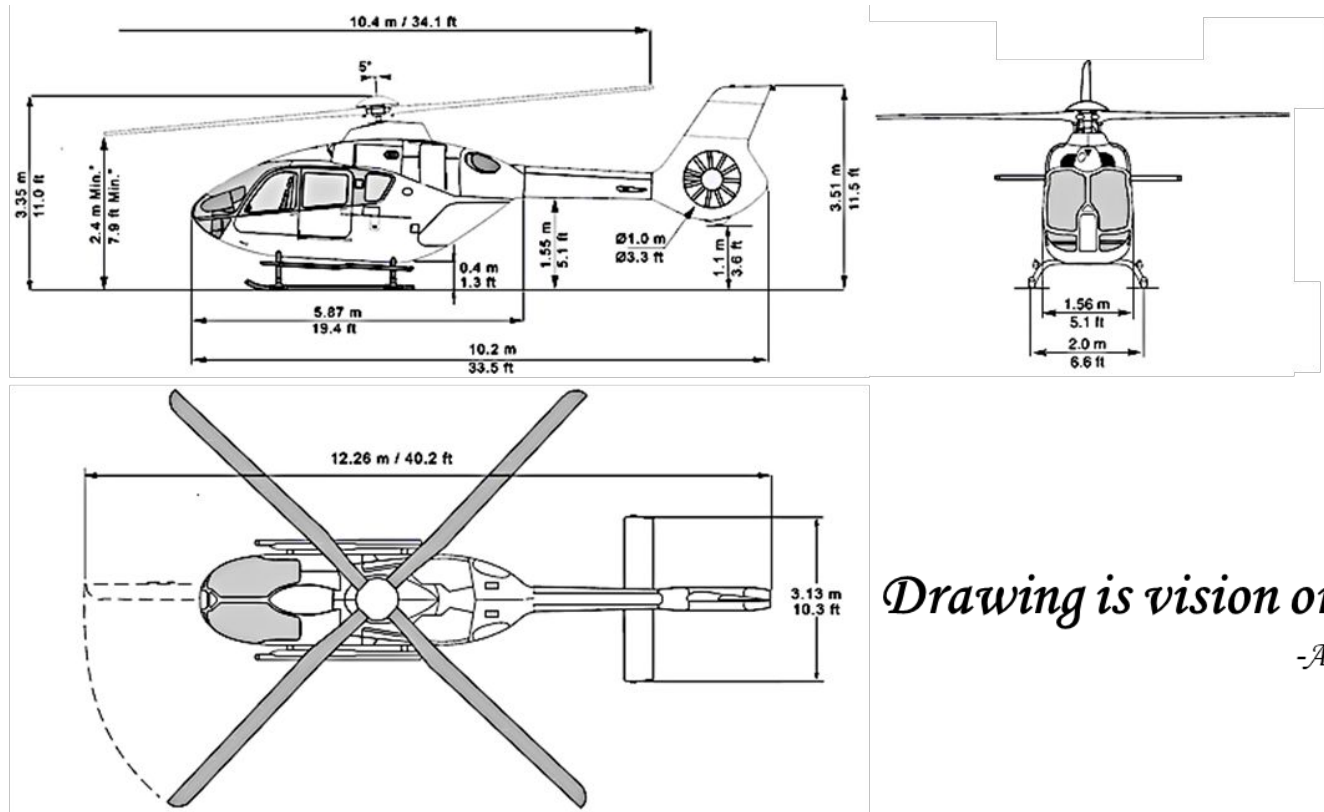


ES 101: Engineering Graphics



Drawing is vision on paper

-Andrew Loomis

https://www.aiut-alpin-dolomites.com/english/technical_details.html

Class#8 – 20th November 2024

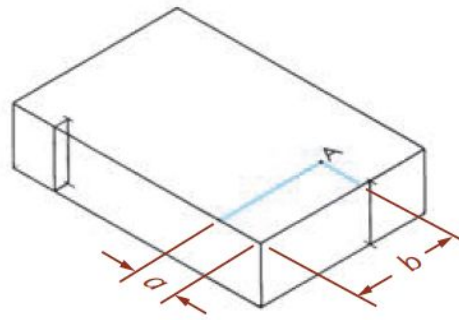
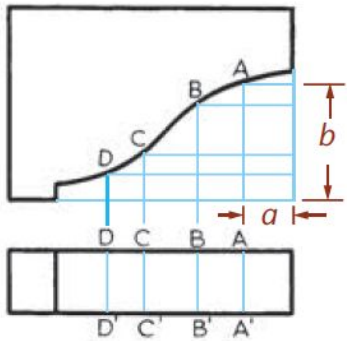
Sameer Patel

Assistant Professor

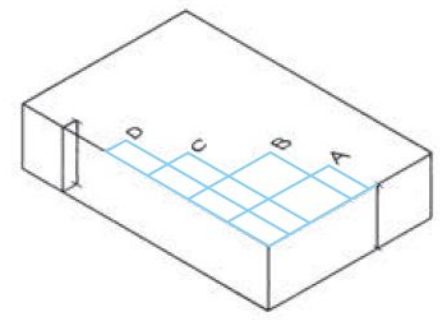
Civil Engineering & Chemical Engineering

IIT Gandhinagar

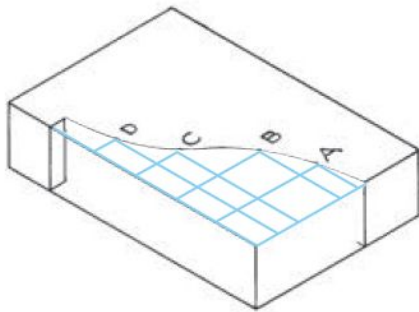
Curves in isometric projection



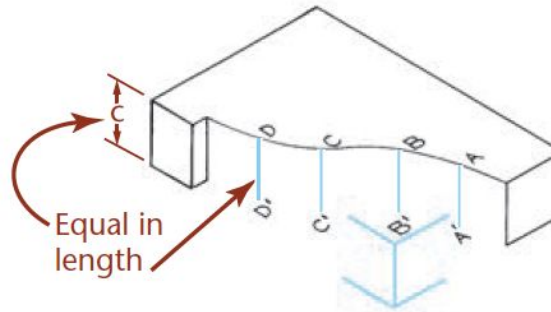
- 1 Use offset measurements a and b in the isometric to locate point A on the curve.



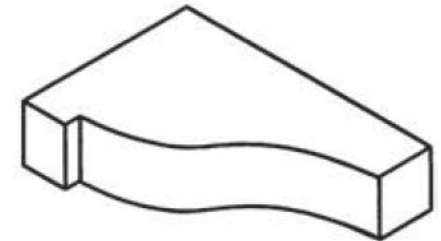
- 2 Locate points B, C, and D, and so on.



- 3 Sketch a smooth light freehand curve through the points.

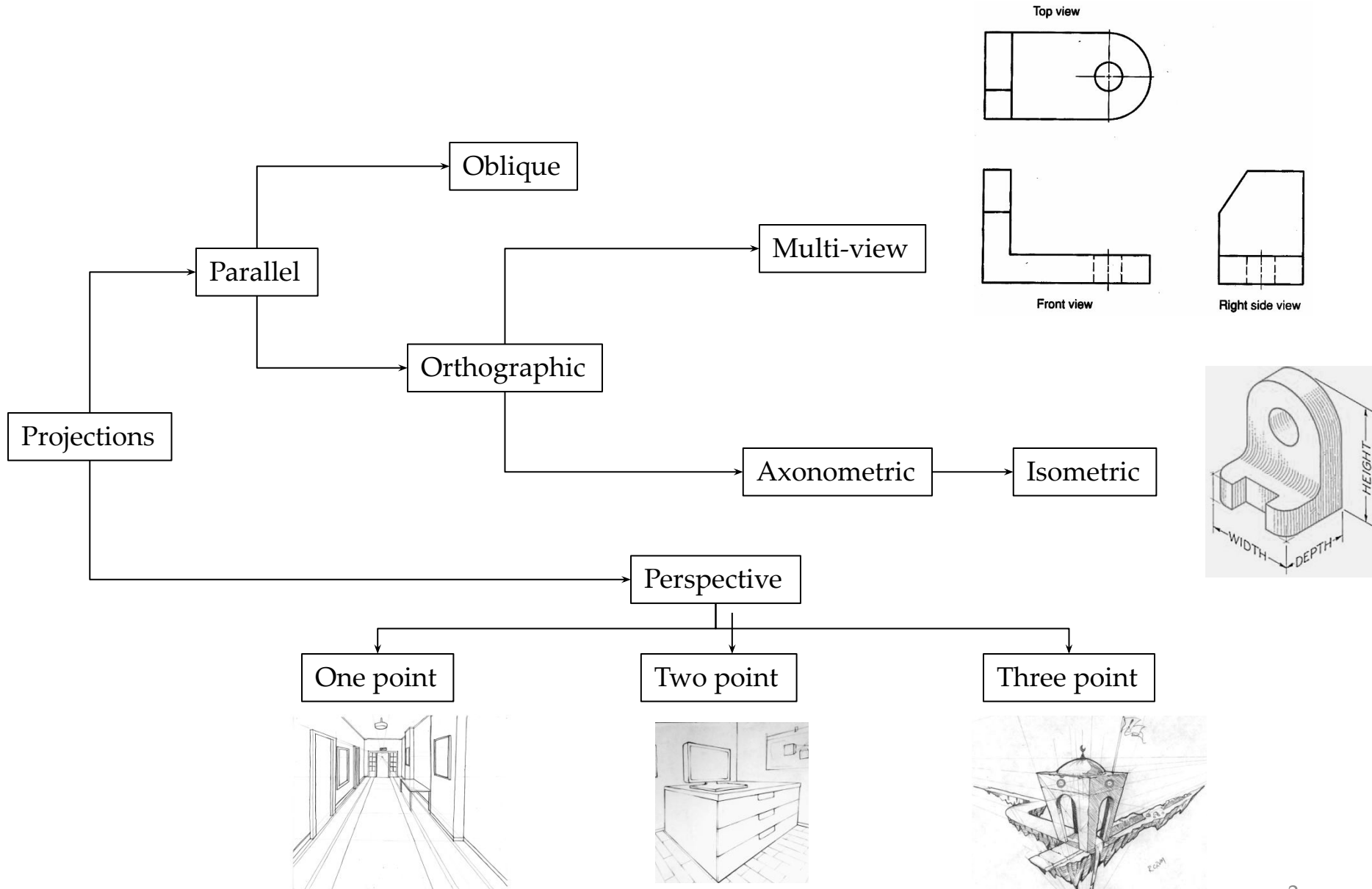


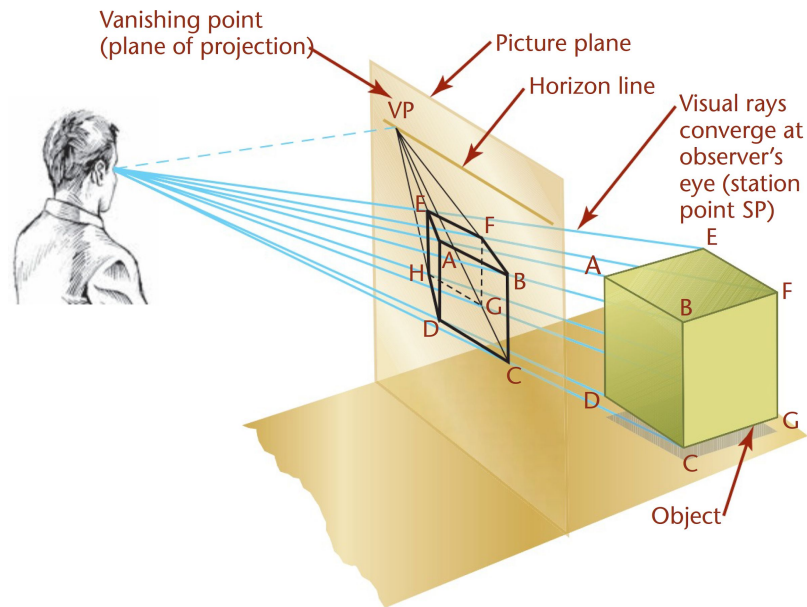
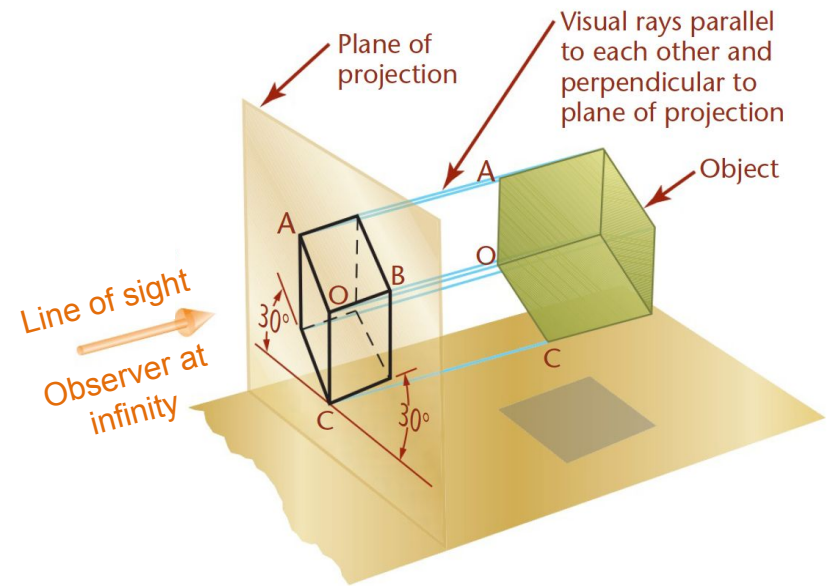
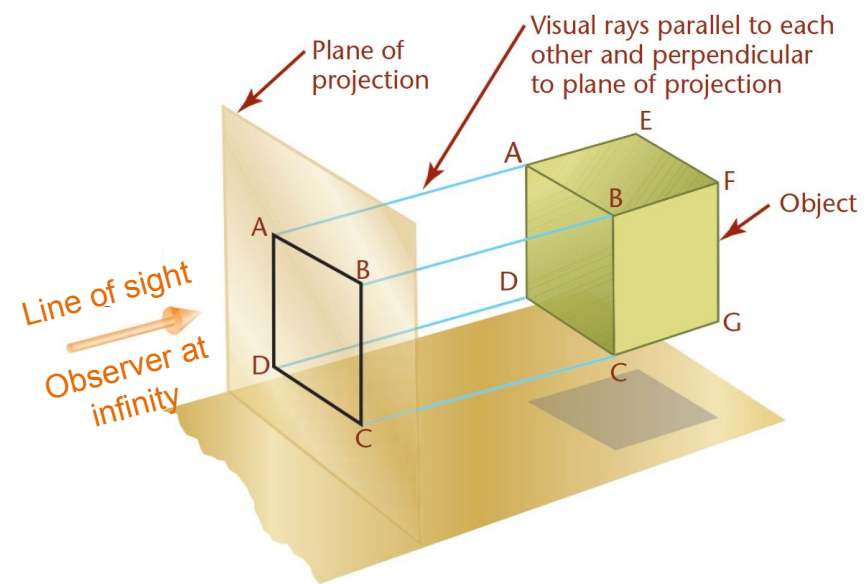
- 4 Draw a line vertically from point A to locate point A', and so on, making all equal to the height of block (c), then draw a light curve through the points.



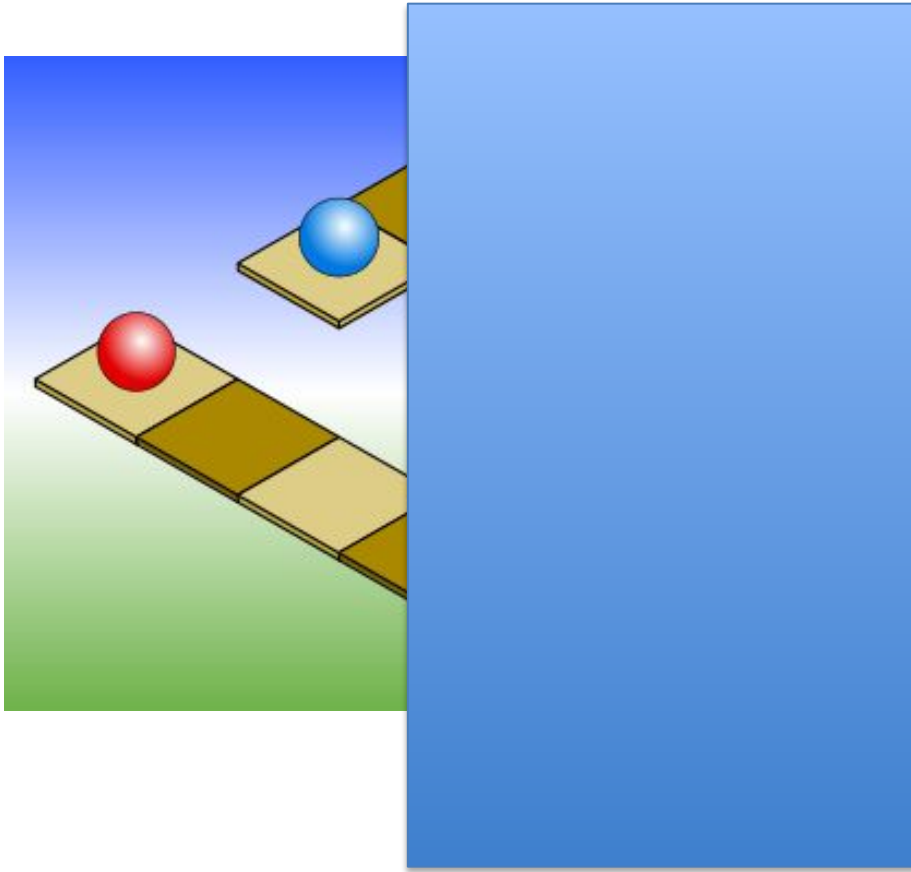
- 5 Darken the final lines.

Types of projections

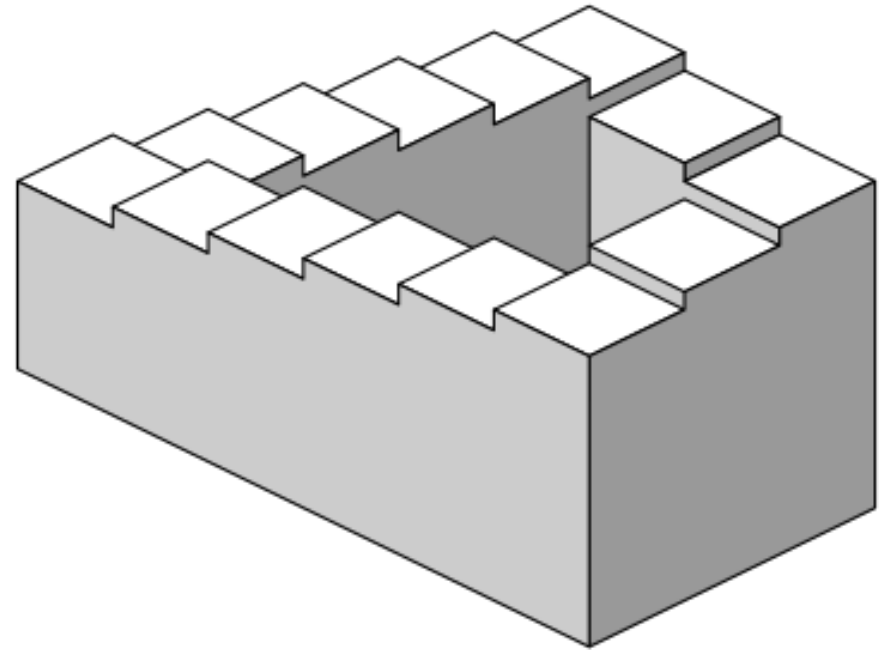




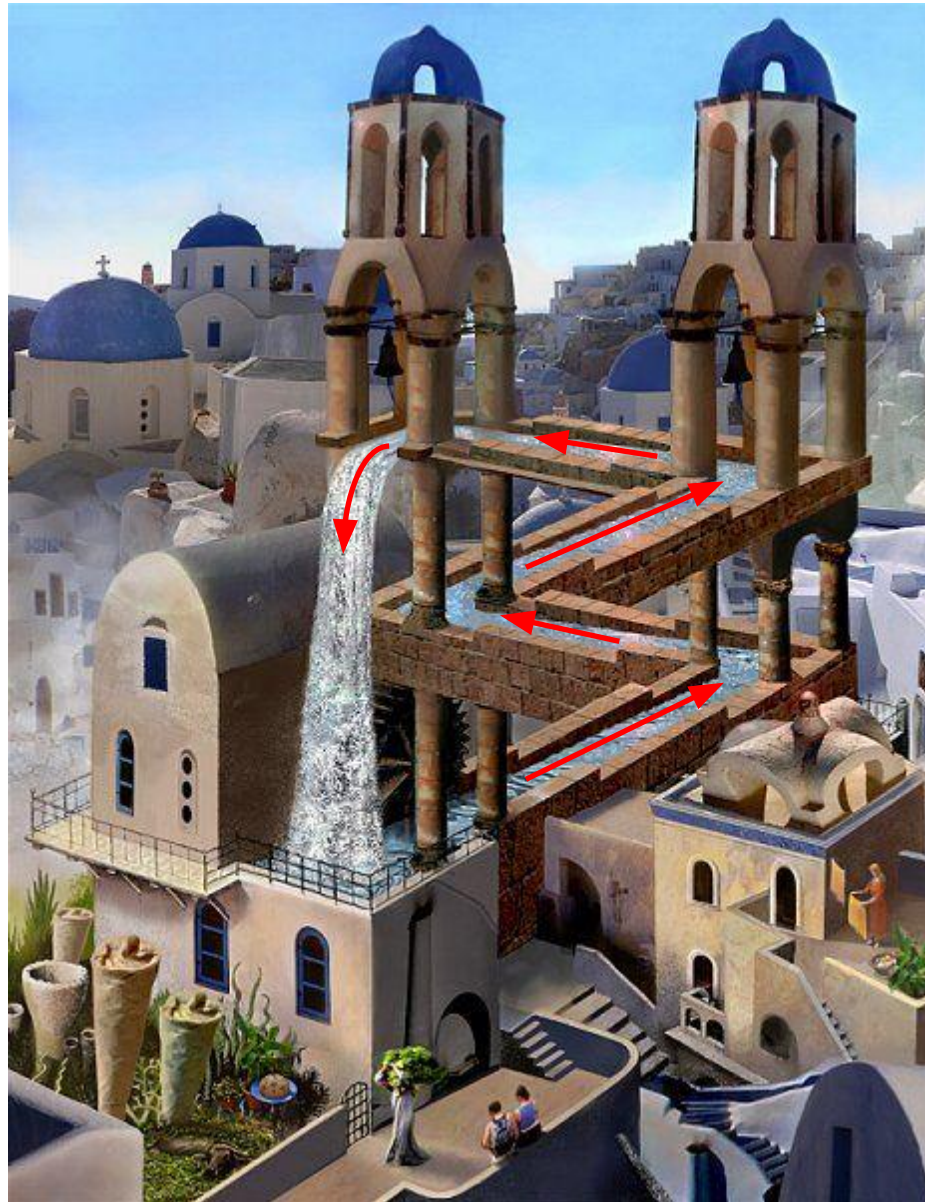
Limitations of parallel projection



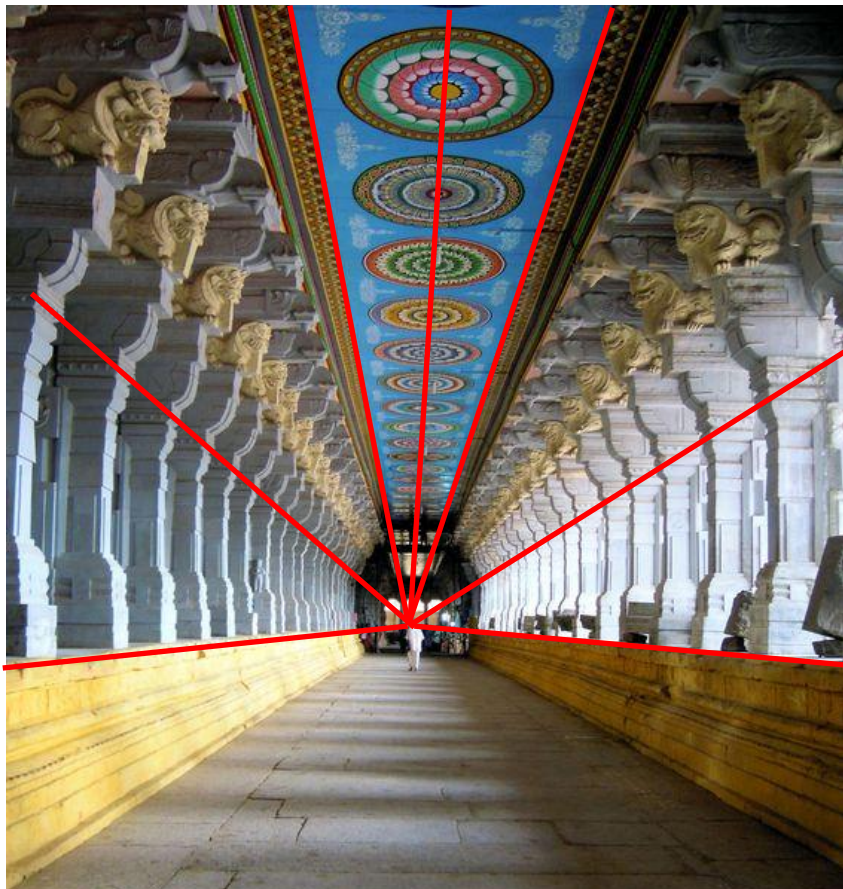
Penrose stairs (an impossible object first created by Oscar Reutersvard and later independently made popular by Lionel Penrose and Roger Penrose)



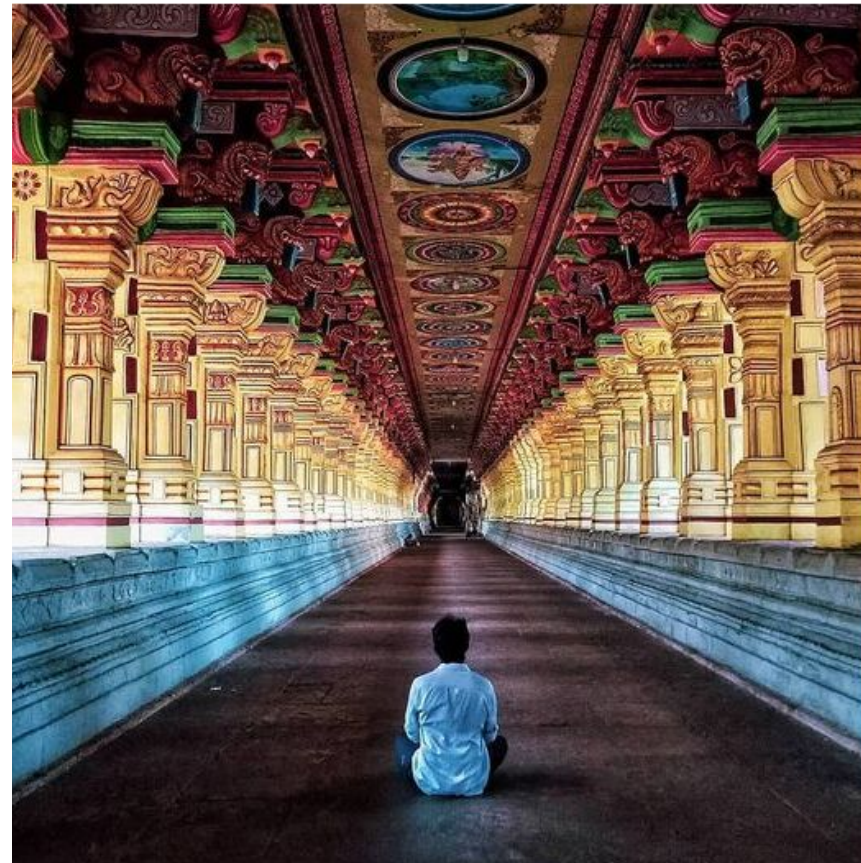
Escher (a Dutch
artist) waterfall



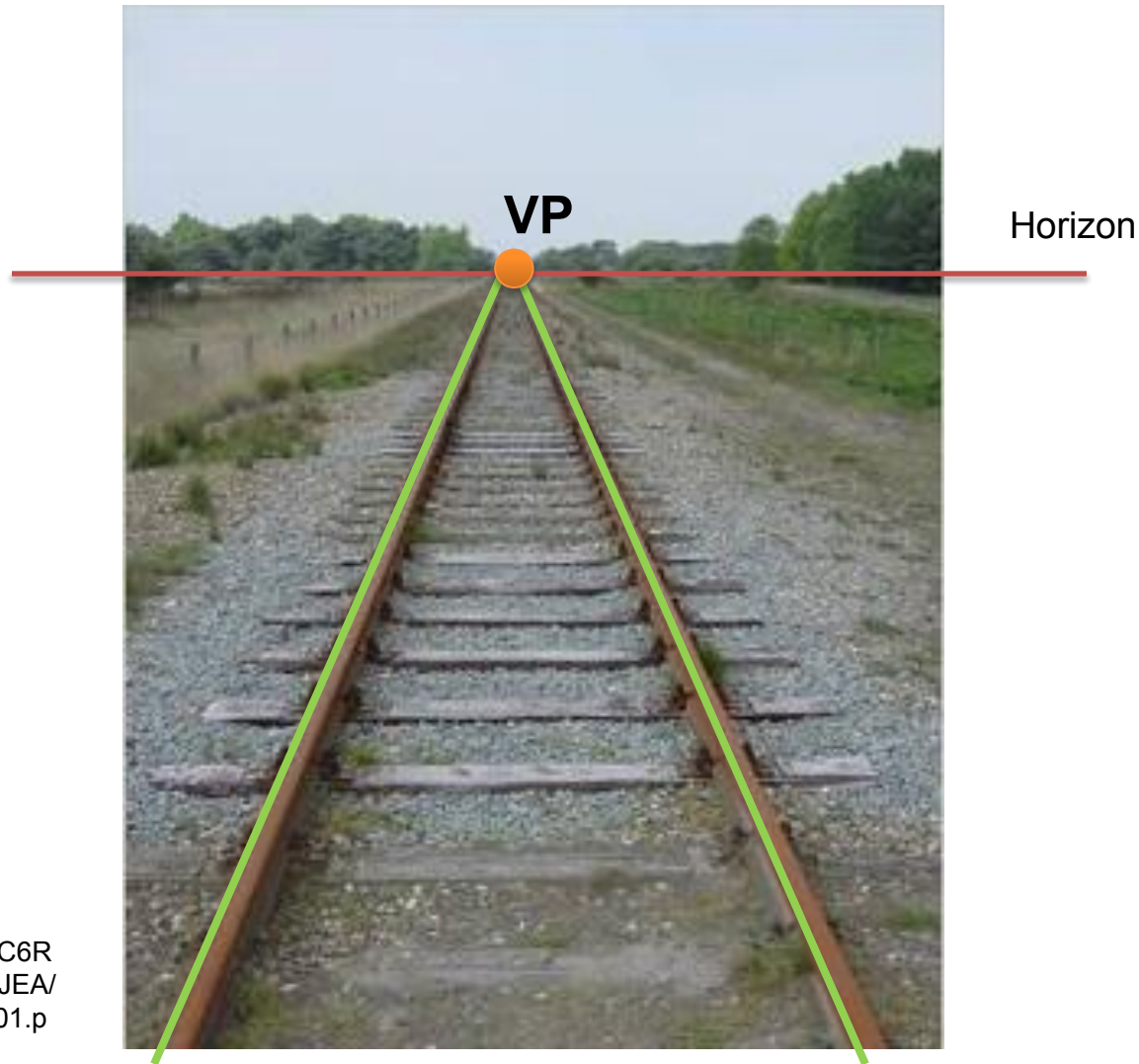
<https://in.pinterest.com/>



<https://in.pinterest.com/>



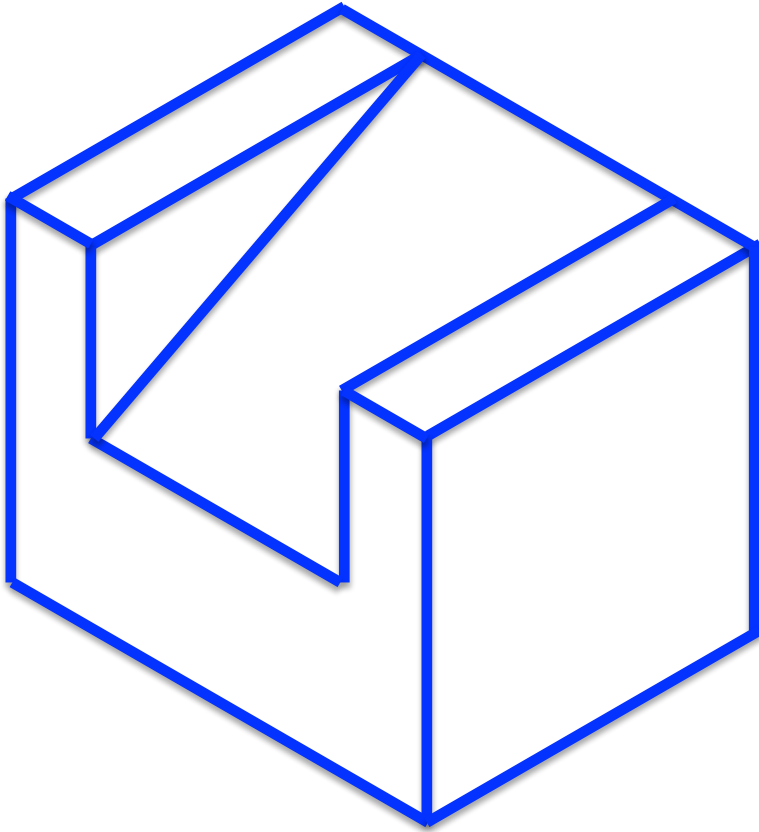
Elements of perspective projections



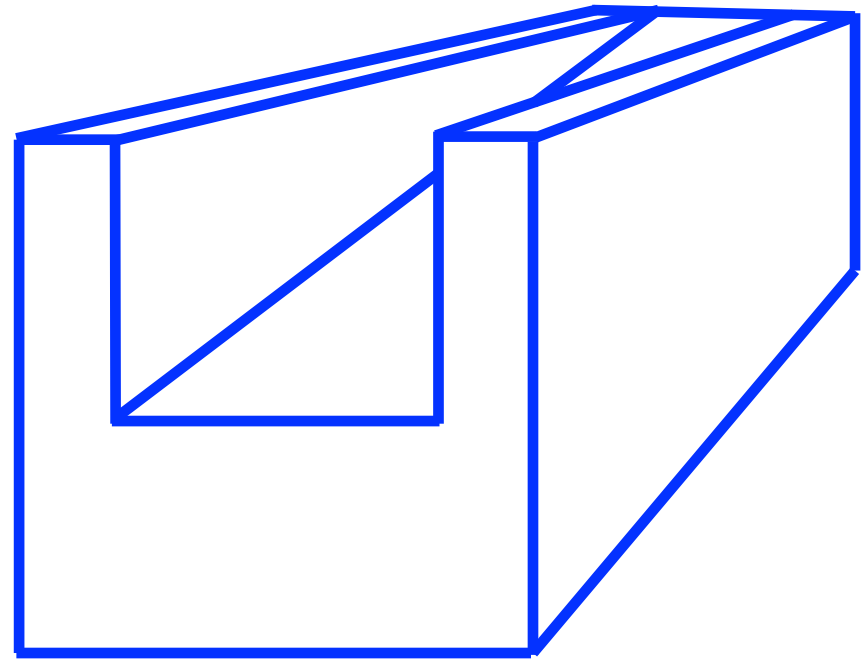
<http://3.bp.blogspot.com/-dbsjbC6RfEM/UASJNEtrE7I/AAAAAAAAAJEA/OCBqf-laFtY/s320/perspective01.png>

Elements of perspective projections





Isometric drawing

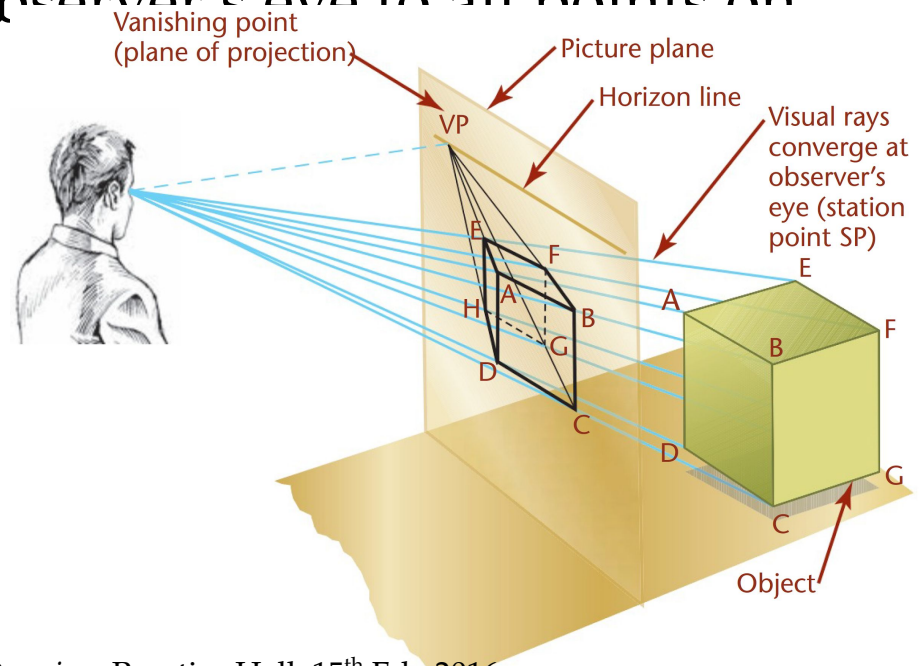


Perspective projection

Perspective projection

A perspective drawing involves four main elements

- The observer's eye
- The object being viewed
- The plane of projection
- The projectors from the observer's eye to all points on the object

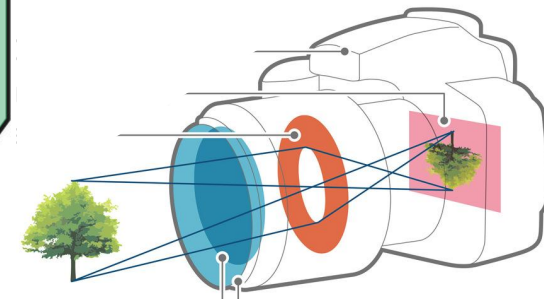
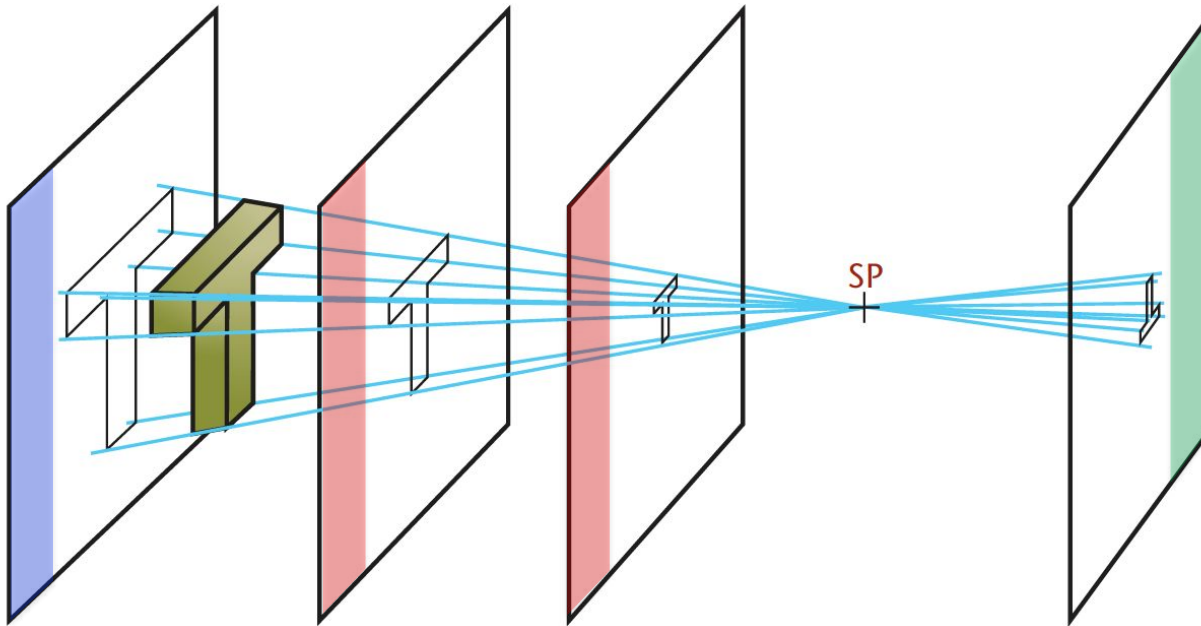


Perspective projection



Positioning of the picture plane

- Picture plane behind the object
- Picture plane in front of the object (the most commonly used convention)
- Picture plane behind the station point (similar to the camera lens)



F. E. Giesecke et al., *Technical Drawing*, Prentice Hall, 15th Ed., 2016
<https://twistedsifter.com/2013/03/shadow-art-sculptures-by-diet-wiegman/>

Acknowledgements

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