

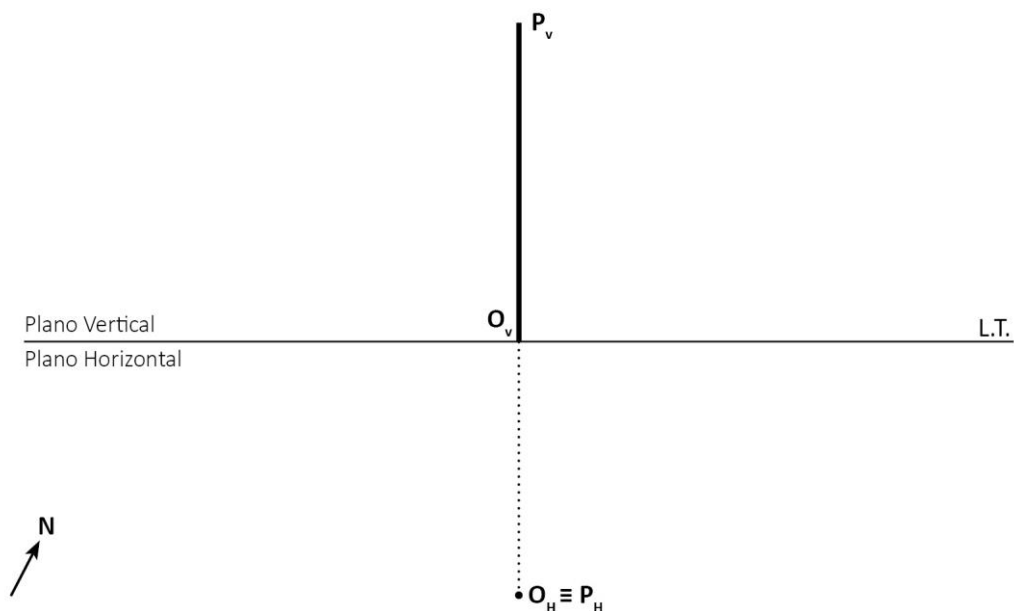


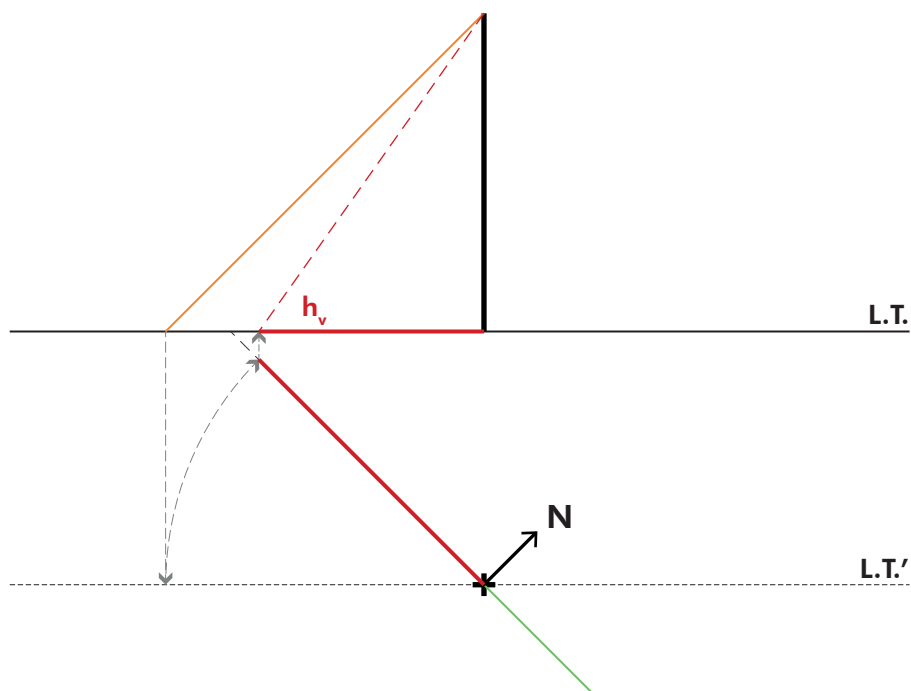
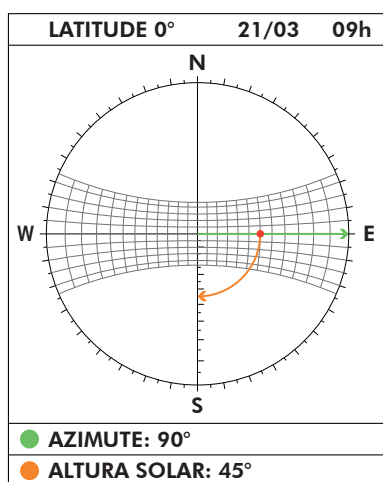
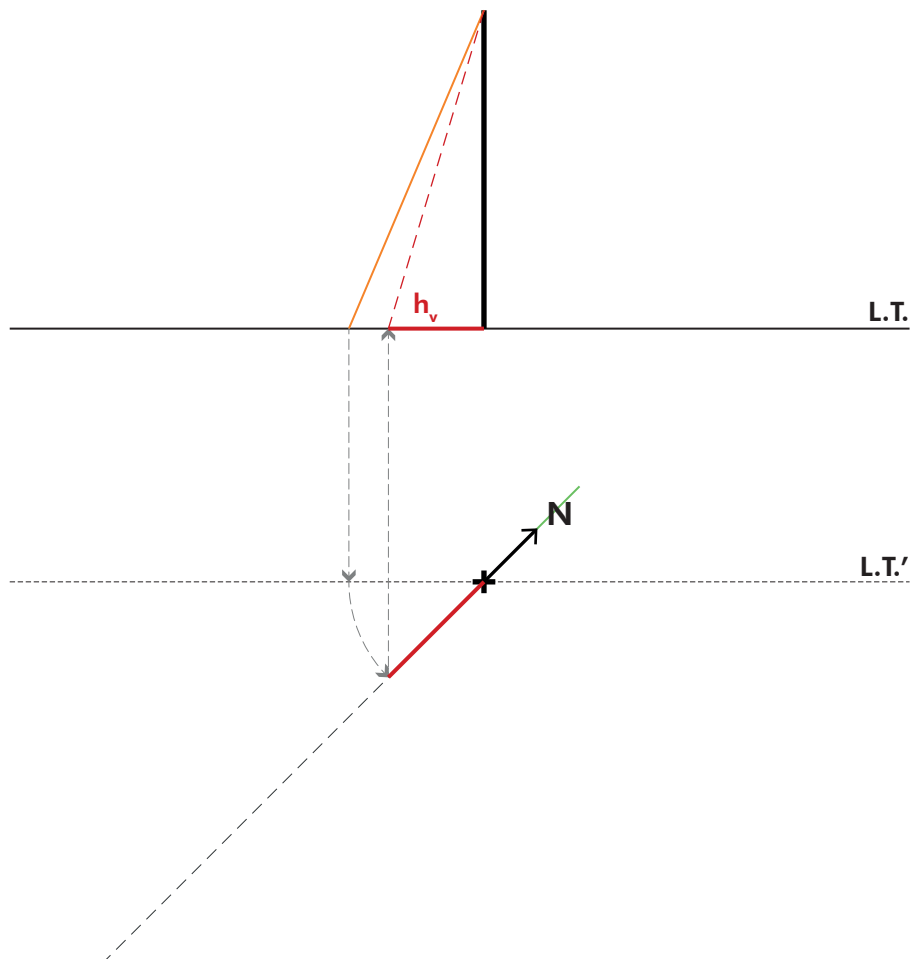
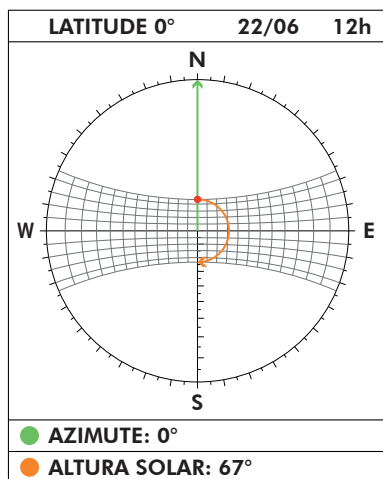
Exercício 2. Sombras

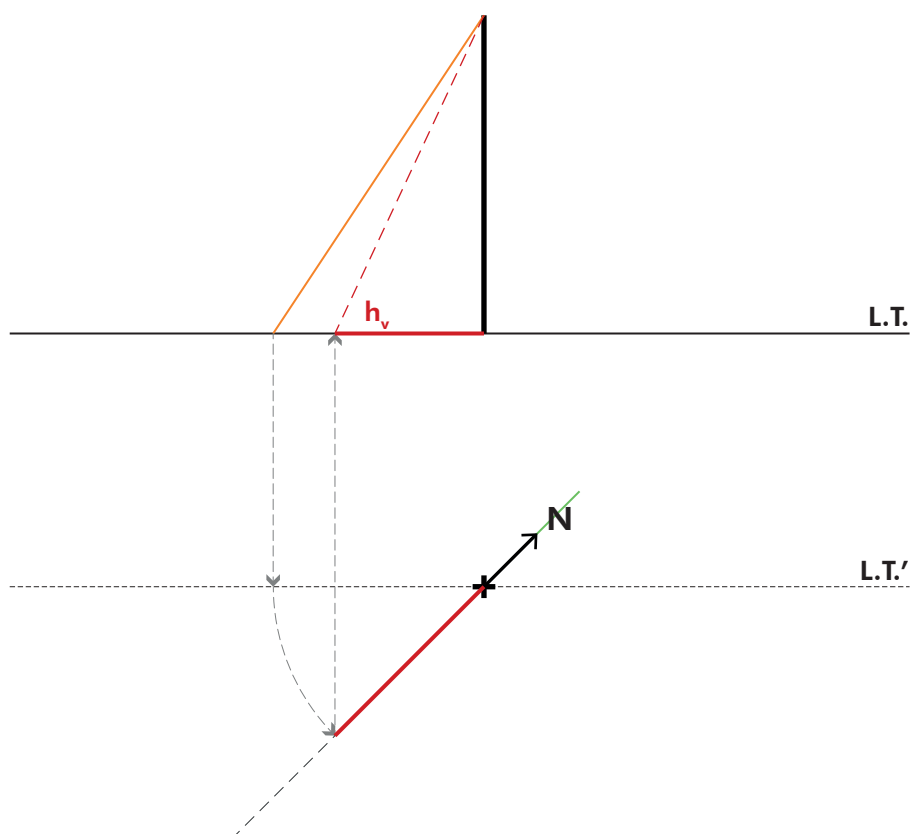
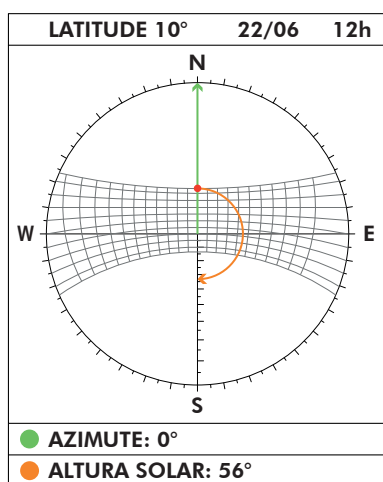
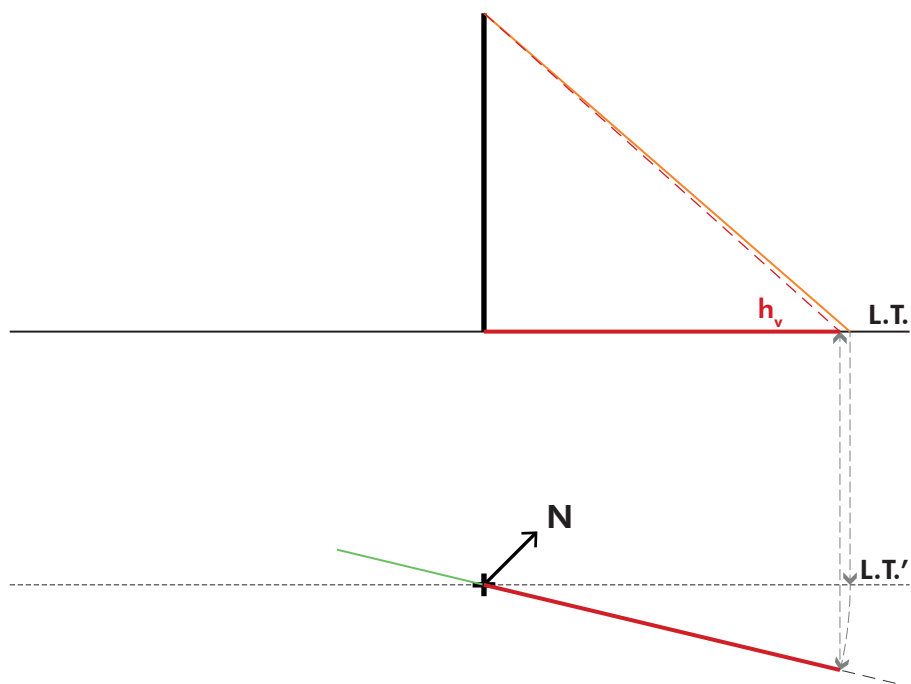
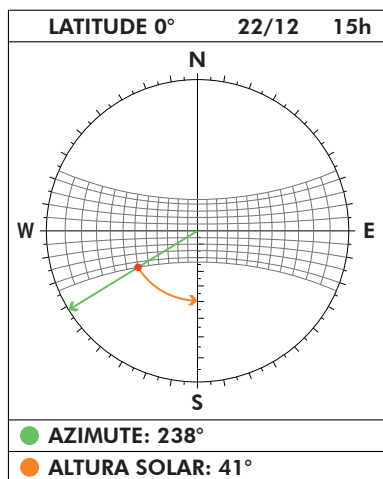
2.1. Determinar as sombras da haste OP, sobre o plano horizontal, para as cidades e períodos (data e hora) indicados abaixo:

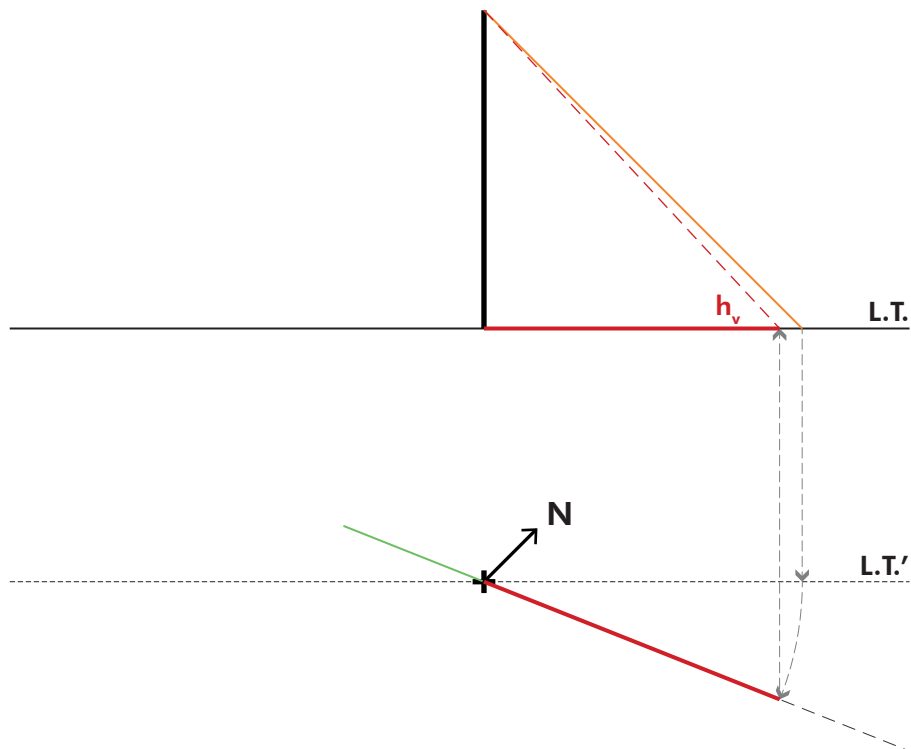
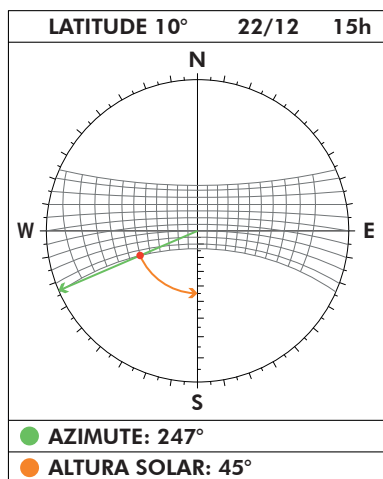
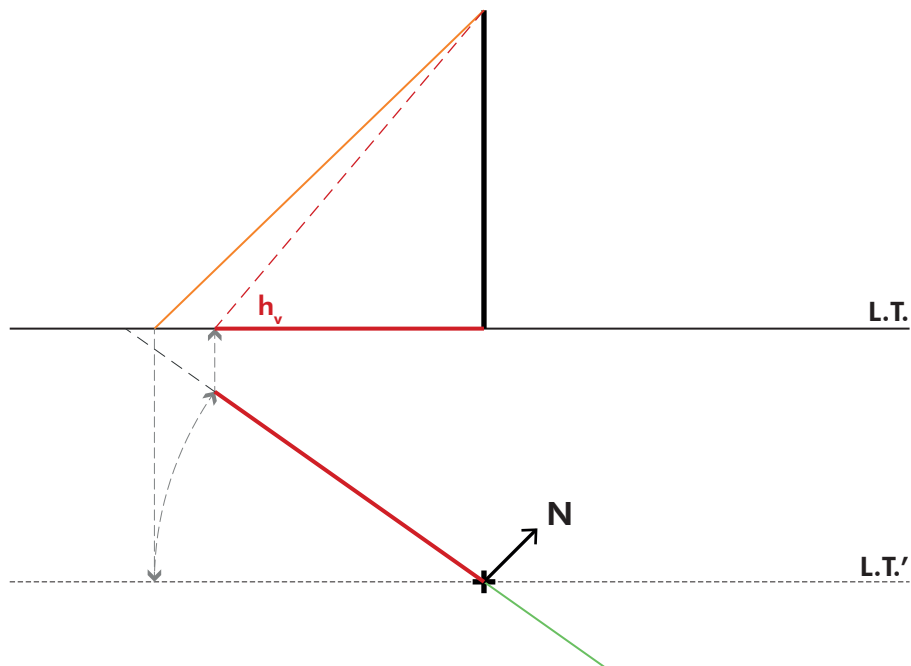
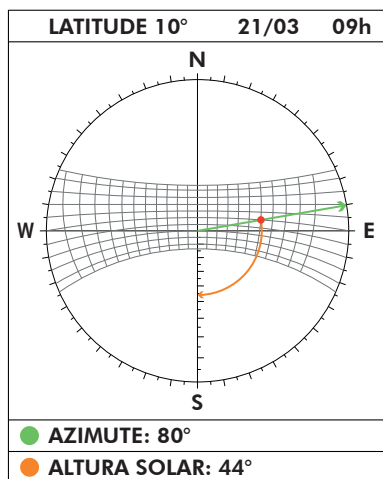
OBS.: UMA cidade por integrante do grupo. Caso haja intercambista, desenvolver o exercício para a latitude de sua cidade natal.

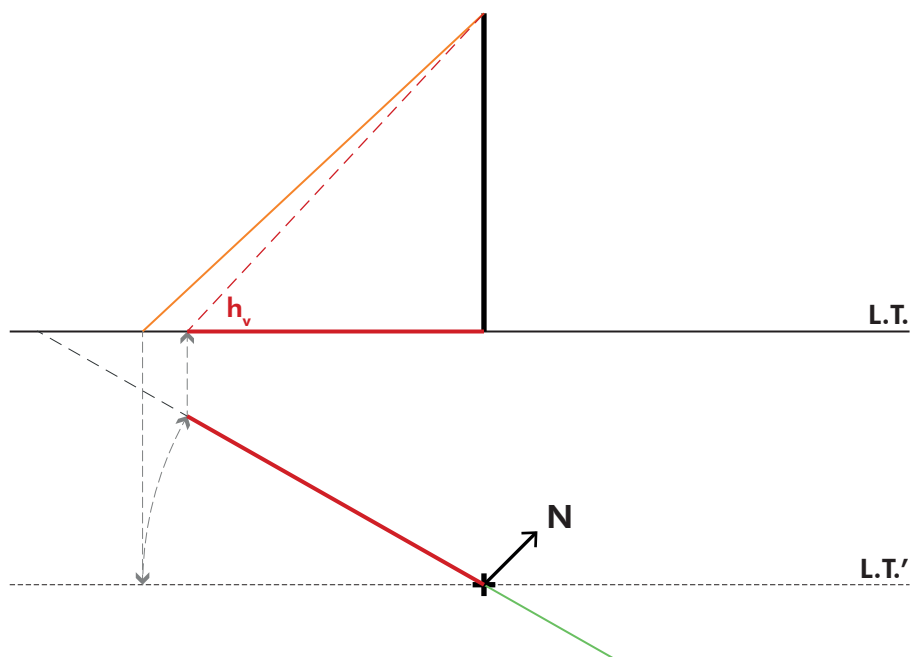
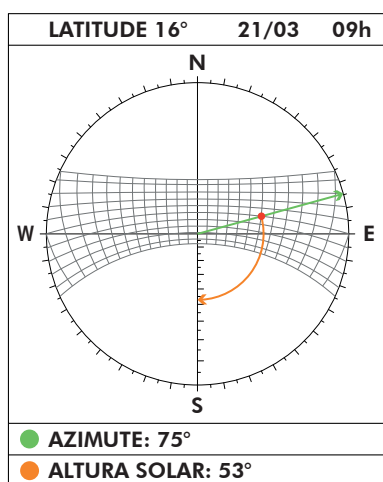
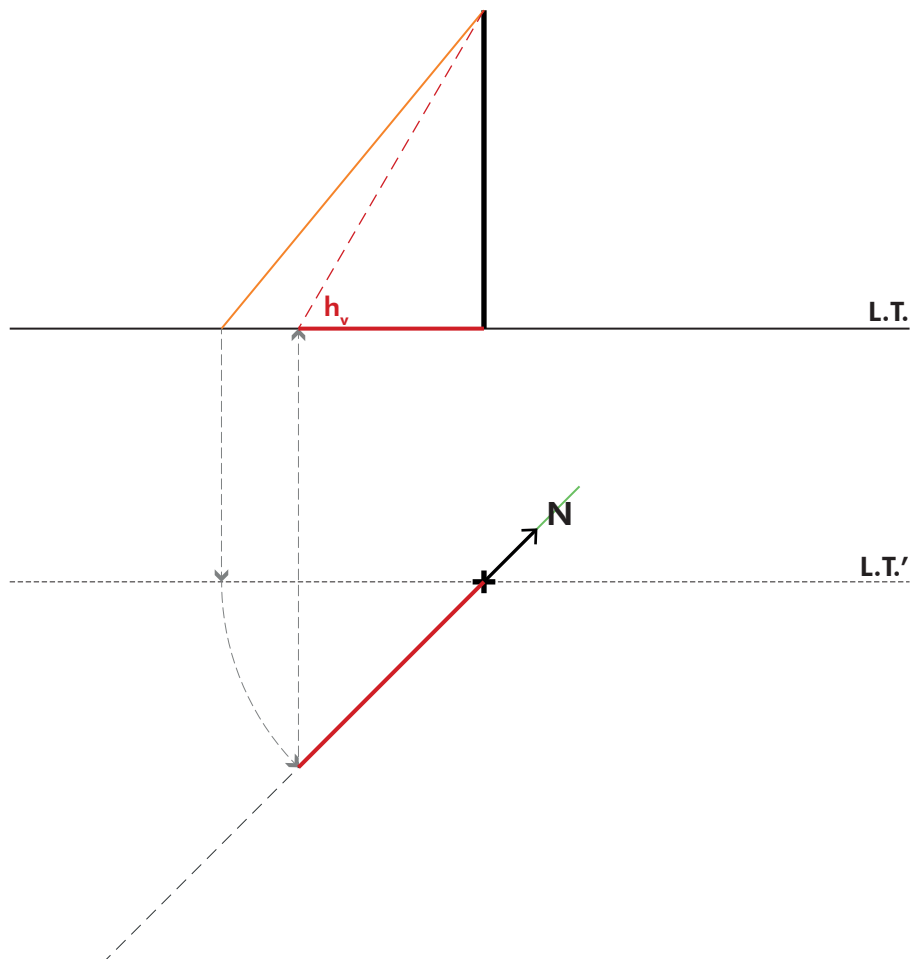
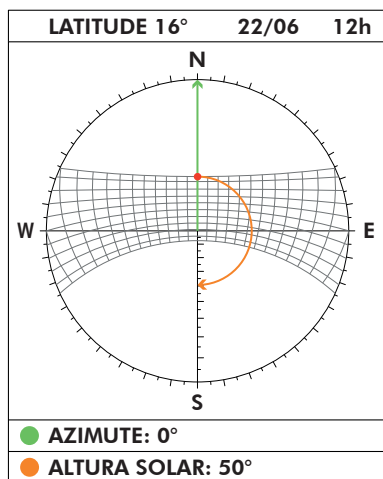
CIDADES	(I) Belém, PA	LATITUDES	01°27'20" Sul	PERÍODOS	
	(II) Palmas, TO		10°10'02" Sul	Data	Hora
	(III) Goiânia, GO		16°40'42" Sul	Solstício de inverno	12h
	(IV) São Paulo, SP		23°32'50" Sul	Equinócios	9h
	(V) Rio Grande, RS		32°02'05" Sul	Solstício de verão	15h

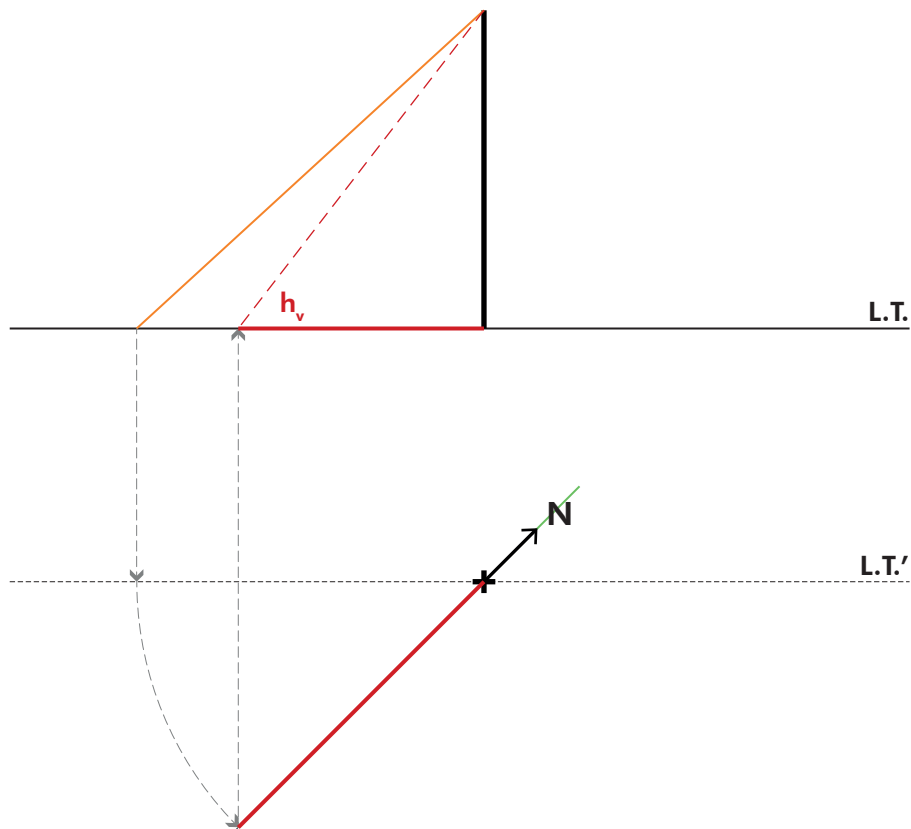
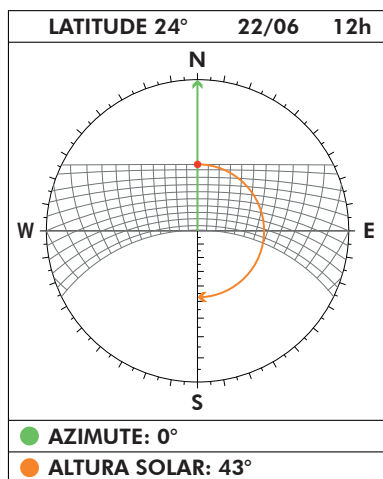
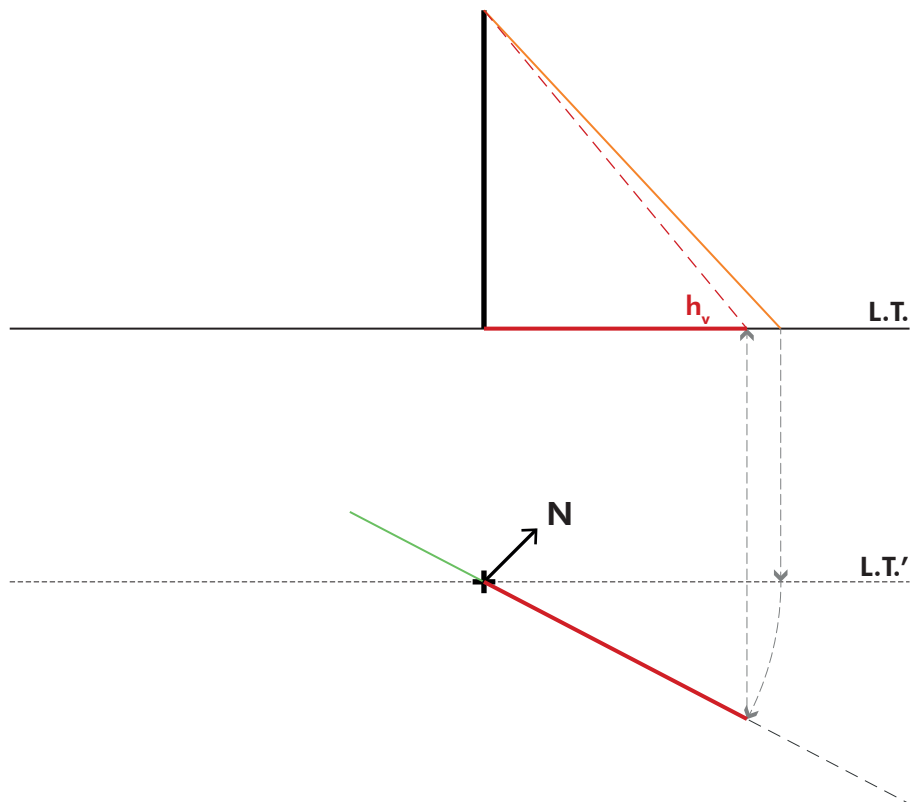
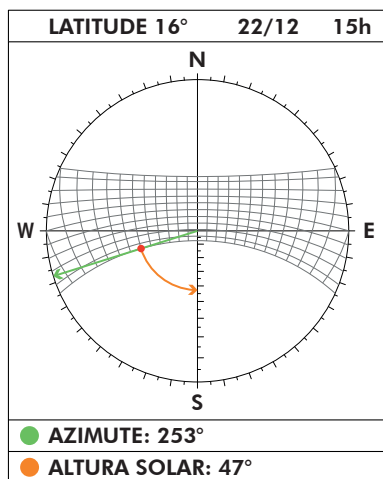


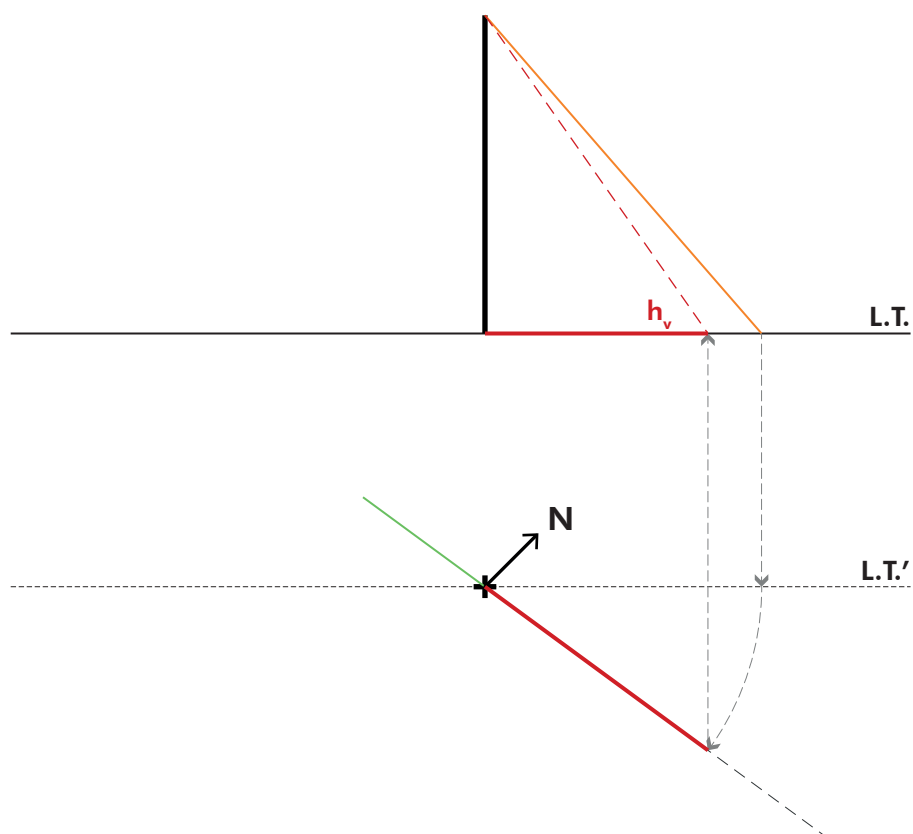
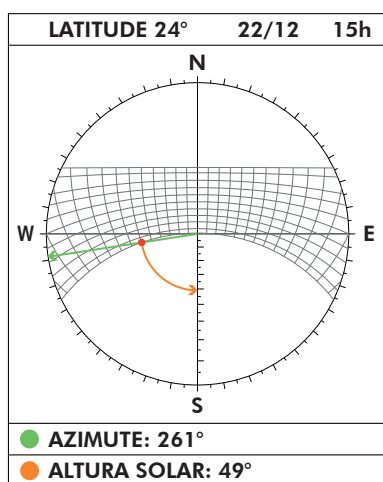
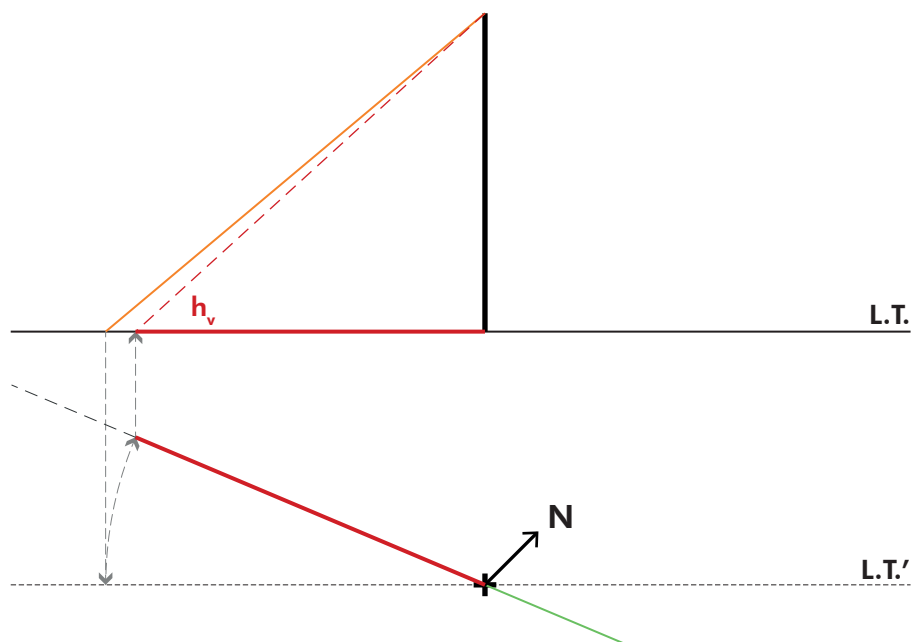
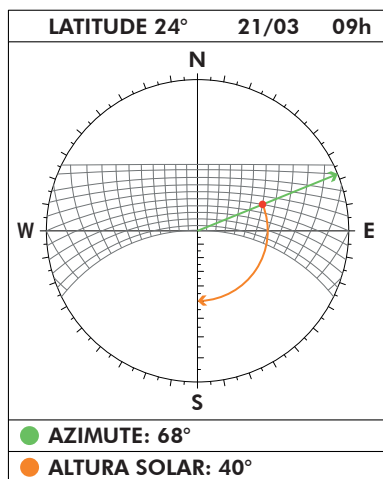


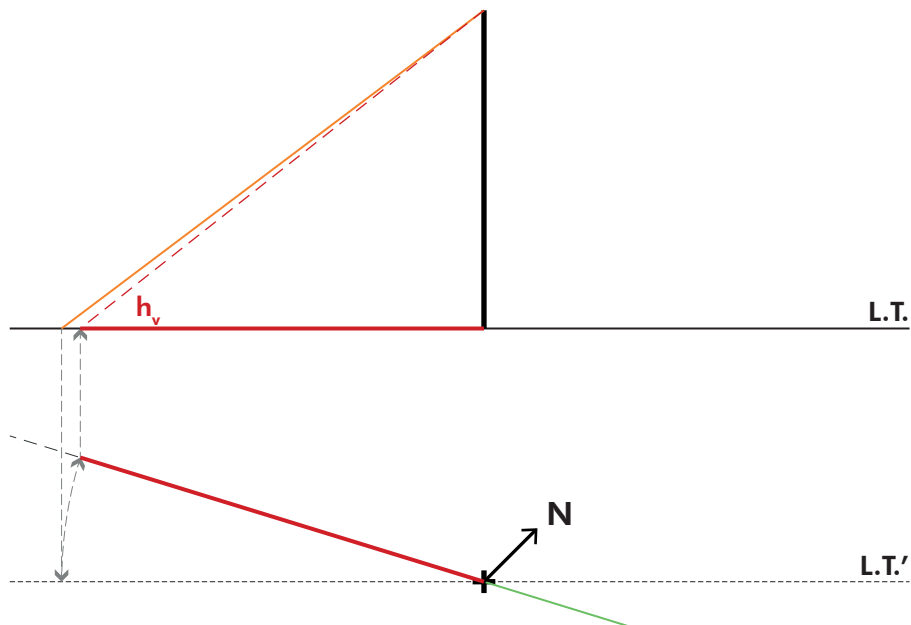
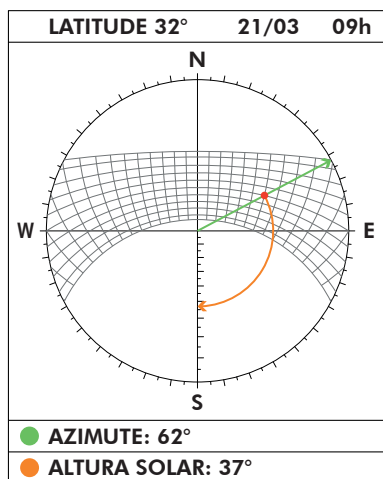
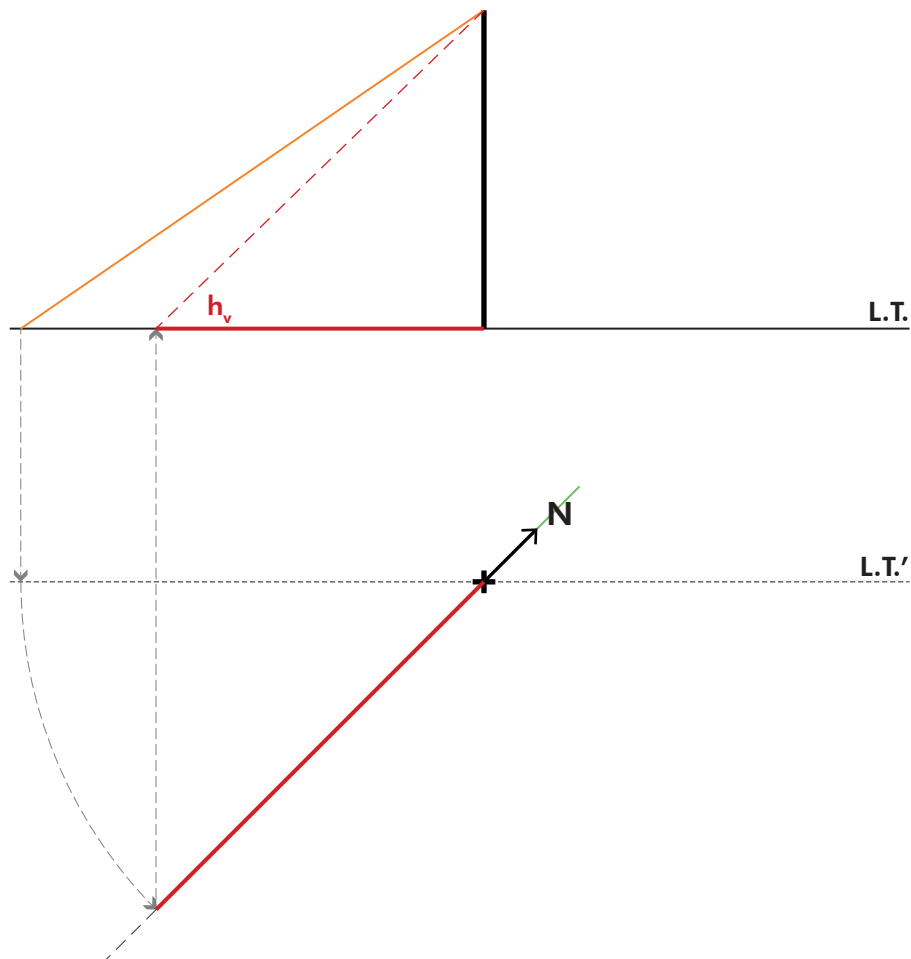
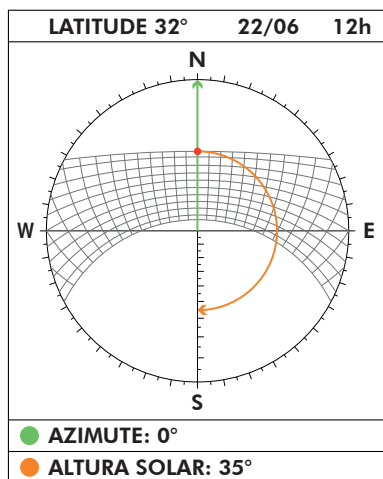


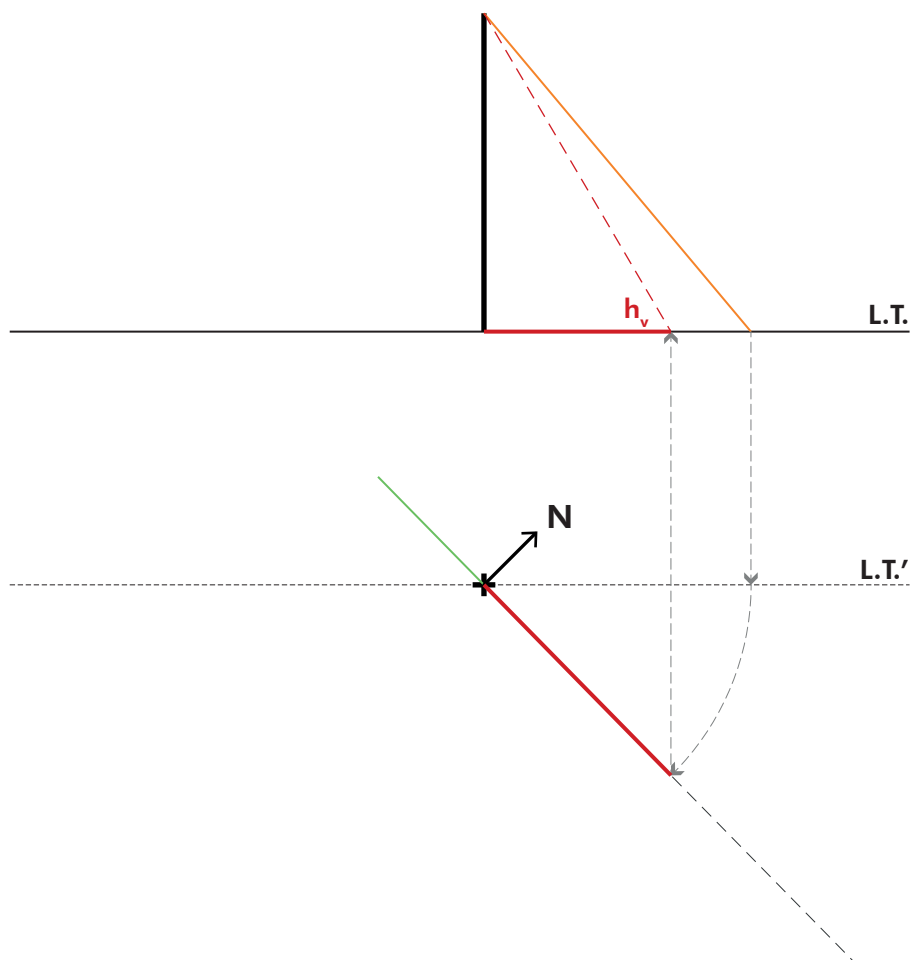
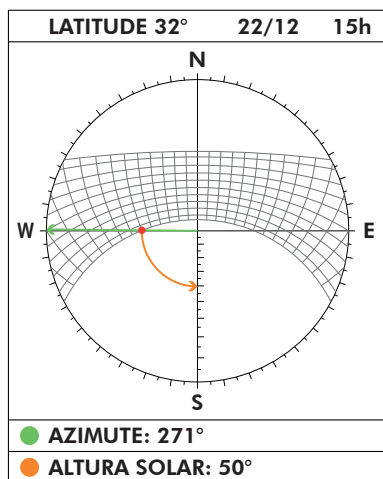




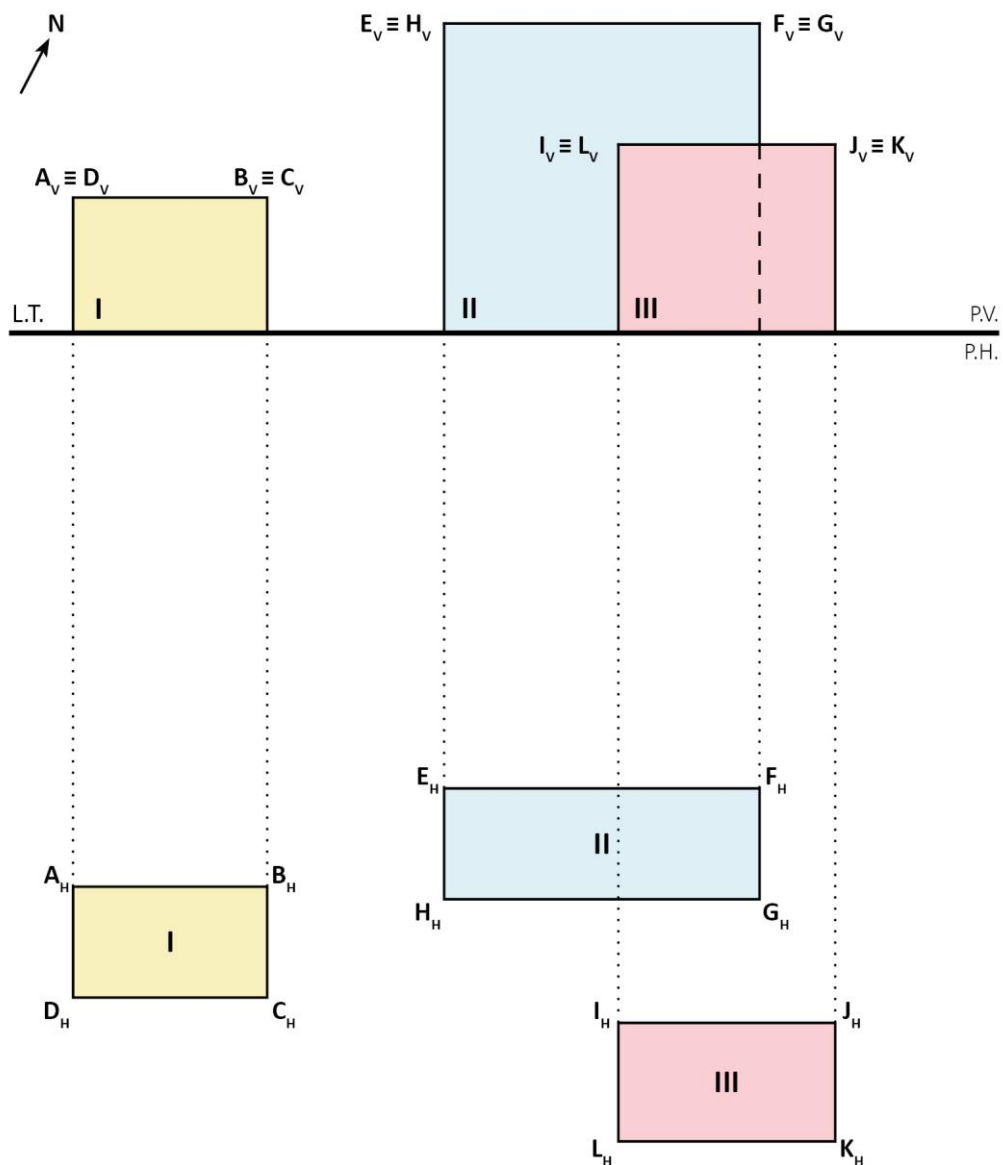


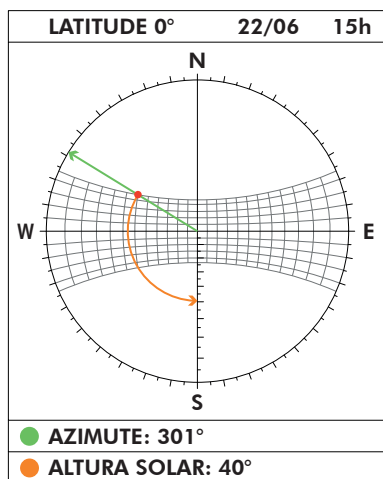




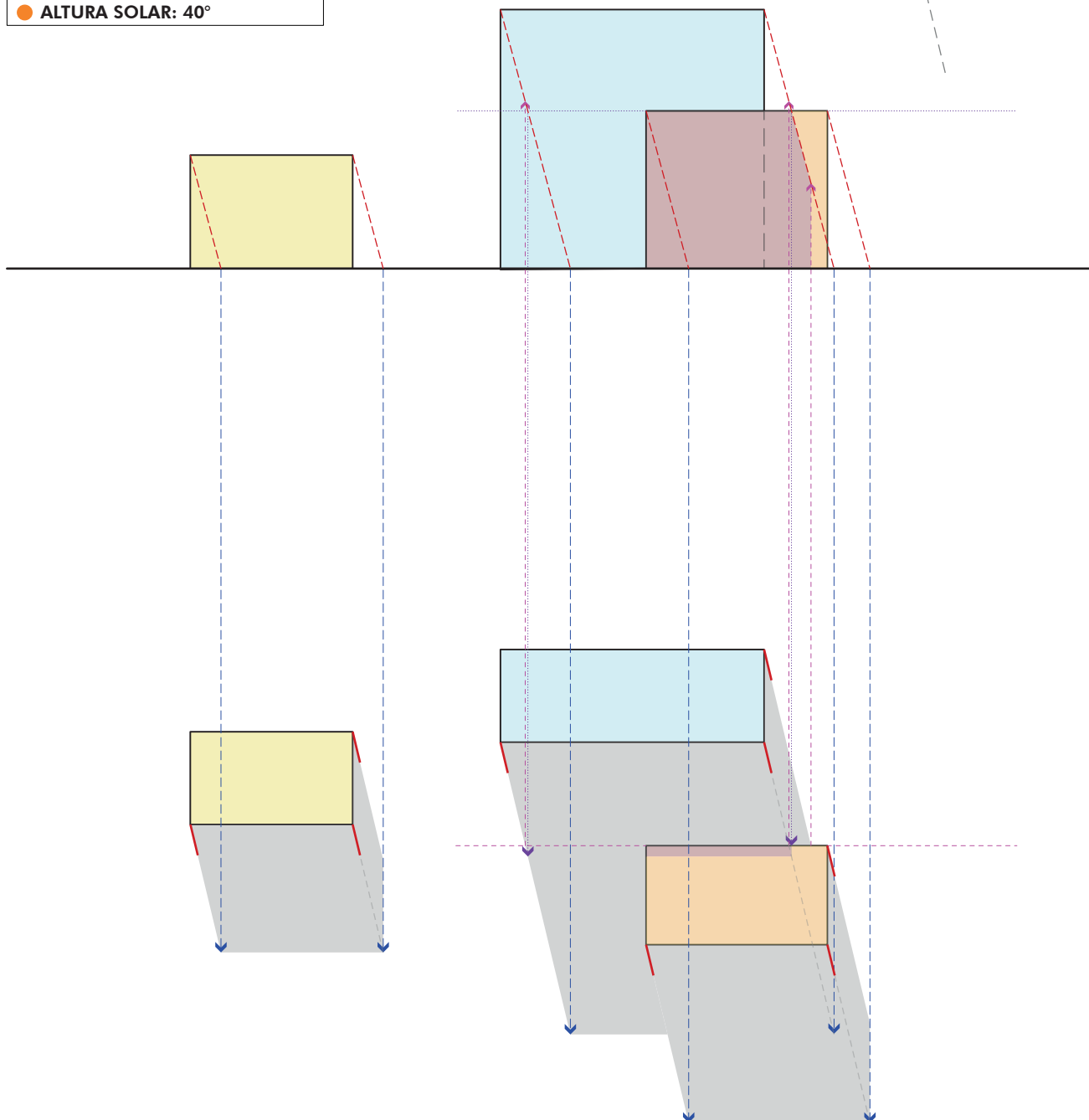
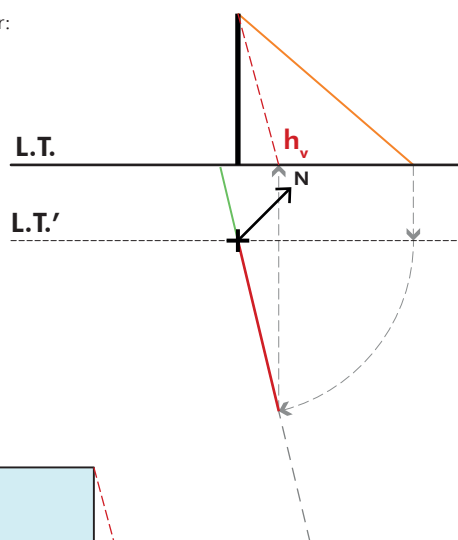


2.2. Determinar a sombra do conjunto de blocos abaixo para as cidades do exercício anterior, às 15h dos solstícios e equinócios:

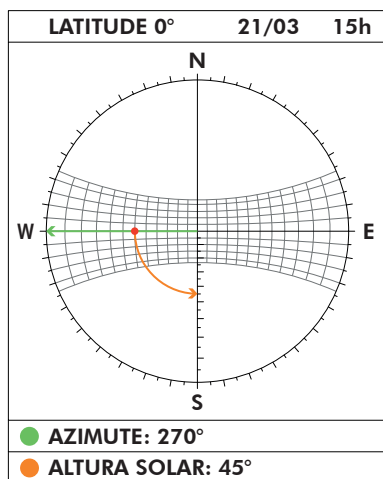




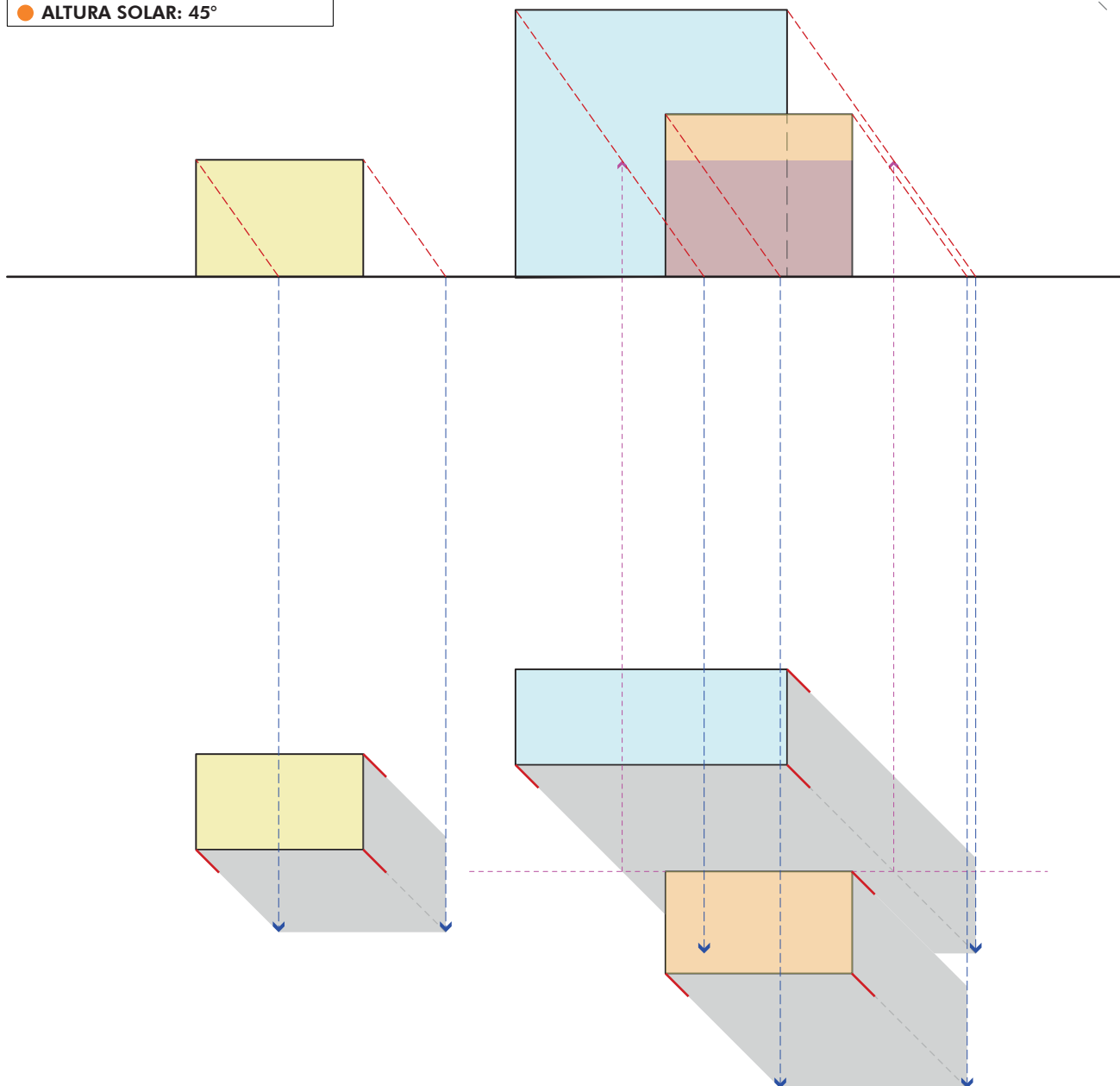
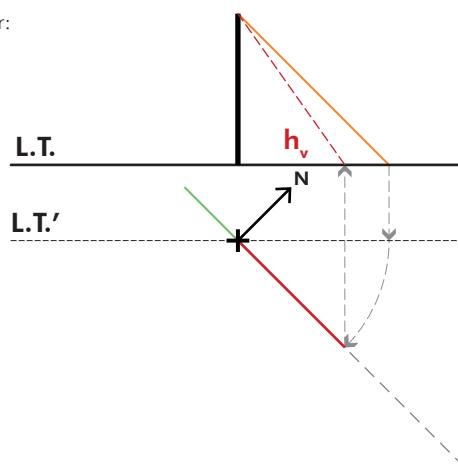
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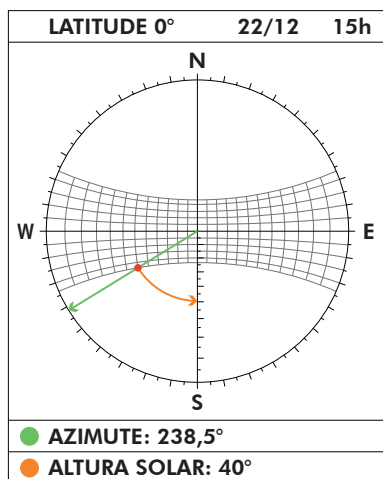
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- 3° Etapa



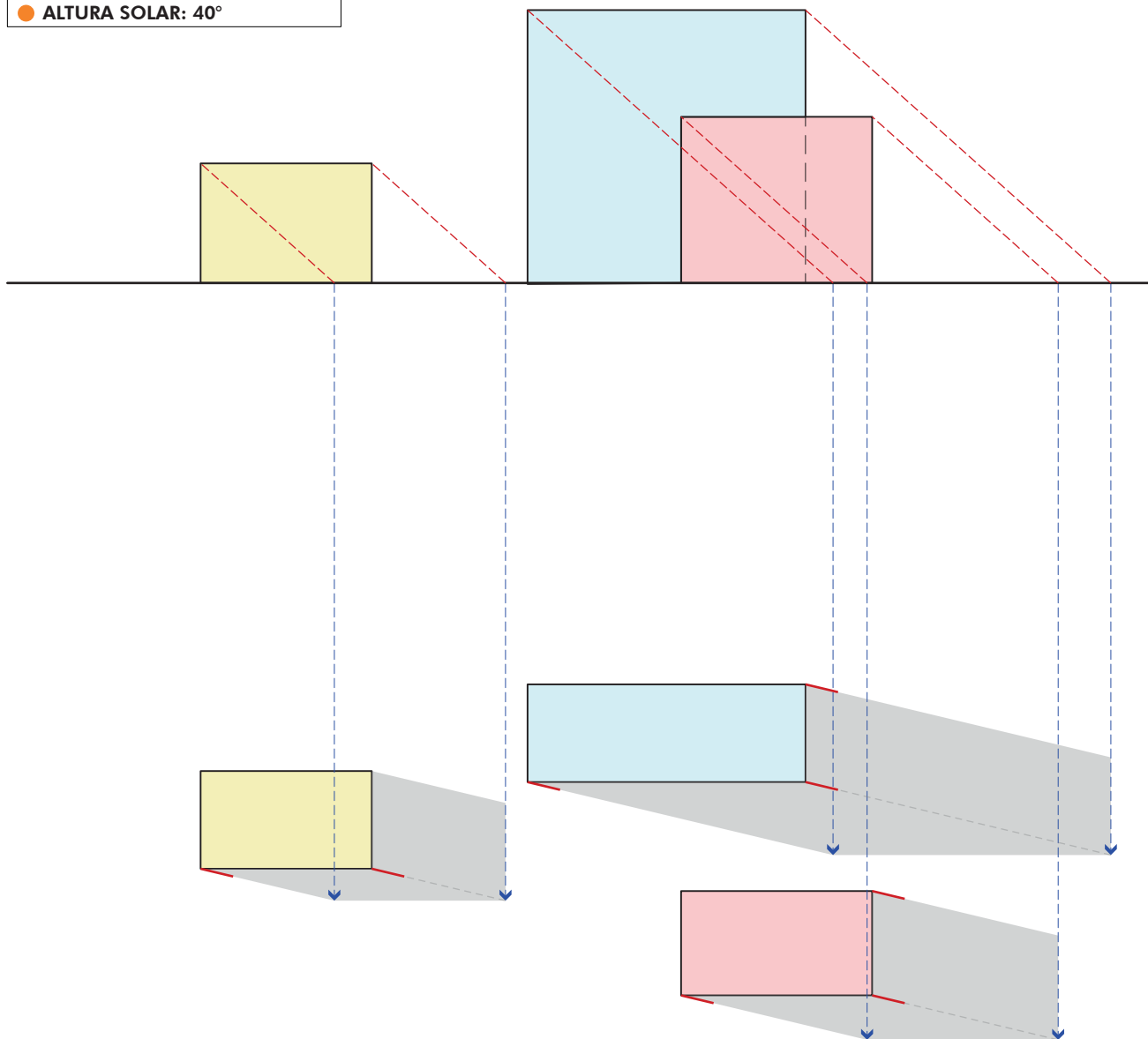
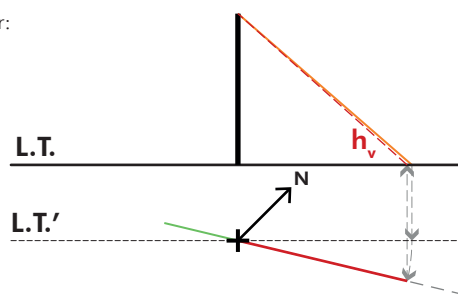
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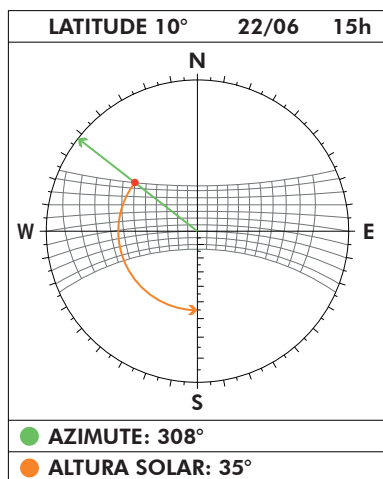
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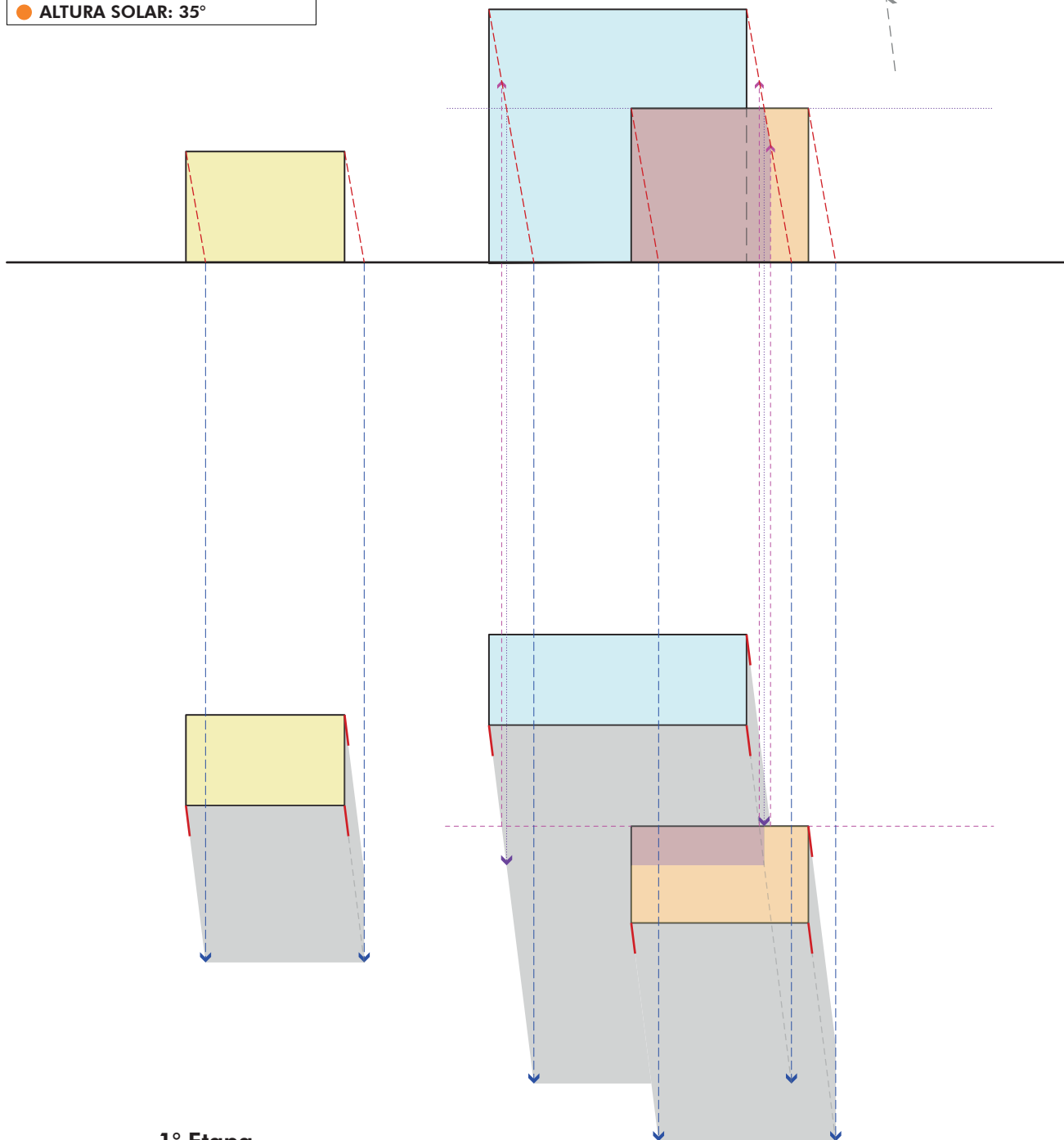
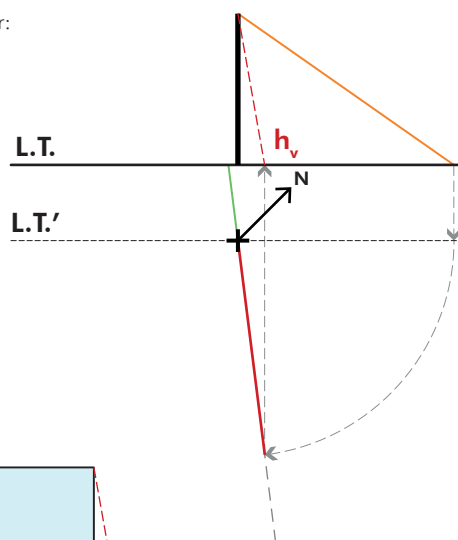
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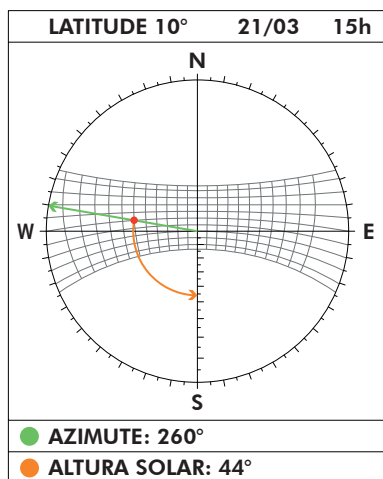
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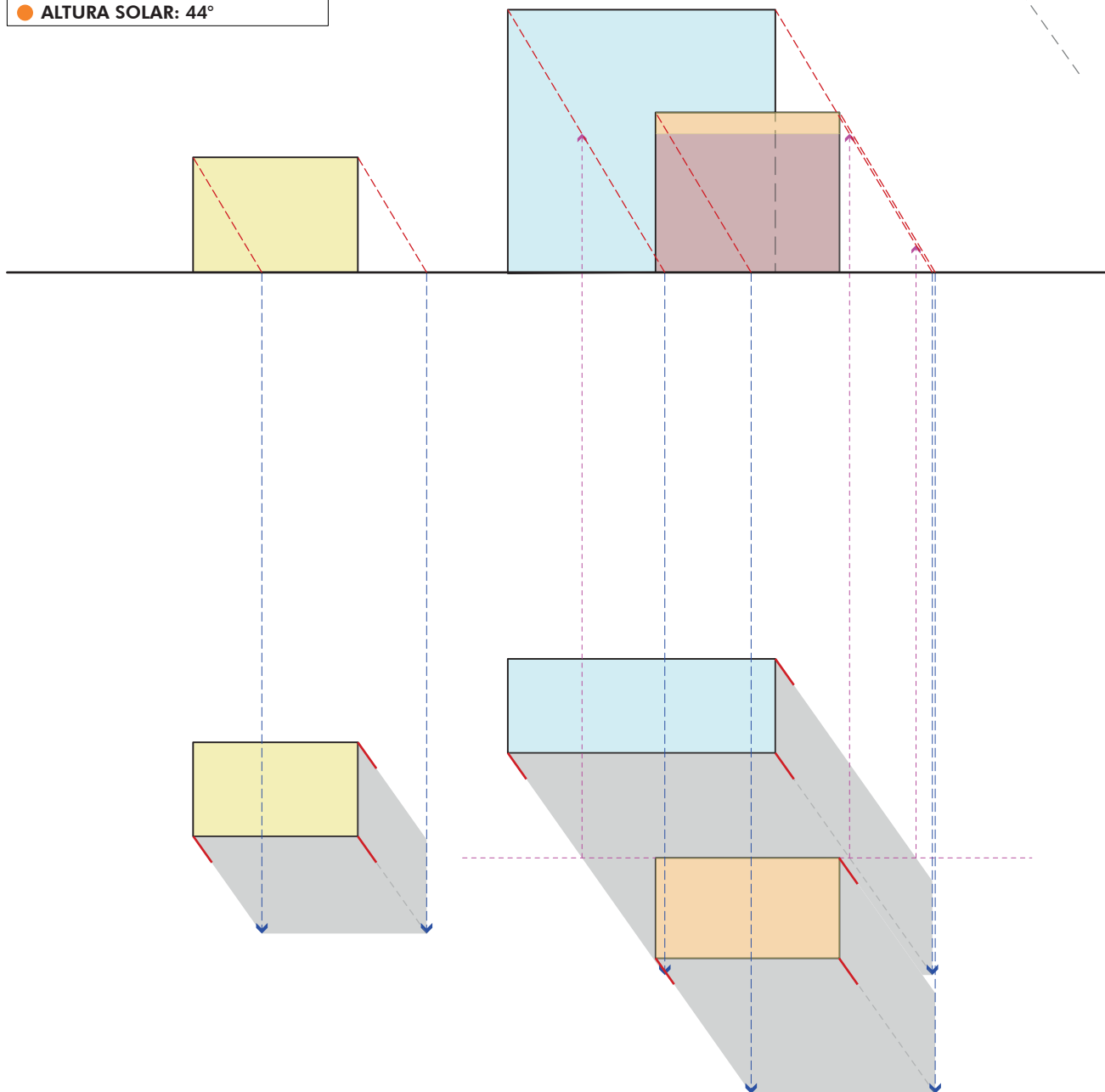
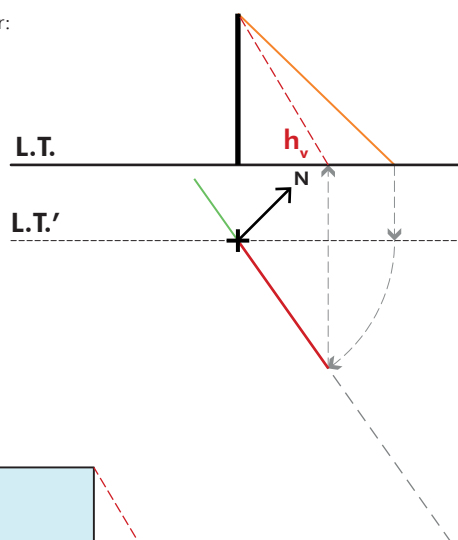
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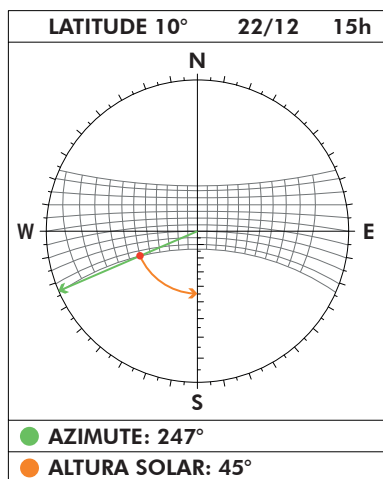
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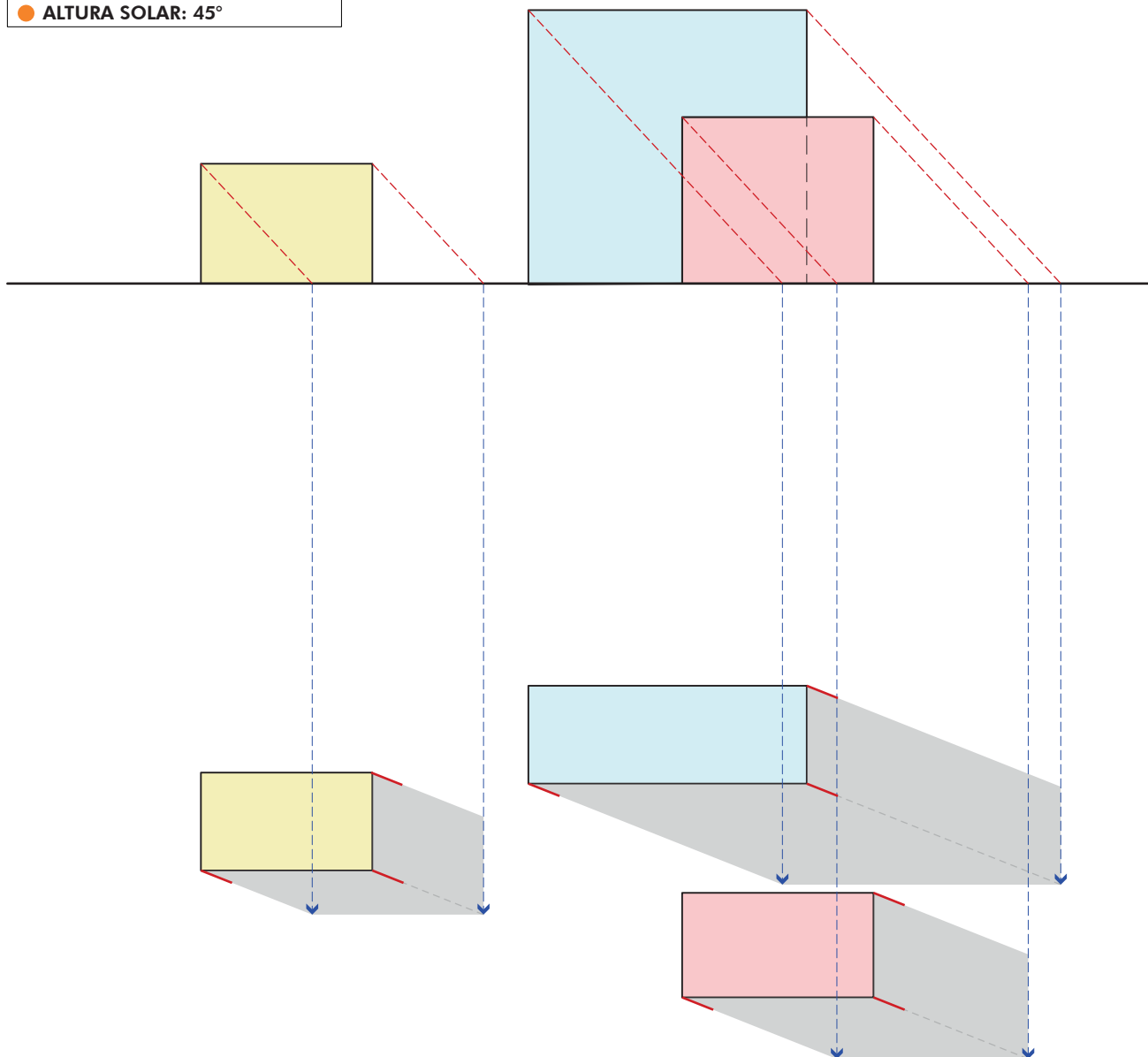
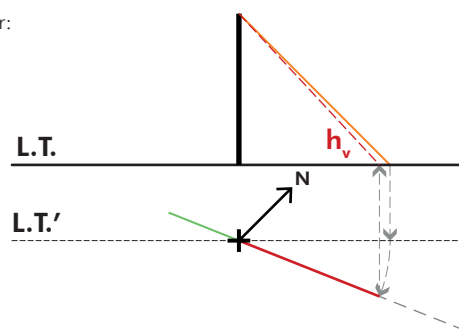
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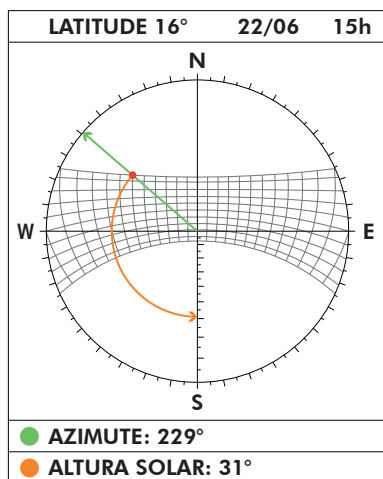
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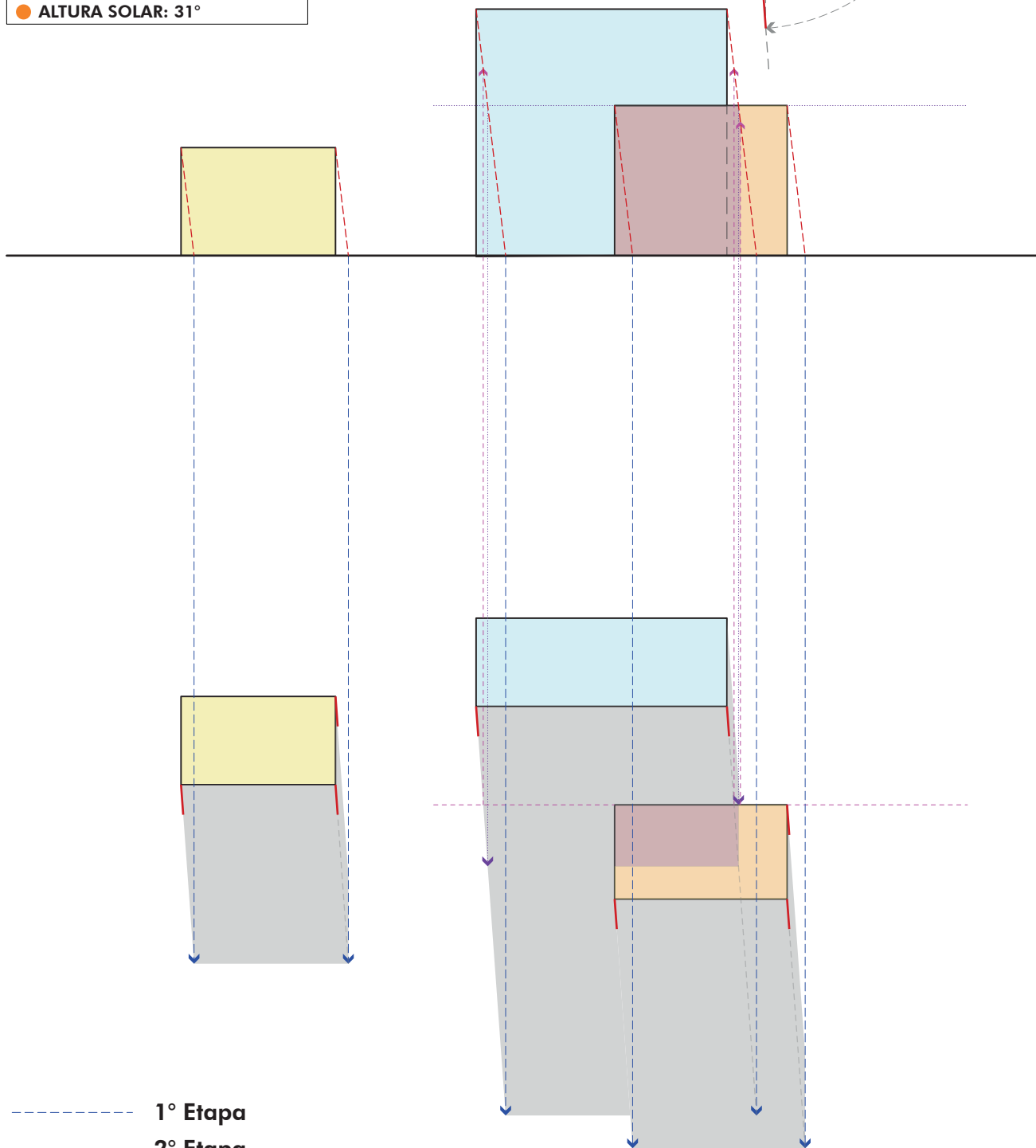
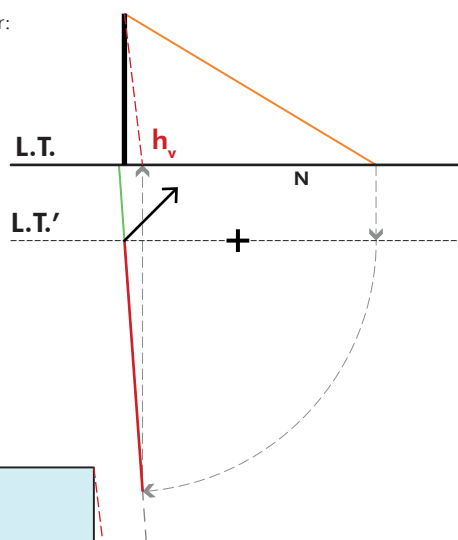
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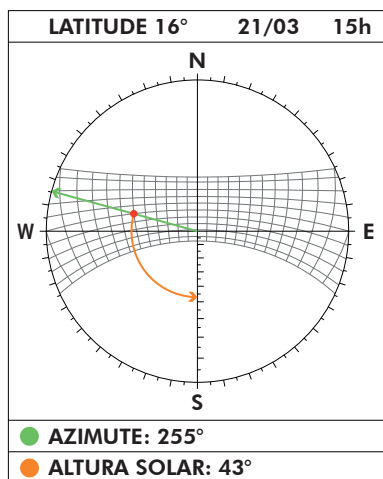
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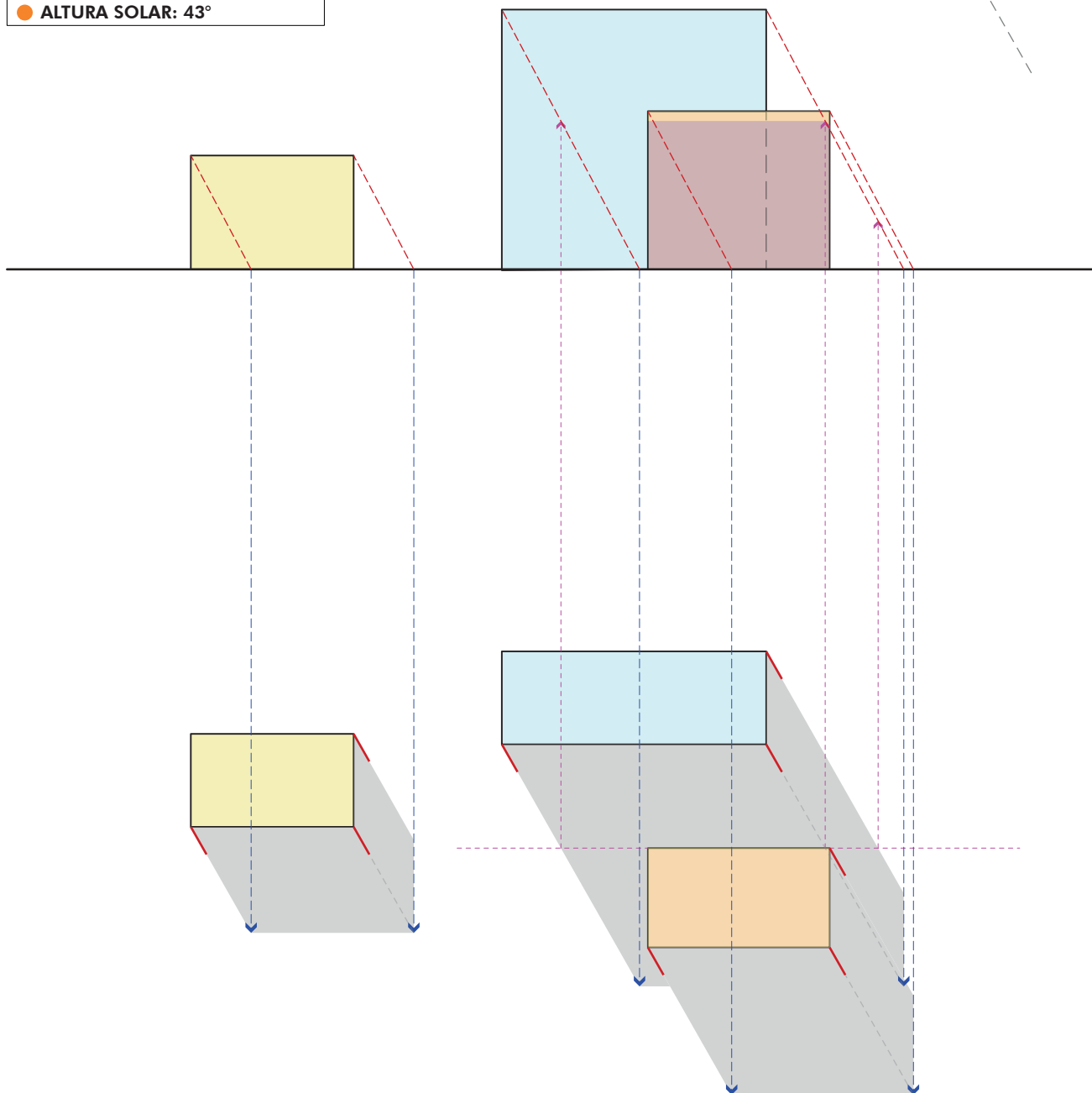
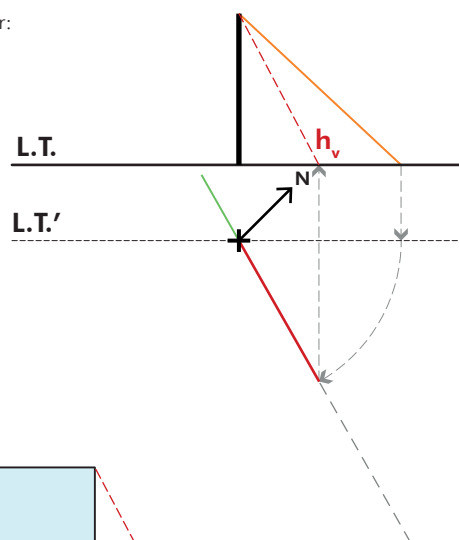
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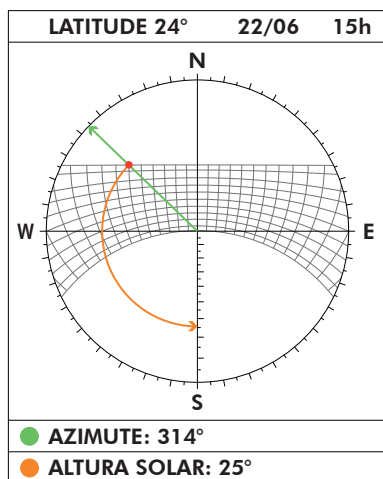
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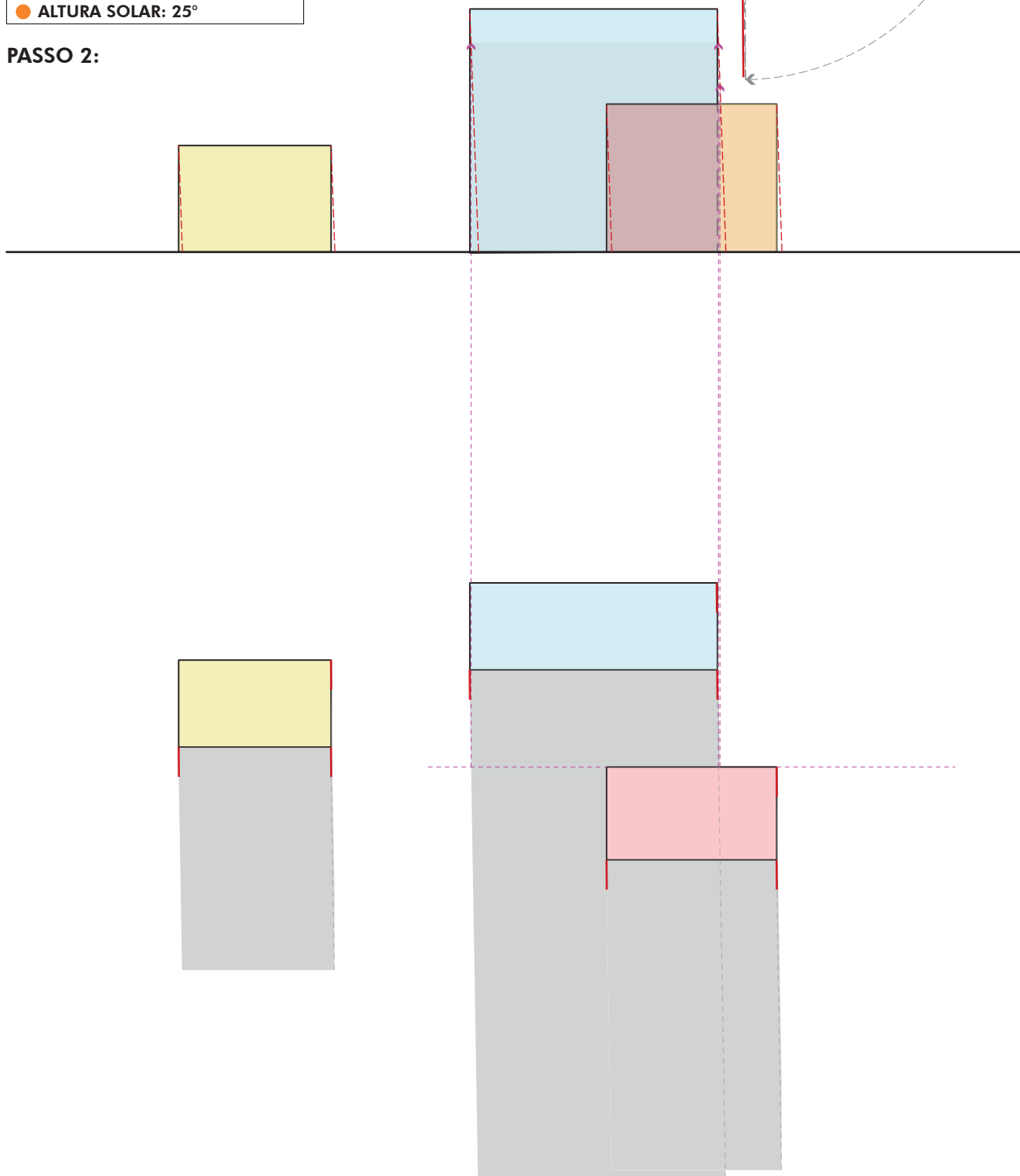
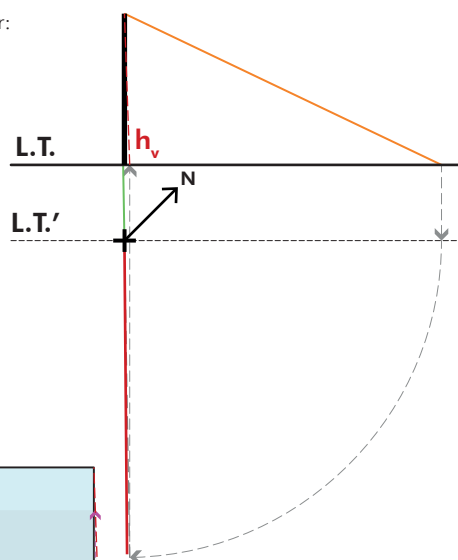


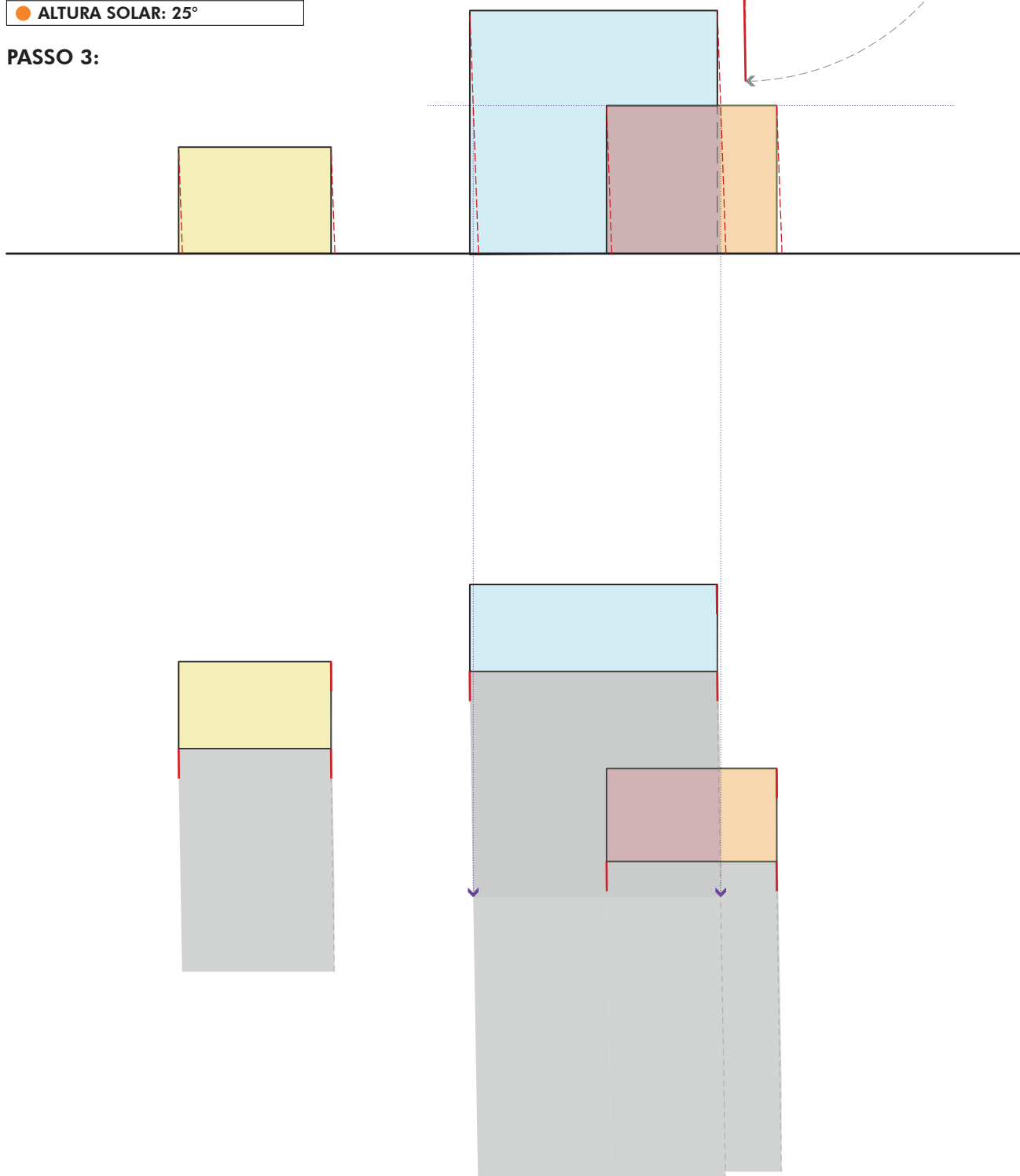
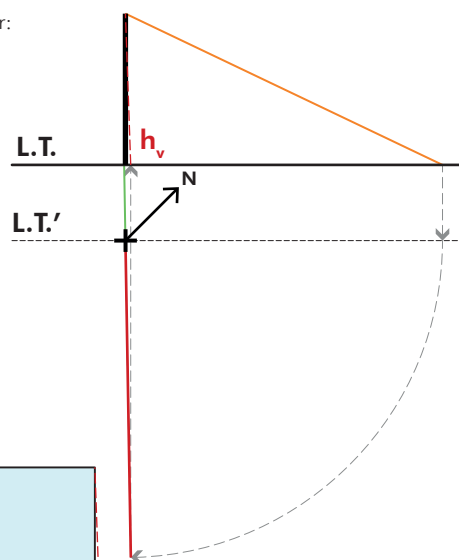
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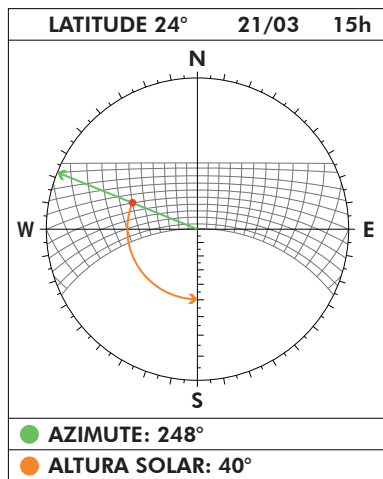


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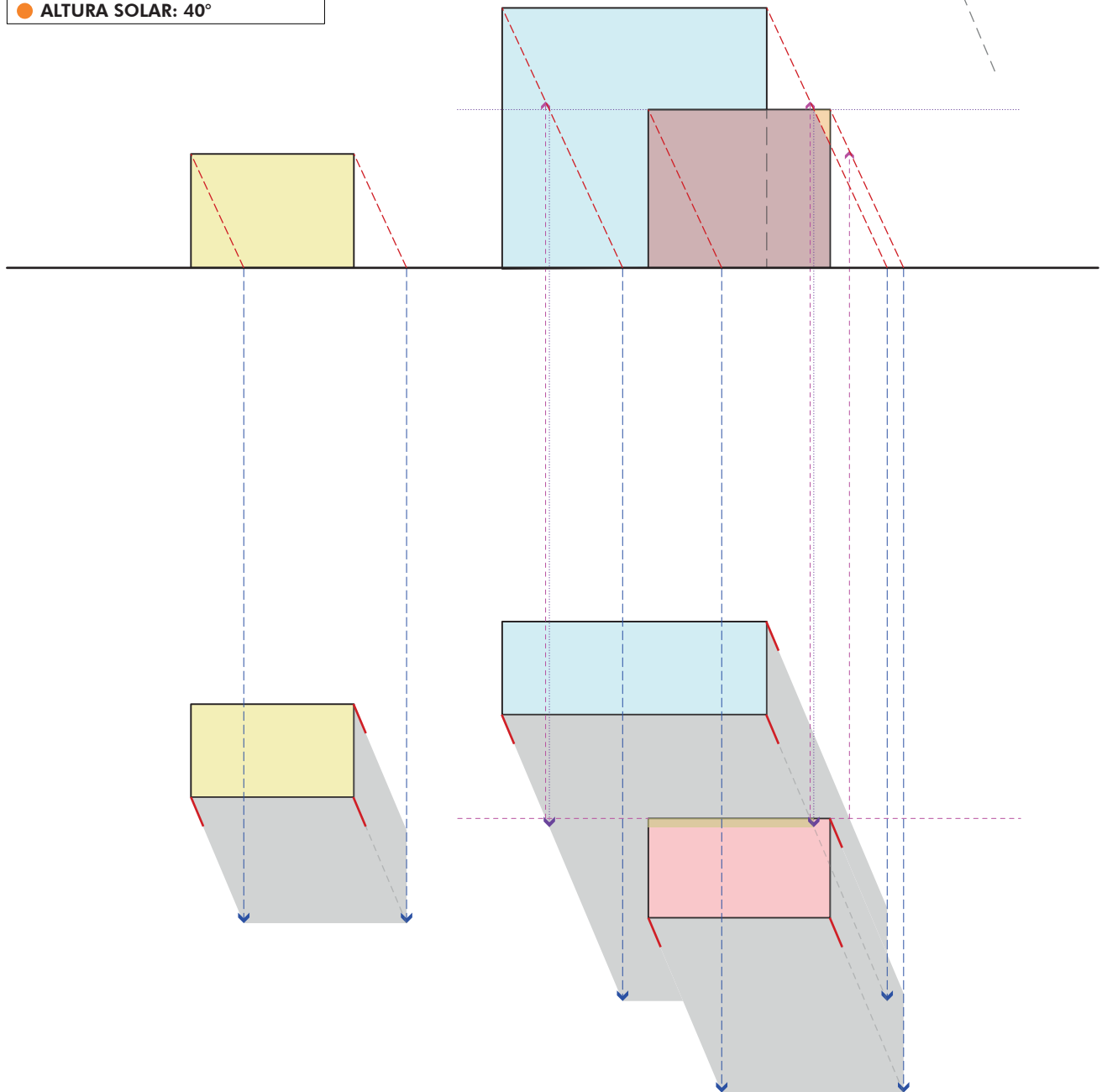
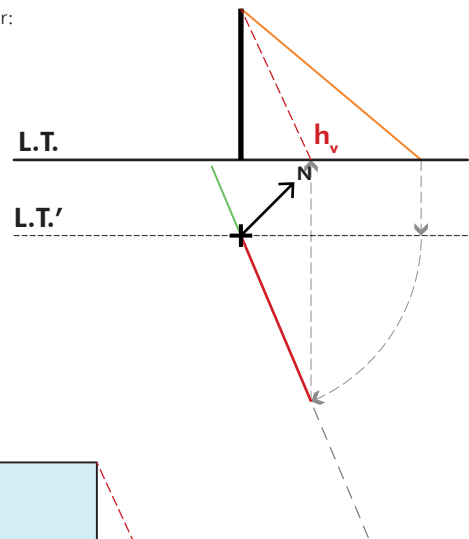
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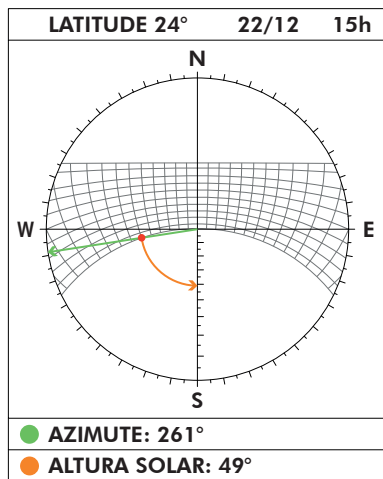




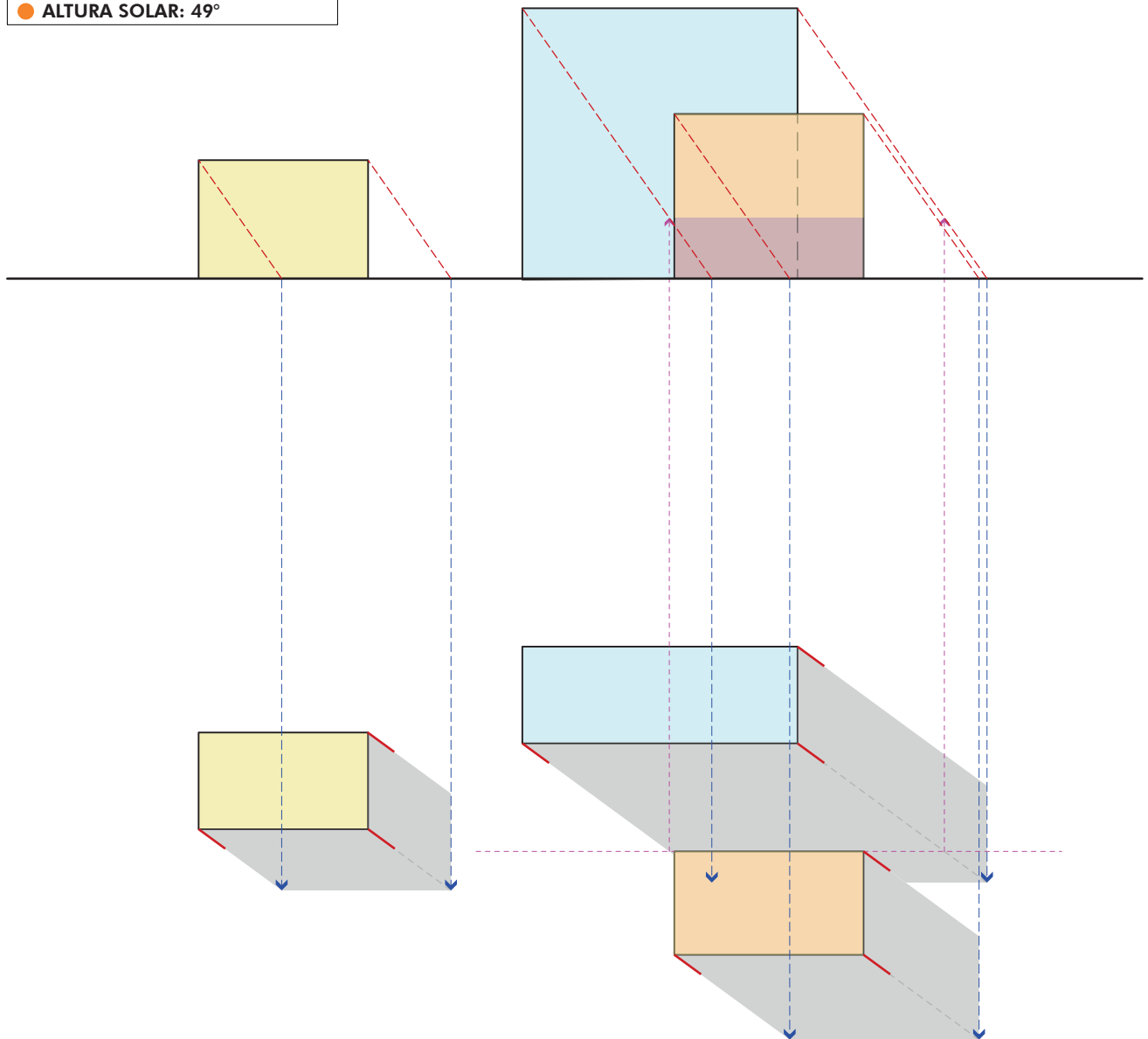
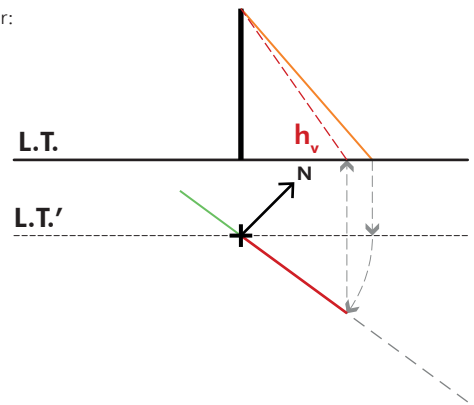
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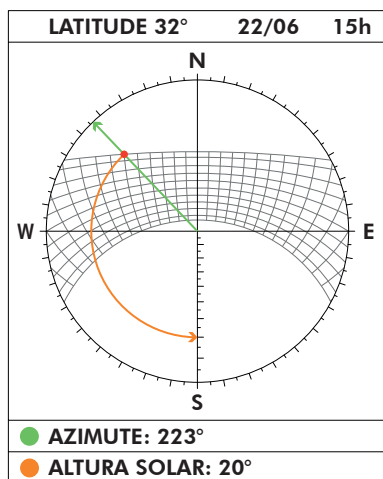
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- 3° Etapa



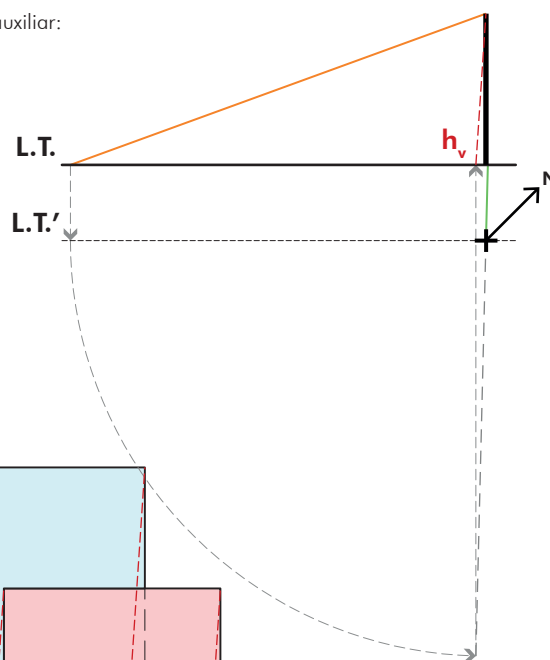
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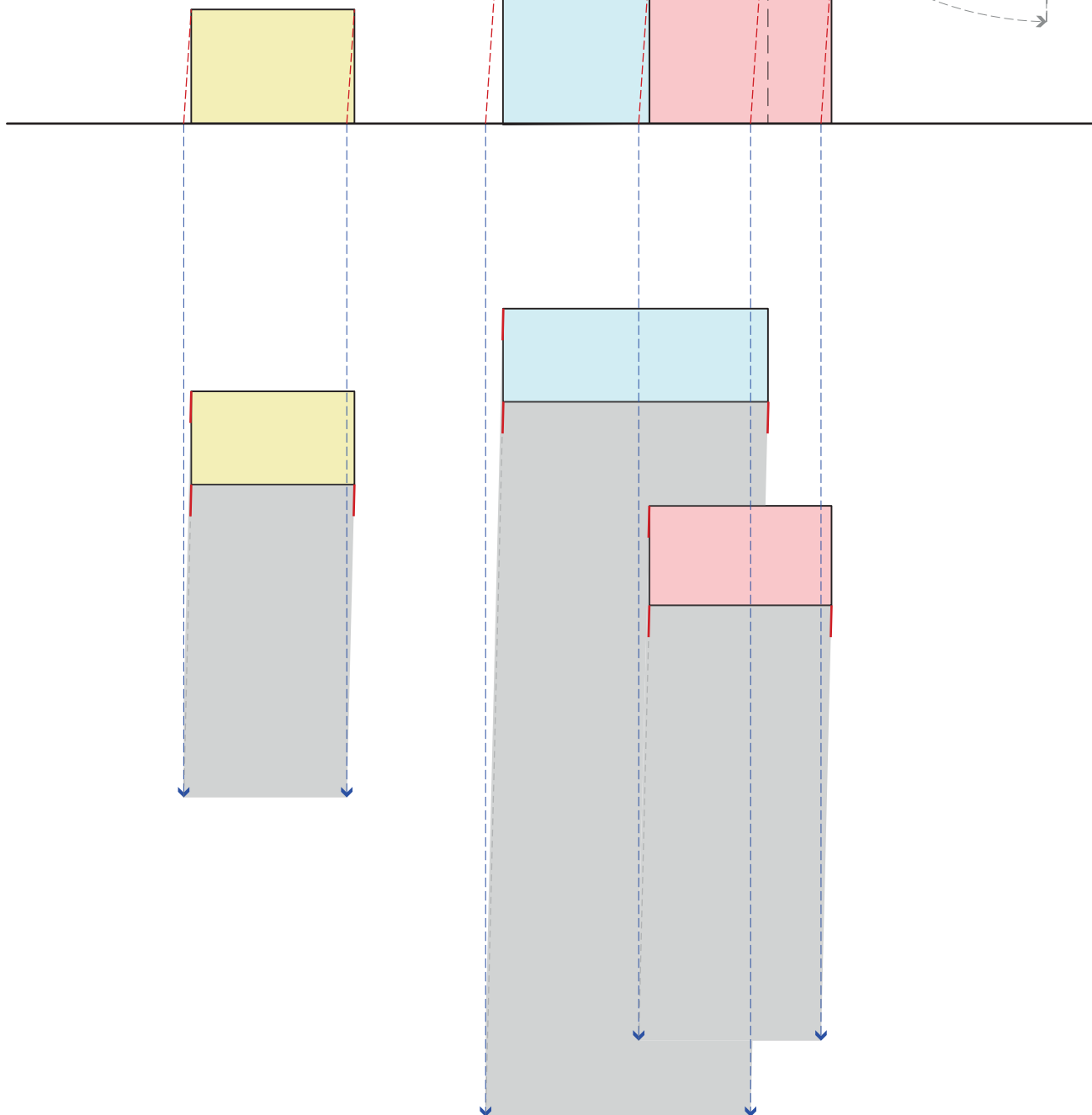
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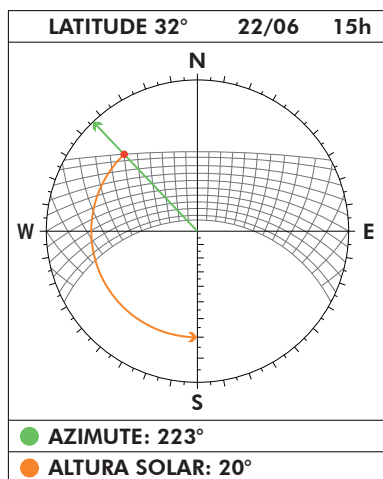


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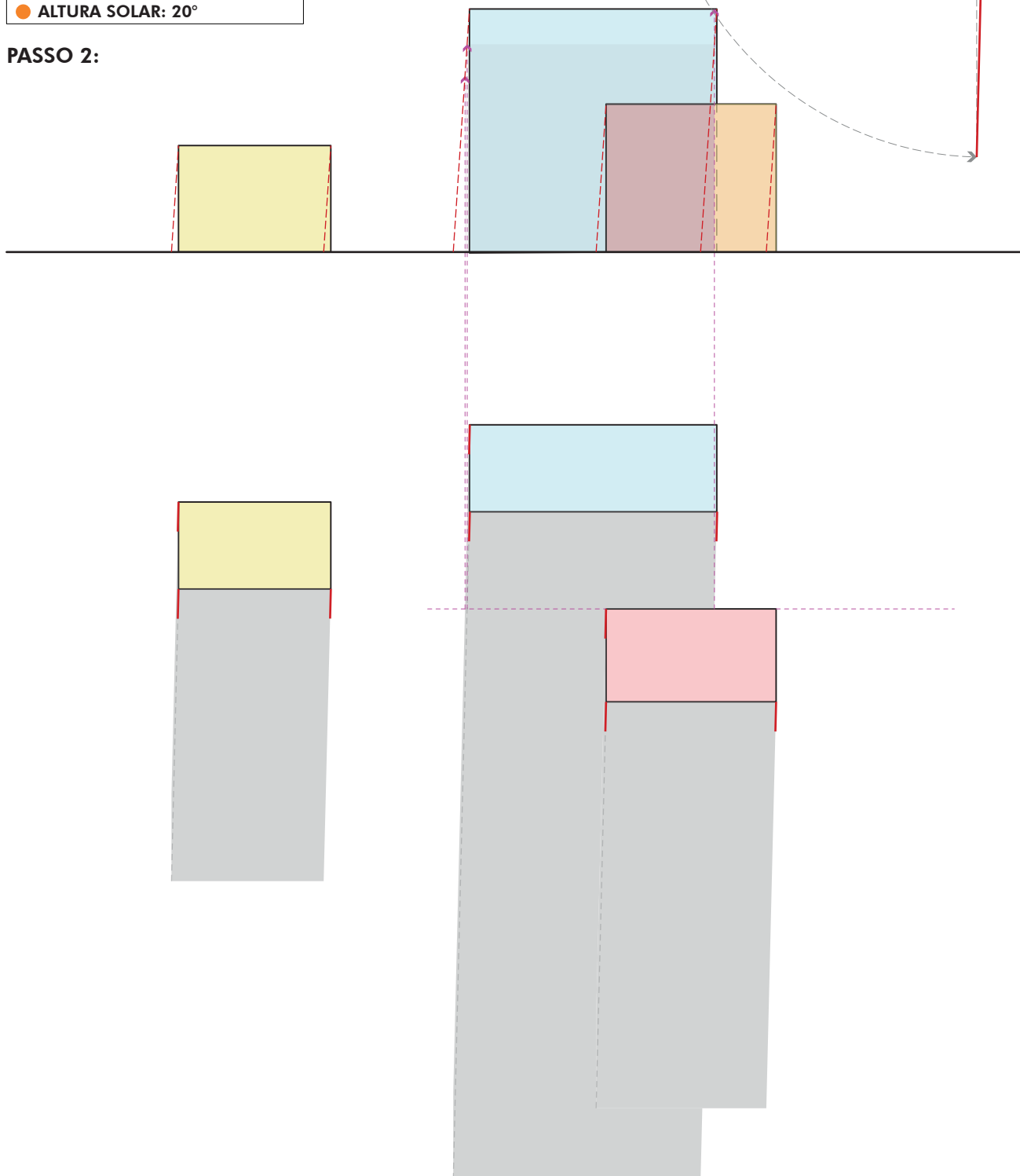
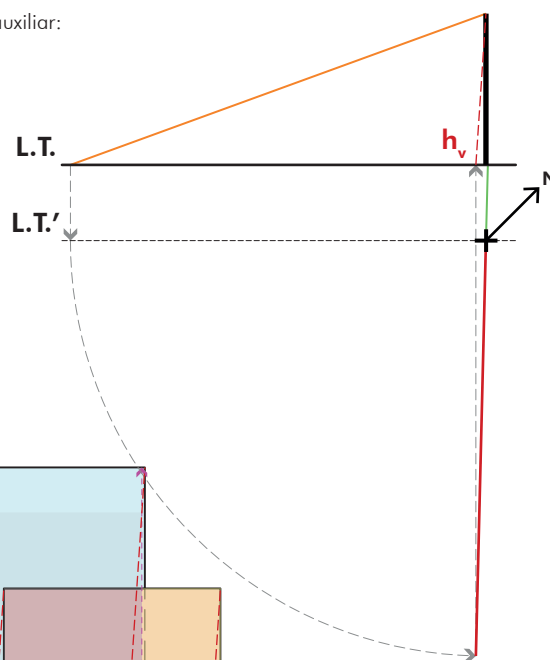
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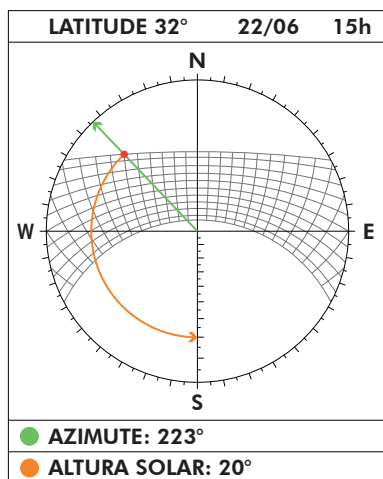




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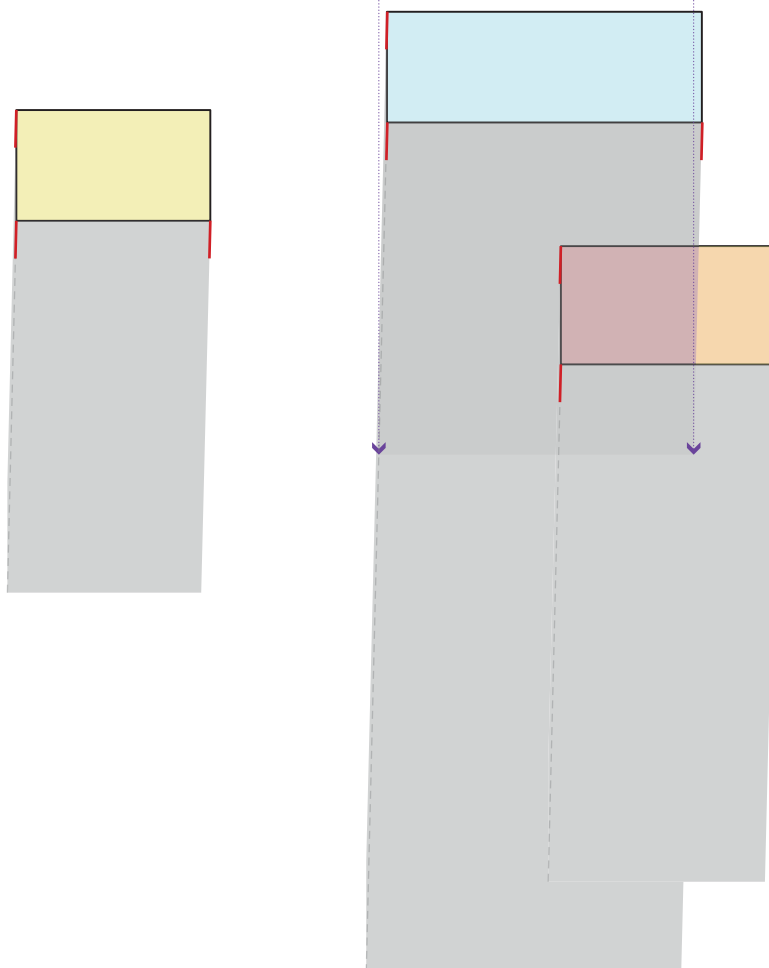
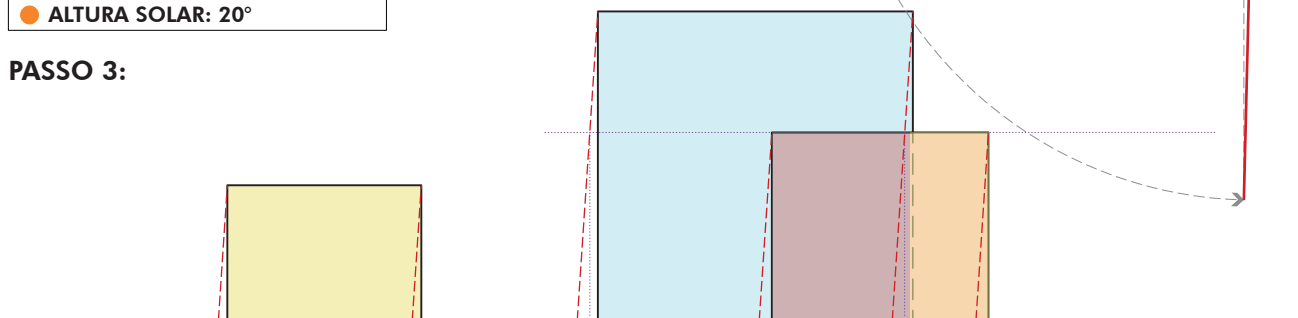
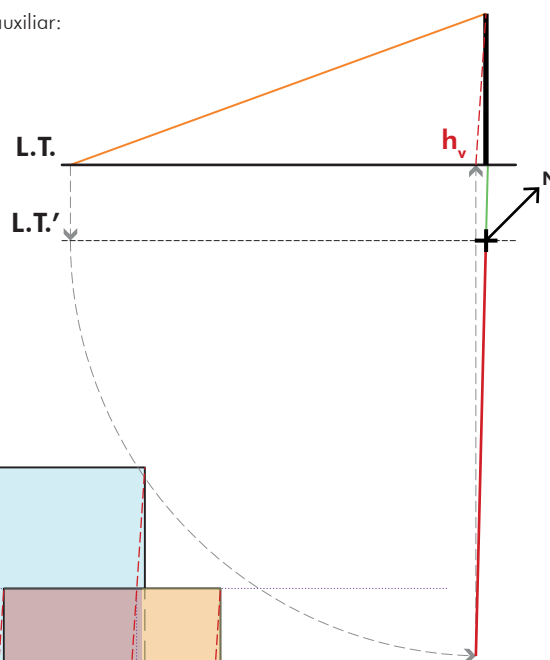
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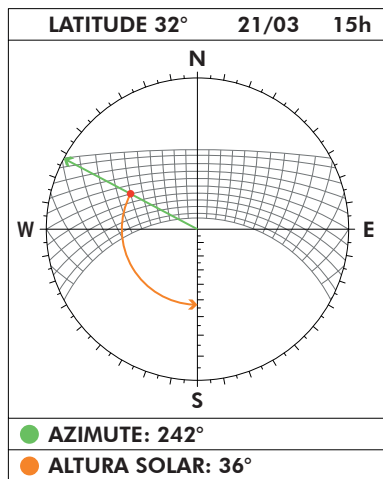




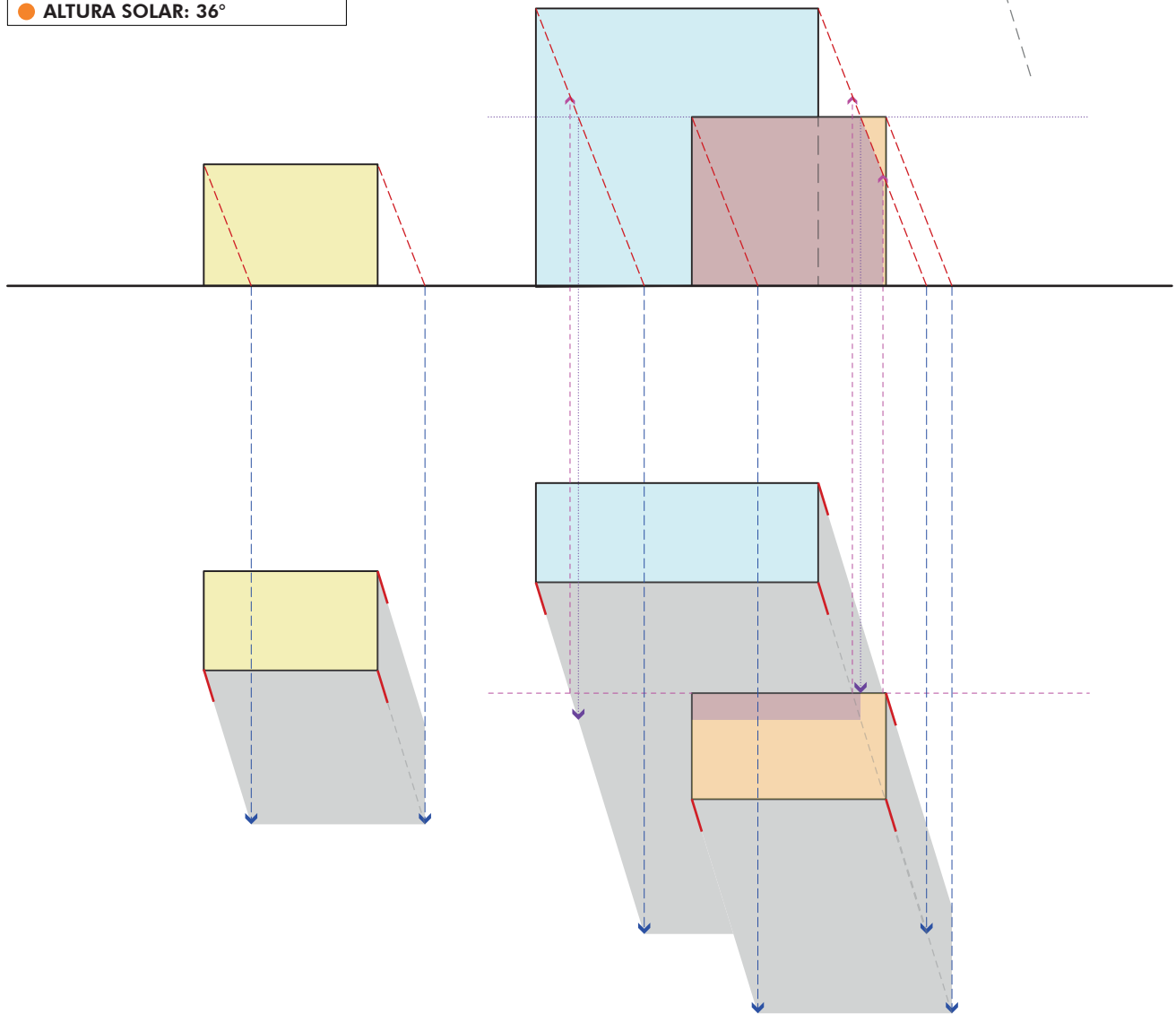
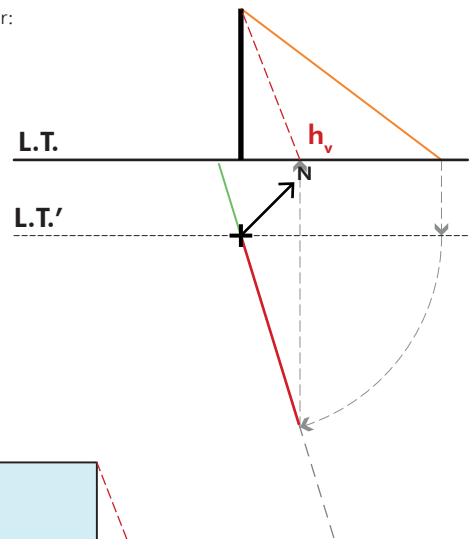
PASSO 3:

Haste auxiliar:

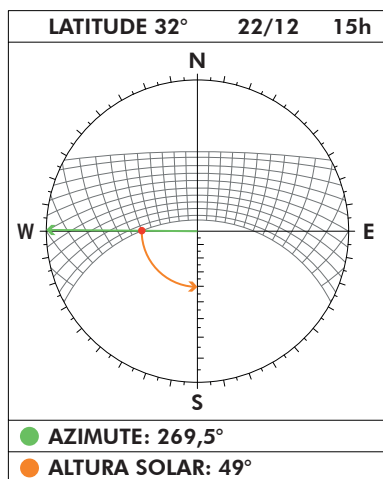




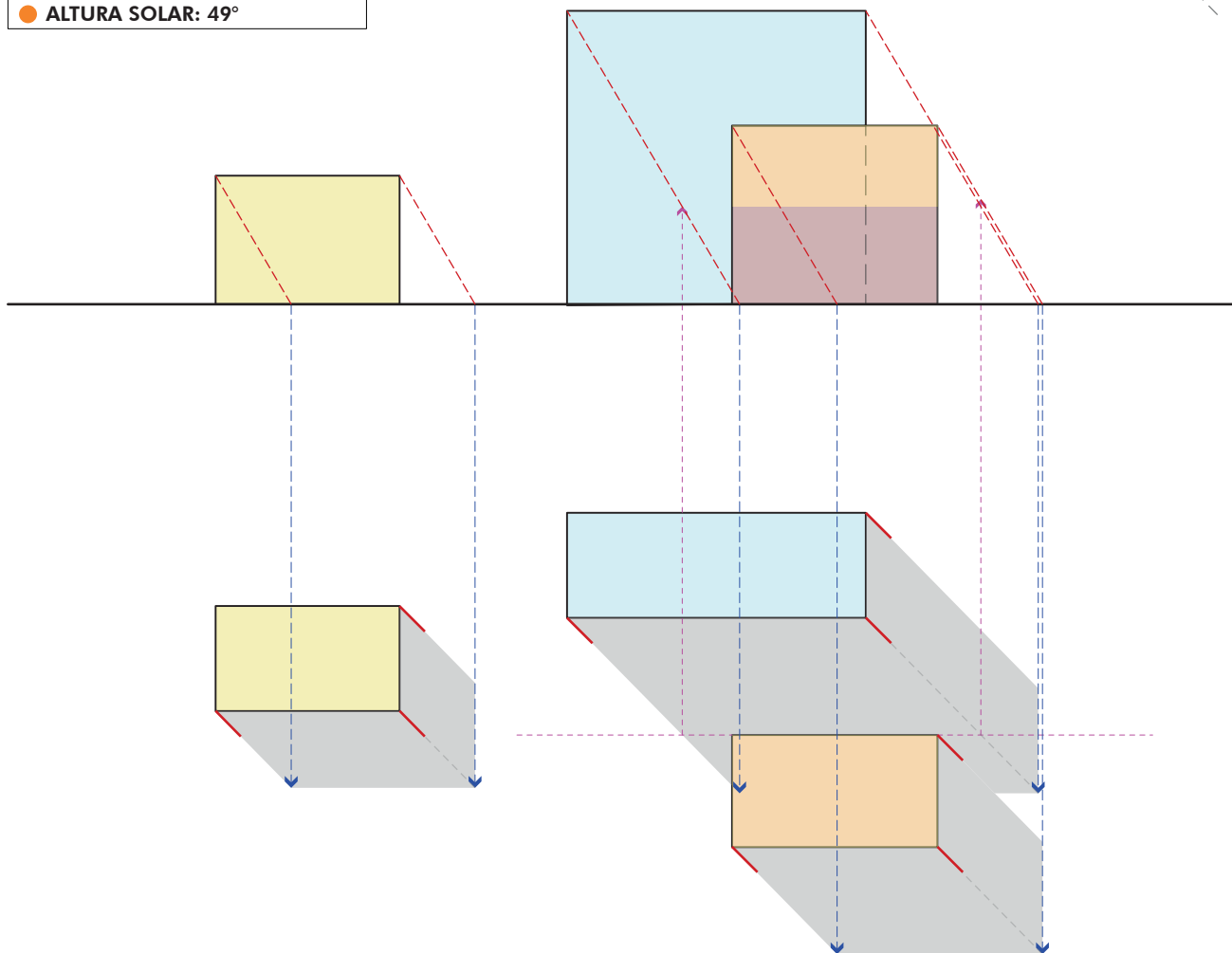
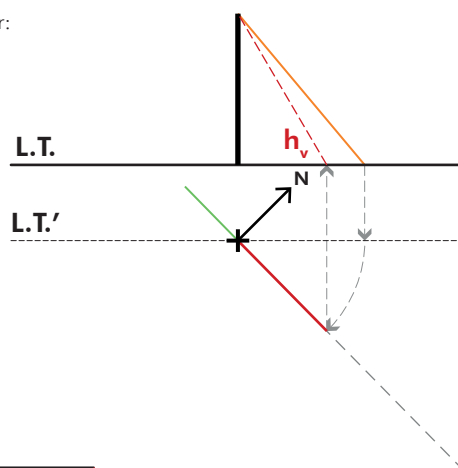
Haste auxiliar:



- 1° Etapa
- 2° Etapa
- 3° Etapa



Haste auxiliar:



- 1° Etapa
- 2° Etapa
- 3° Etapa