

PASSIVE DESIGN

SOLAR ORIENTATION

2017-2018

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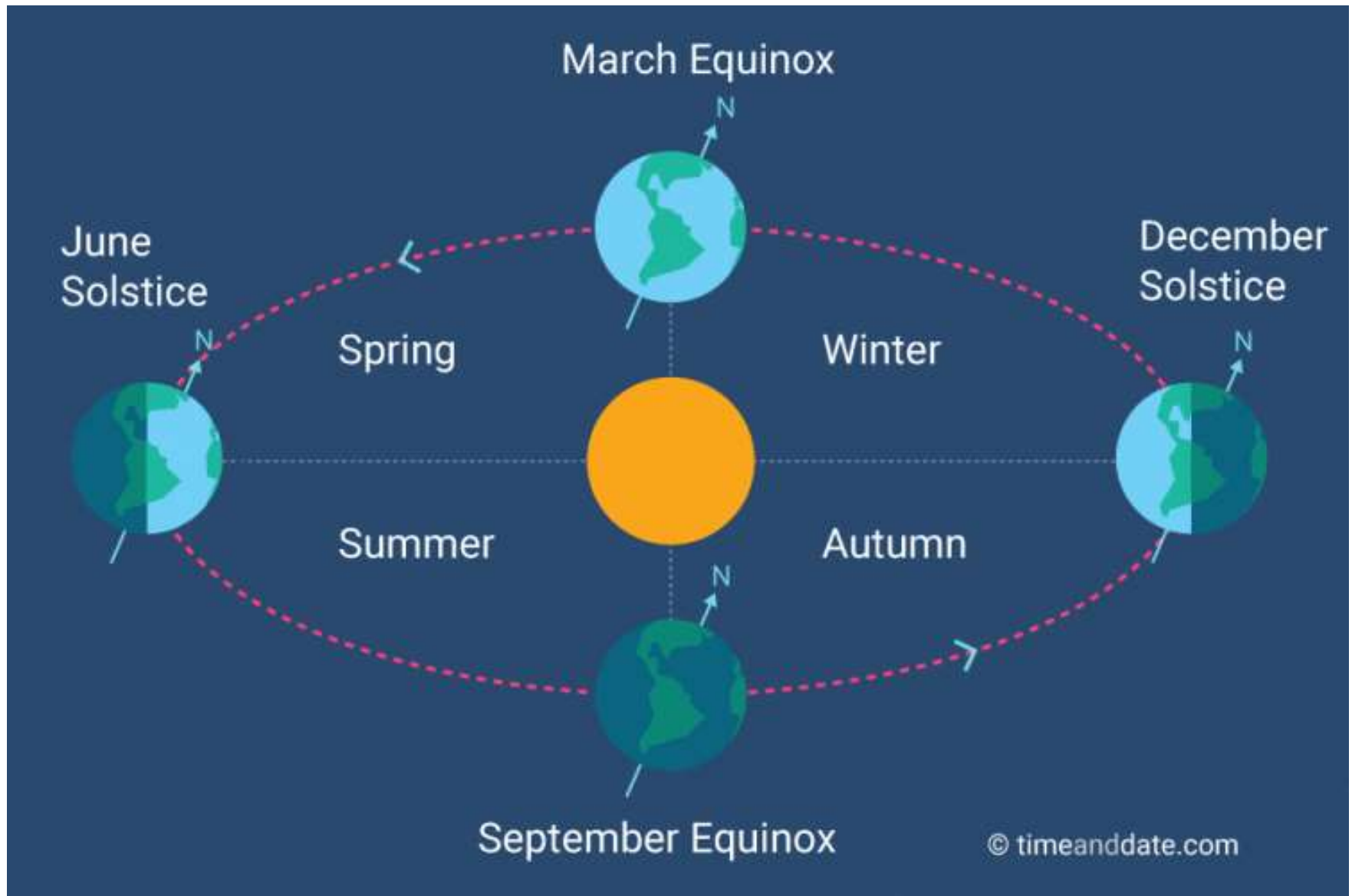


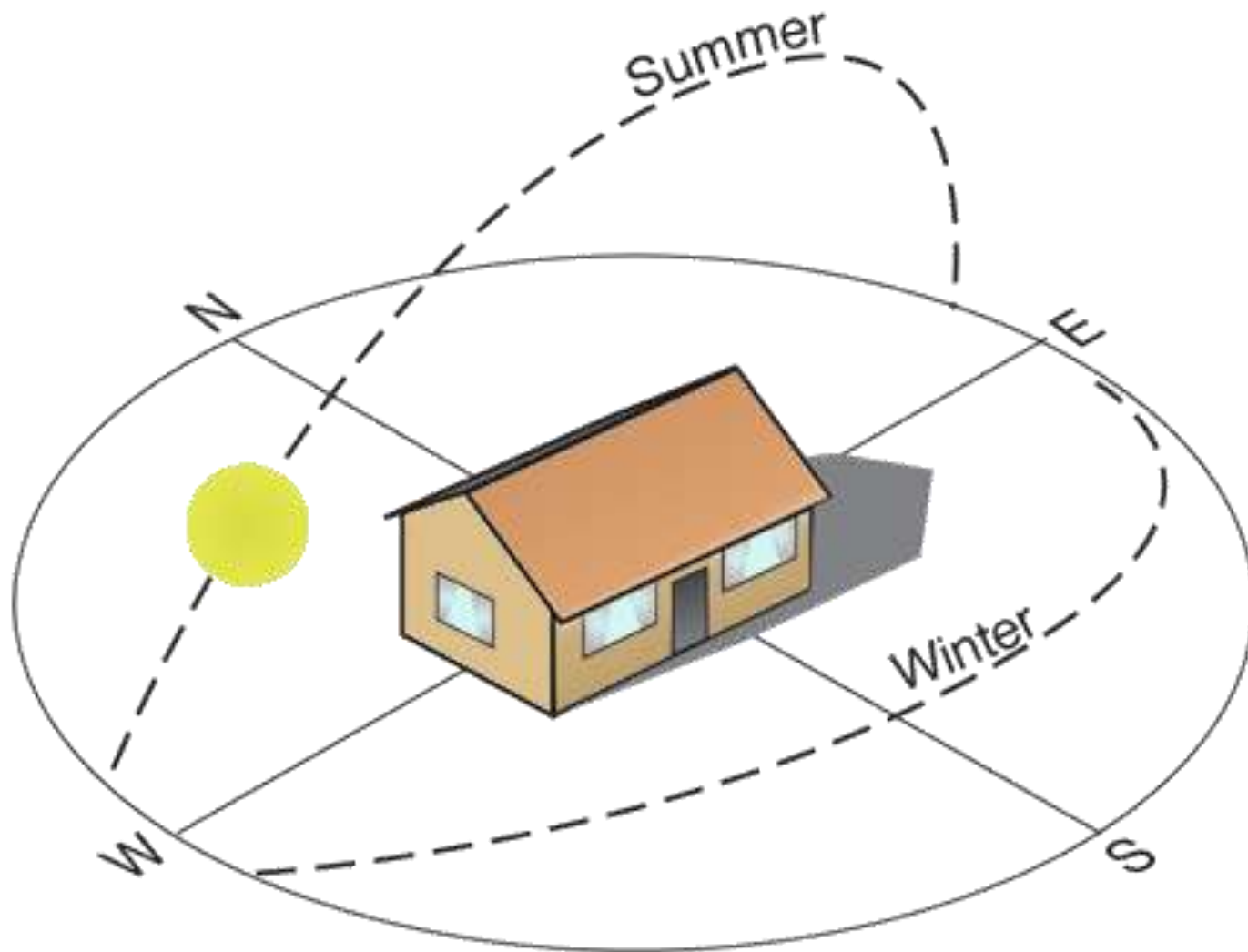
Why is solar orientation important?

How are windows affected?

How do other buildings and elements affect?

How does building shape affect?

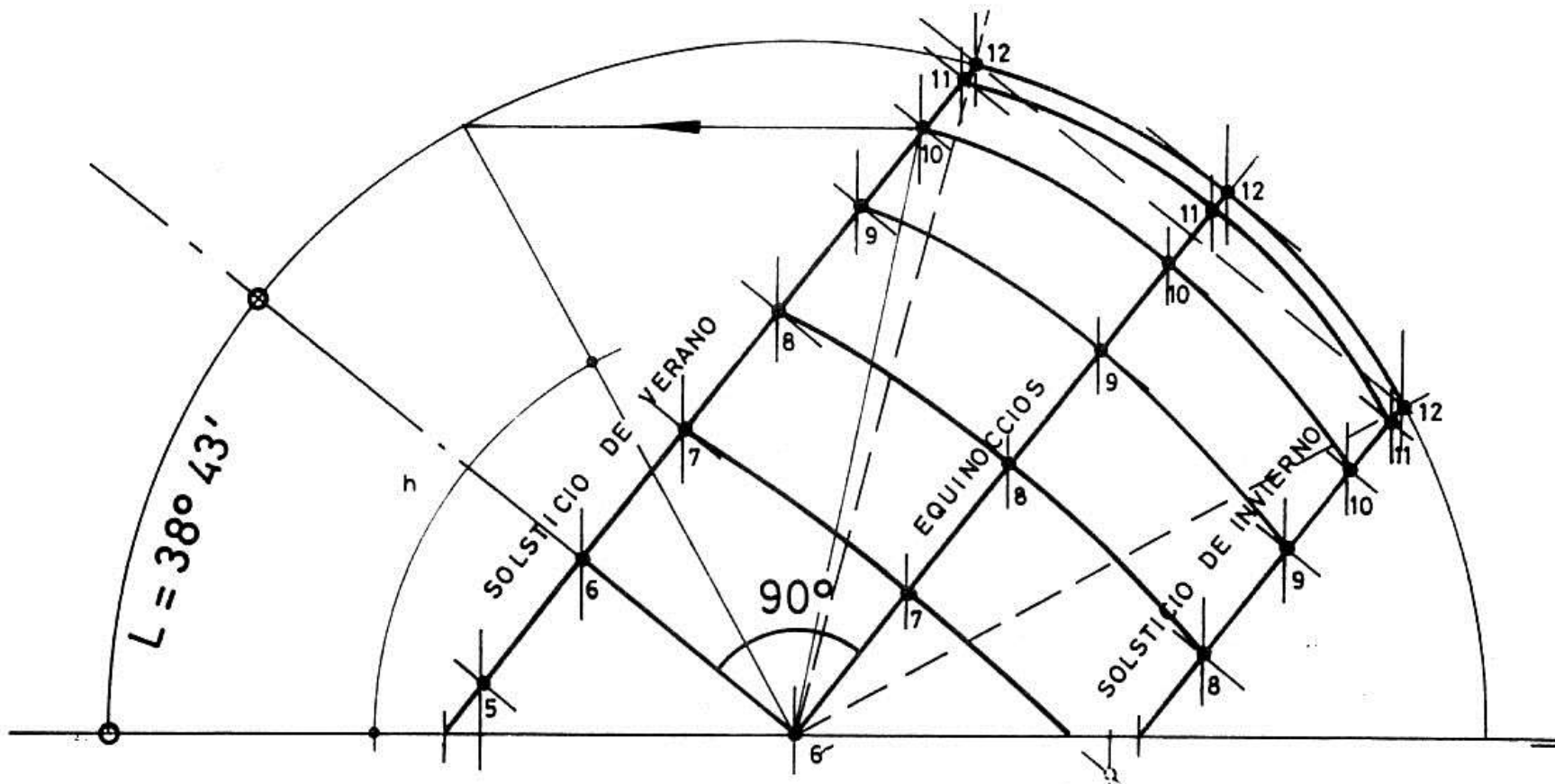






FISHER SUN PATH DIAGRAM

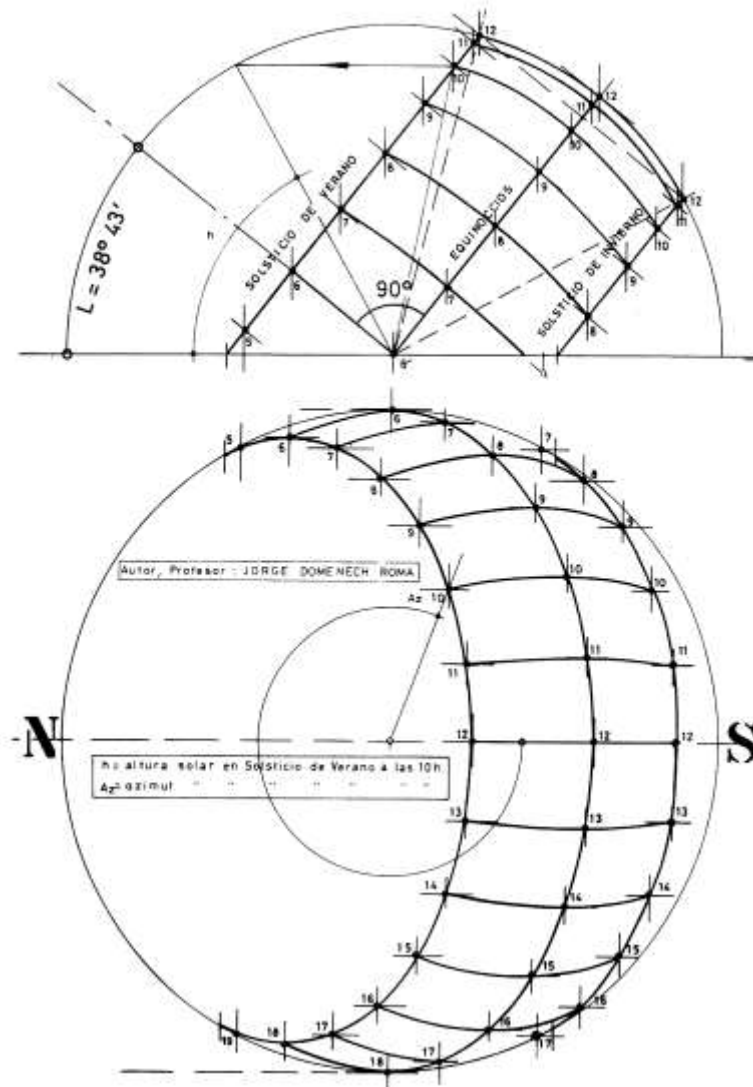
PARA ALCÓY Y LOCALIDADES DE $38^{\circ} 43'$ DE LATITUD





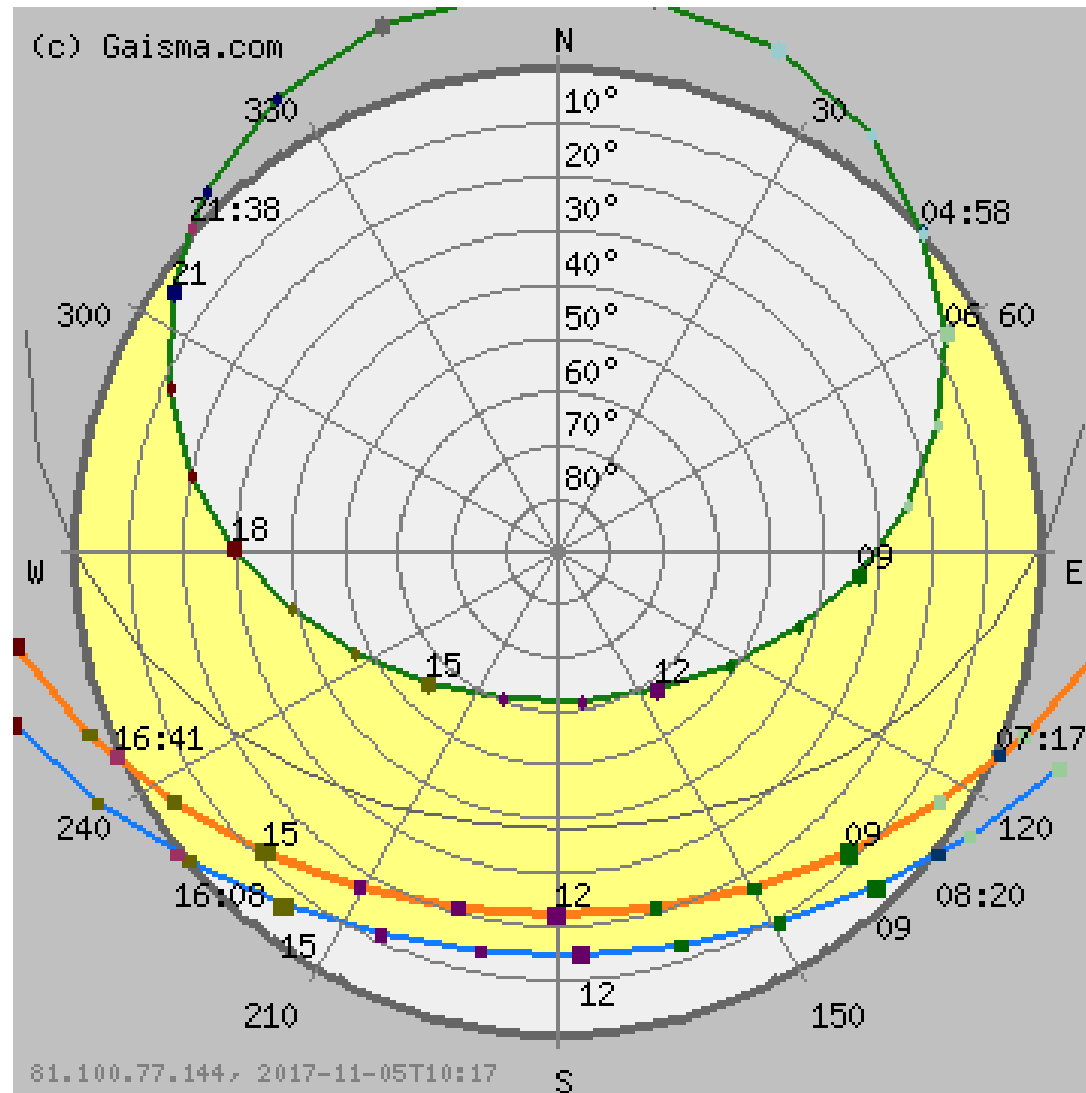
CARTA SOLAR DE FISHER

PARA ALCOV Y LOCALIDADES DE 28° 43' DE LATITUD



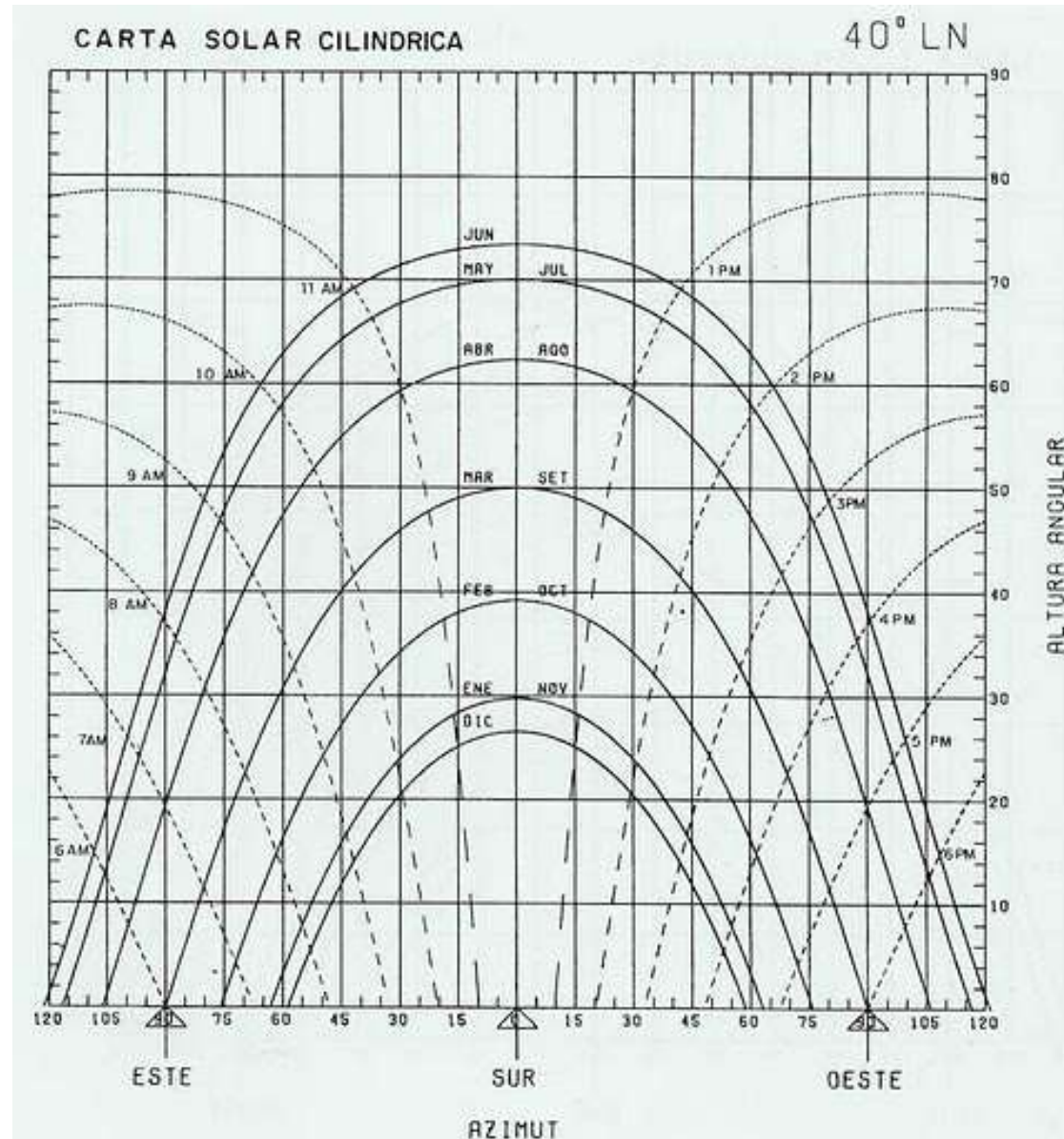


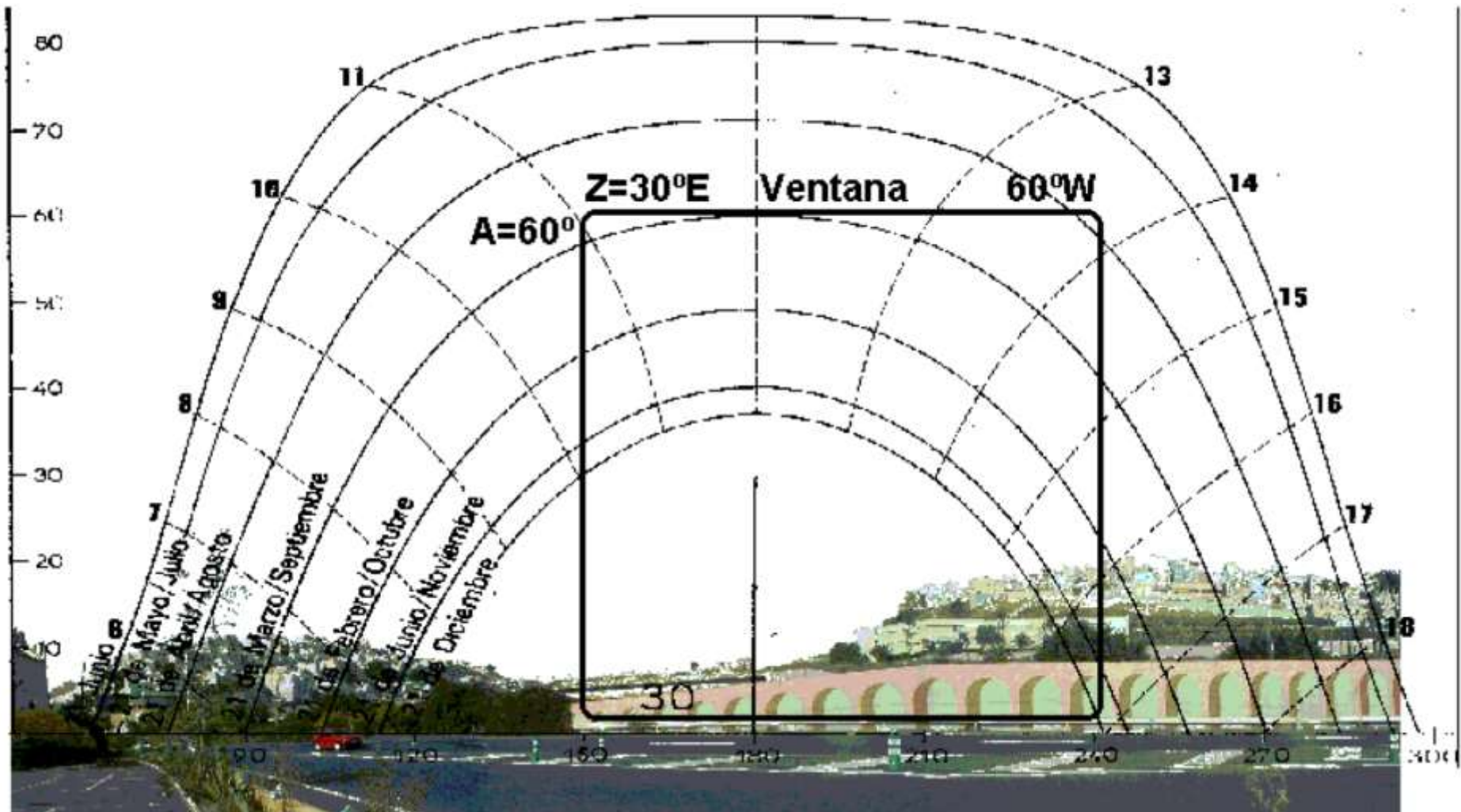
SUN PATH DIAGRAM (SOLAR CHART)



Swansea

Link to
www.gaisma.com





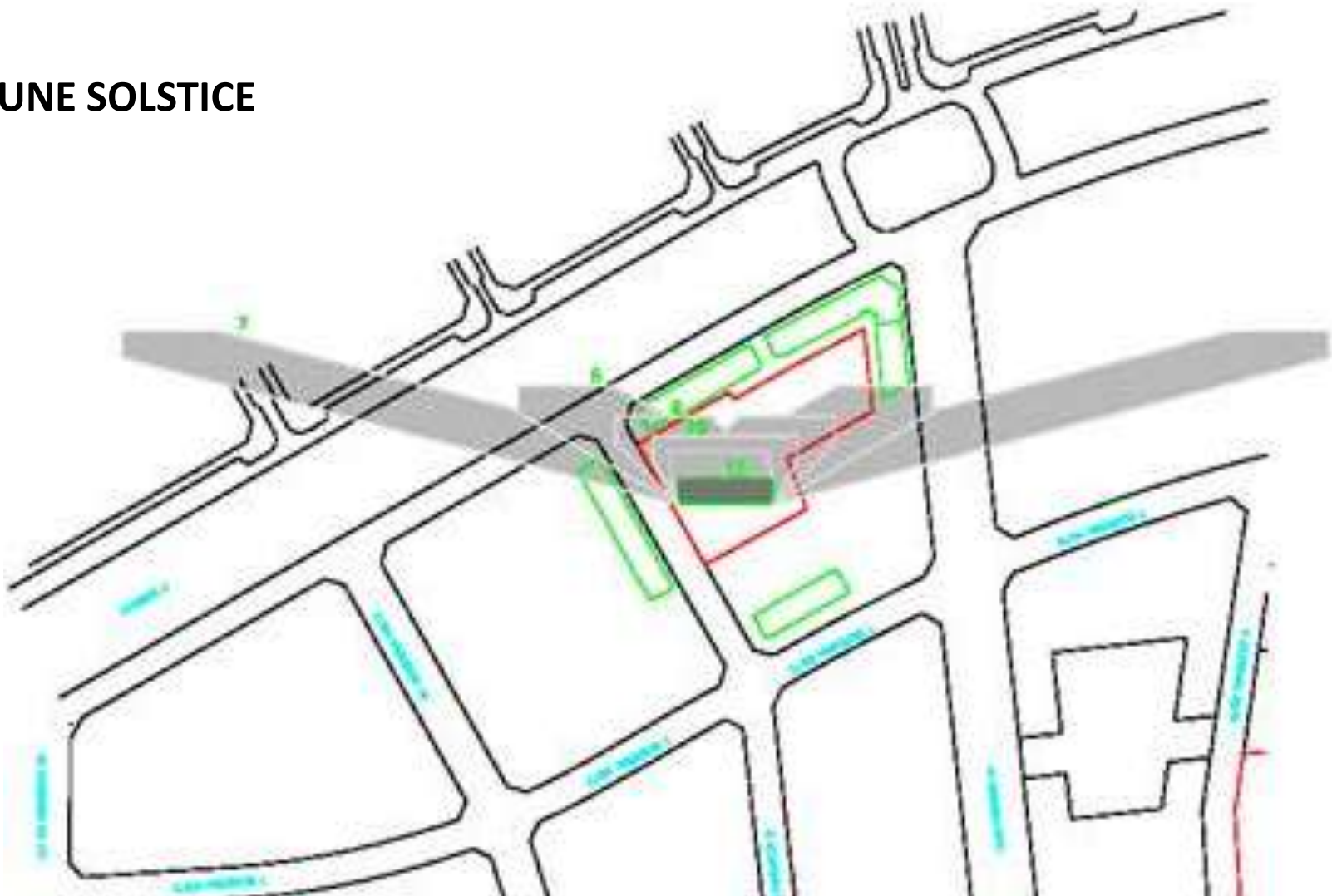


CASE STUDY

SOLAR ORIENTATION ANALYSIS
9-FLOOR BUILDING IN ALICANTE (SPAIN)



JUNE SOLSTICE



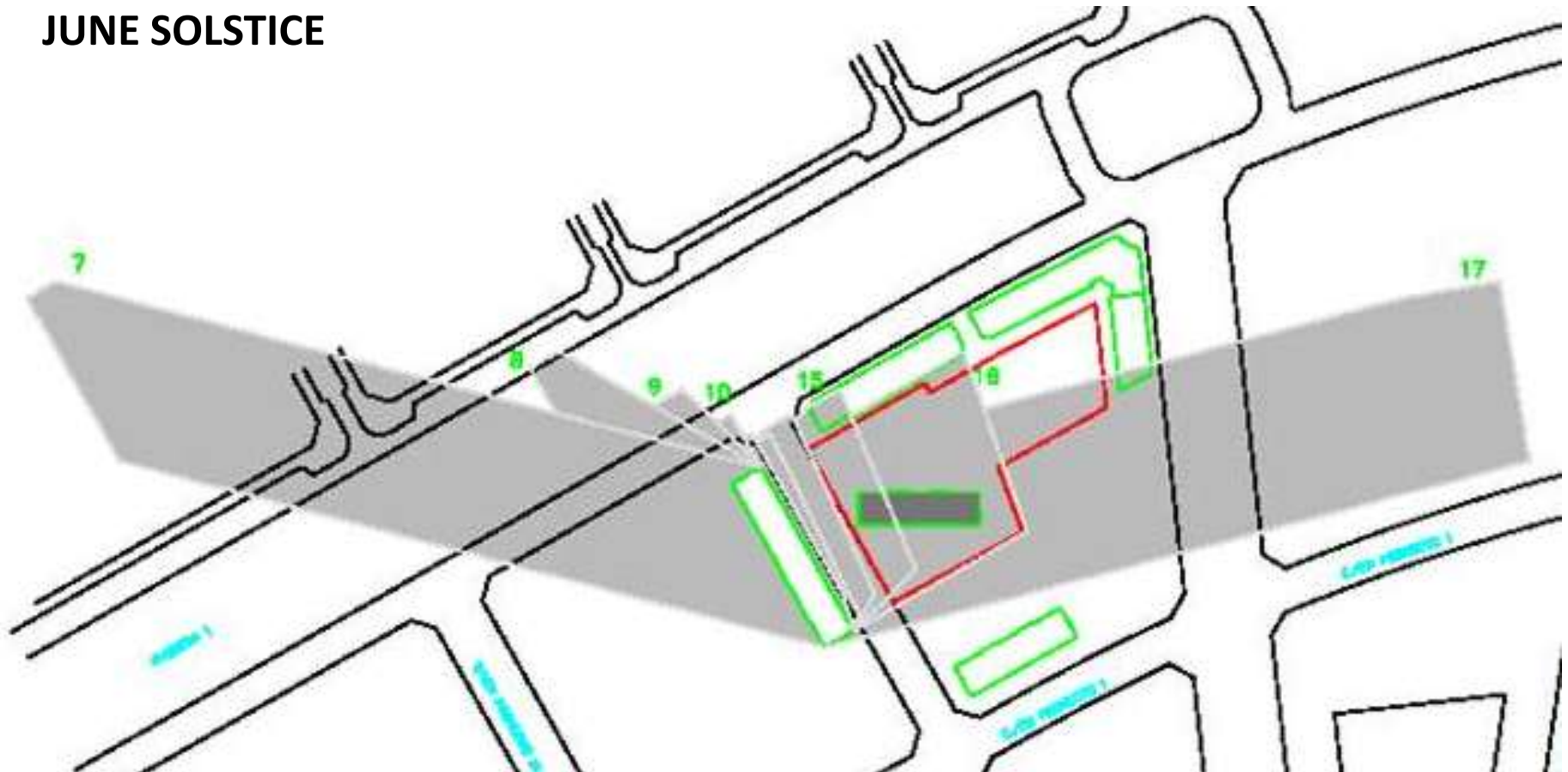


DECEMBER SOLSTICE



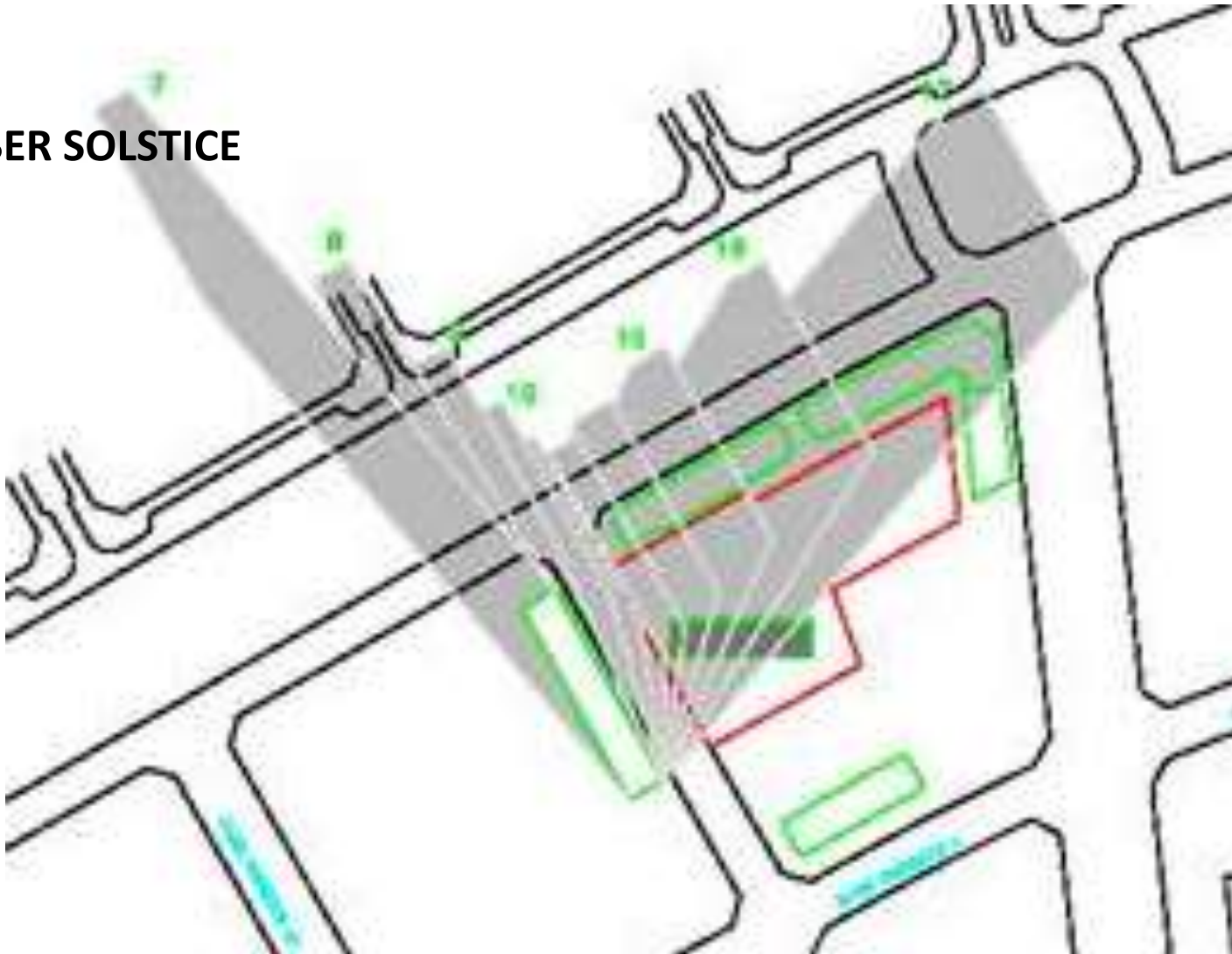


JUNE SOLSTICE





DECEMBER SOLSTICE



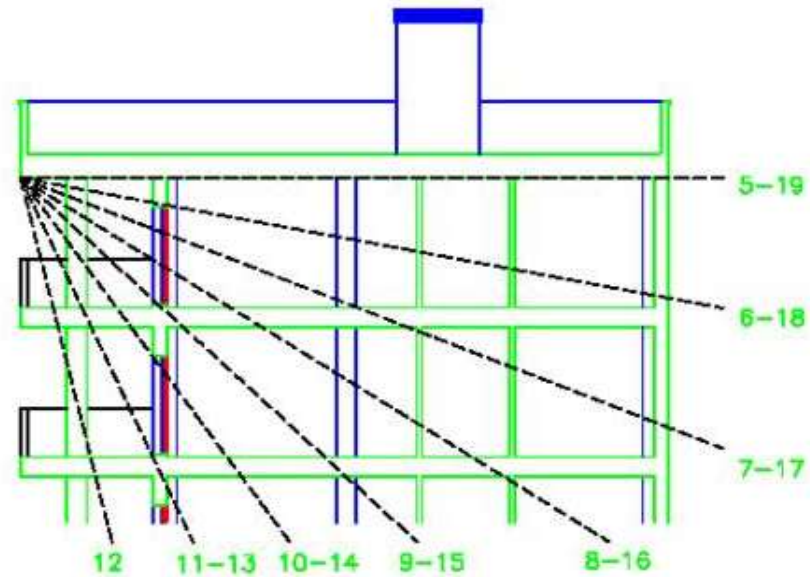


JUNE SOLSTICE

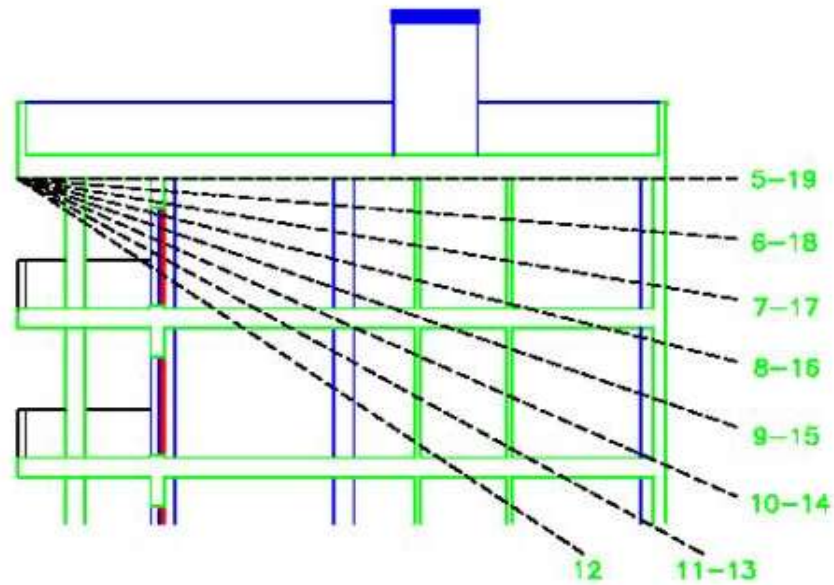




JUNE SOLSTICE



DECEMBER SOLSTICE





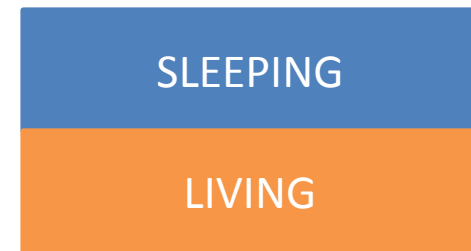
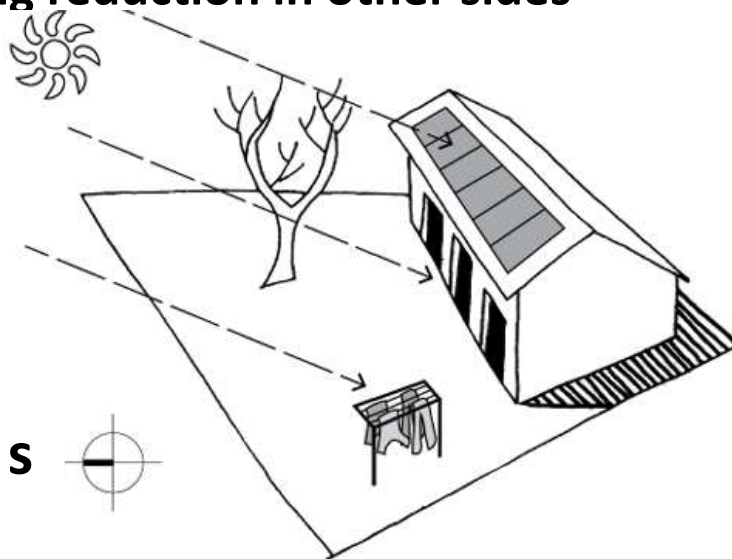
CONSIDERATIONS FOR SOLAR OPTIMISATION



Best orientation will depend on where you are building

In the UK:

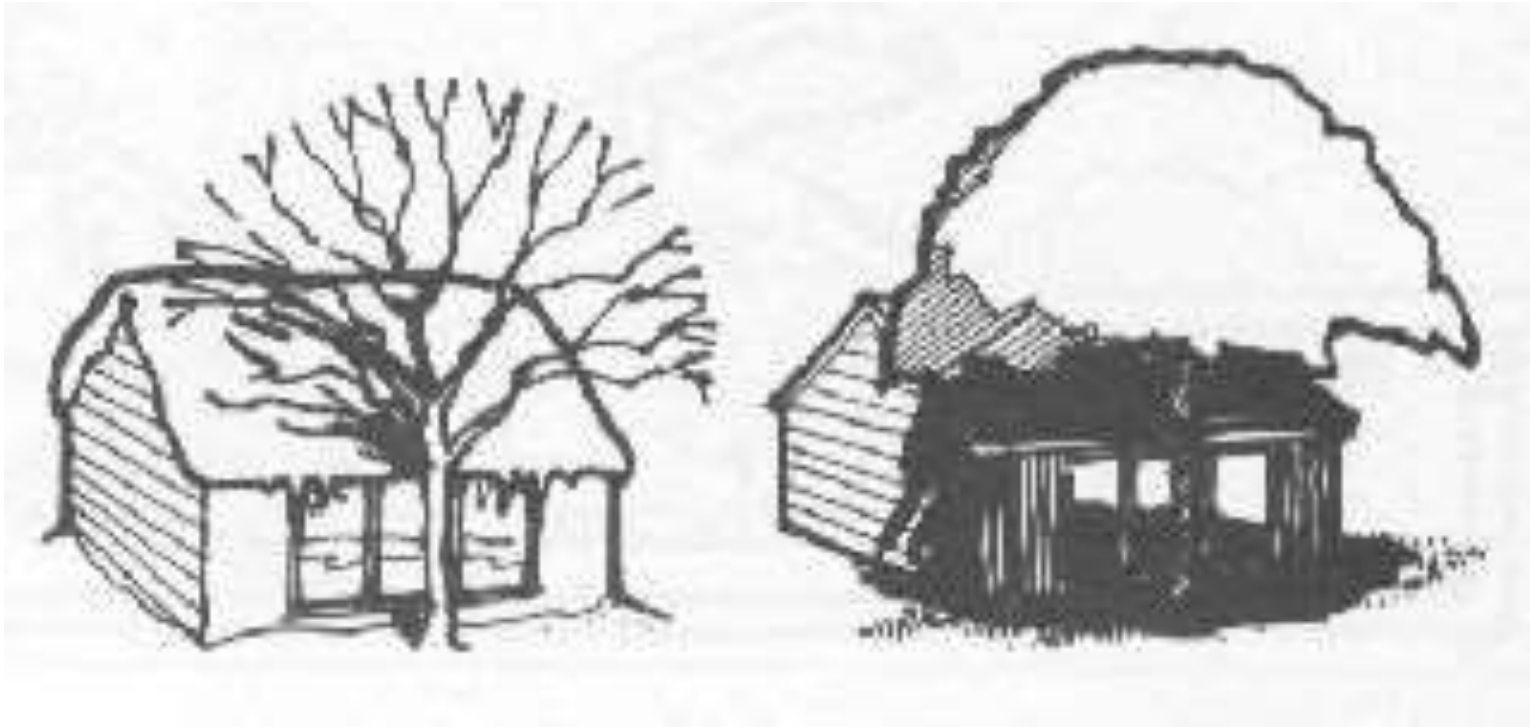
- Best solar gains to the South
- Capture predominant breezes (Swansea best South-West)
- Main living spaces to the South, bedrooms to the North
- Bigger glazing to the South
- Glazing reduction in other sides



SOUTH



Solar protection

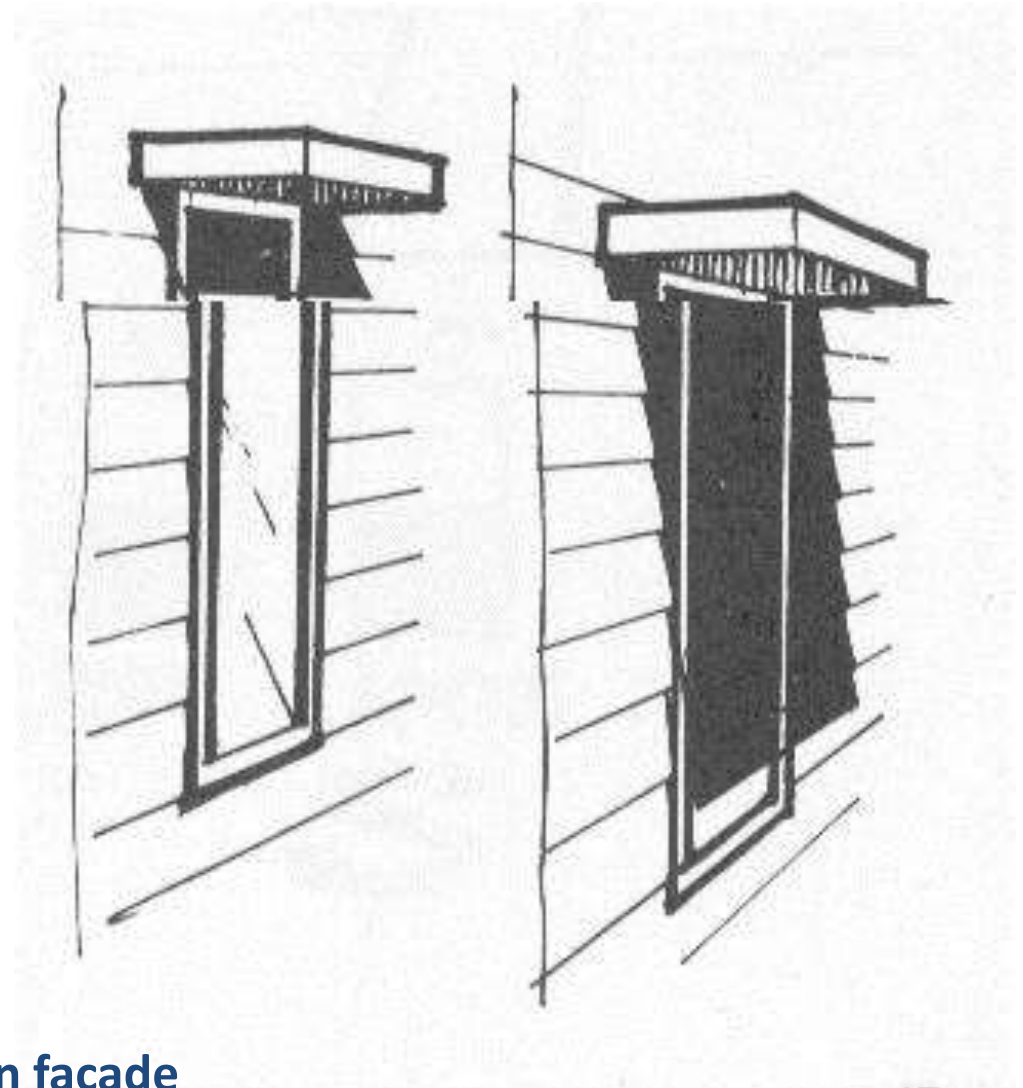
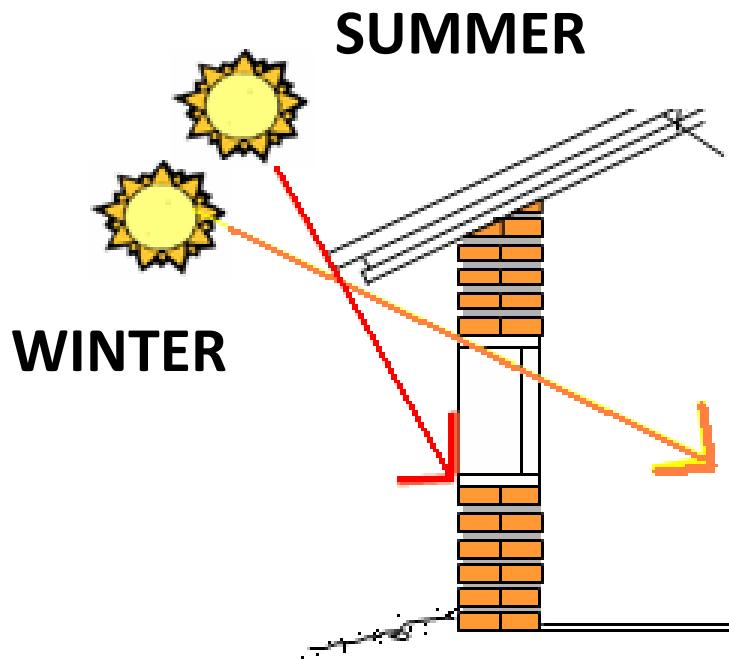


WINTER

SUMMER



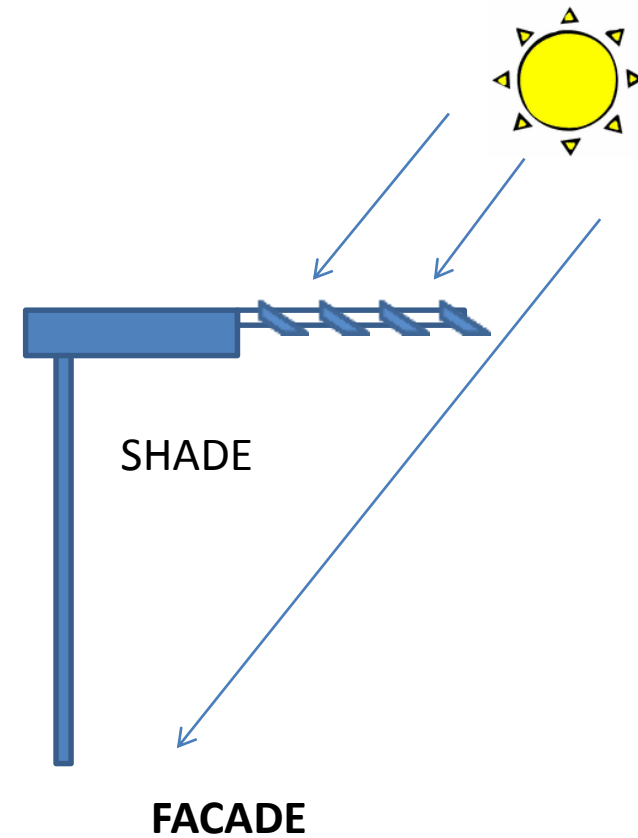
Solar protection



Eaves and sunshade elements in facade



Solar protection



Use of slats



Solar protection



Horizontal slats



Vertical slats



Solar protection



Persian blinds



Venetian blinds



Majorcan blinds



Solar protection



Use of fabrics



Solar protection



Use of fabrics



Solar protection



Use of awnings
(e.g. canvas cover)



Solar protection





Solar protection





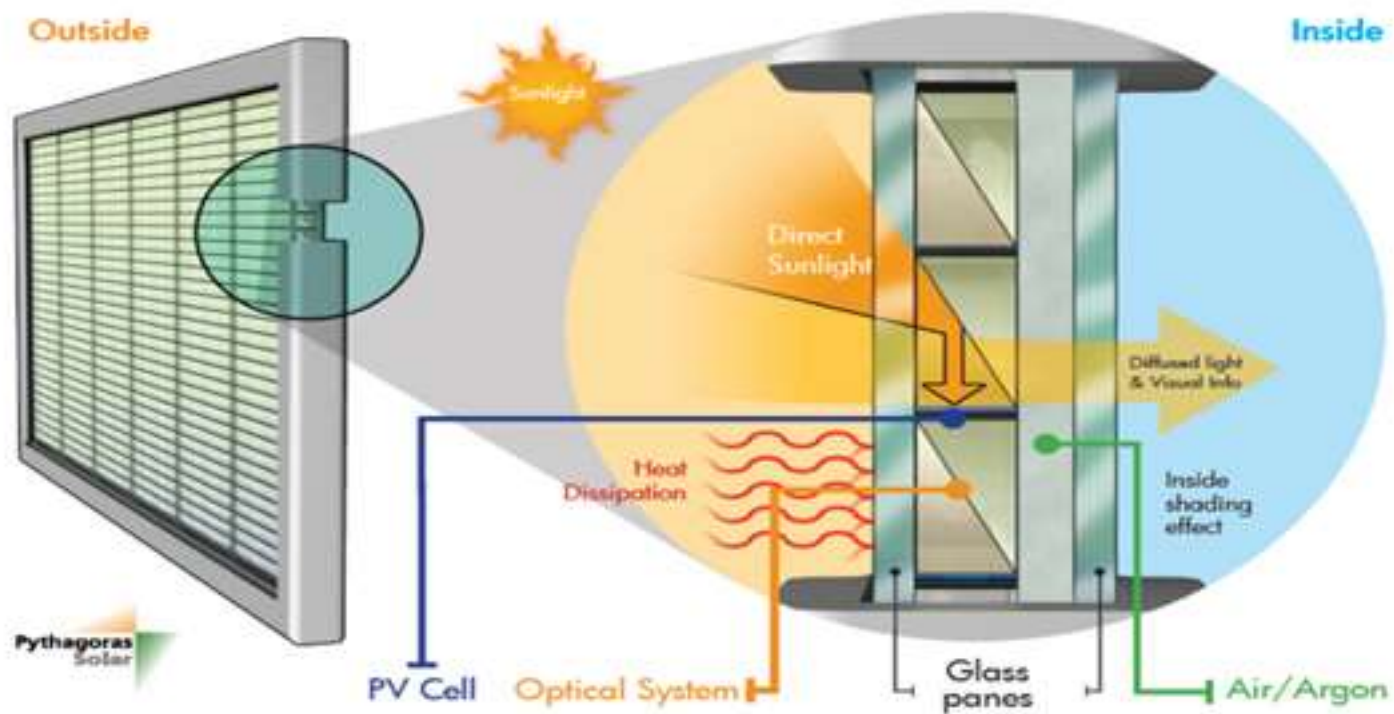
Solar protection



Pergolas in facade



Solar protection



Solar windows



Software for shading

SketchUp. Google free software. Easy to use. It calculates Building shade.

<https://www.youtube.com/watch?v=I-BmwWnuwPs>

Build it Solar. List of apps about solar and climate information.

<https://www.builditsolar.com/References/SunChartRS.htm>