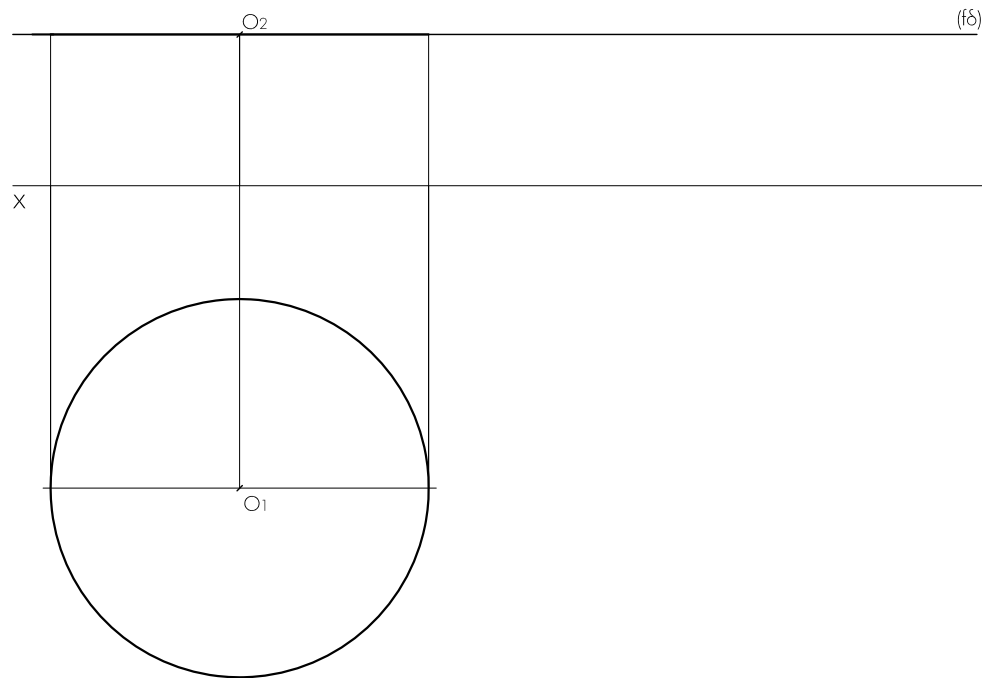
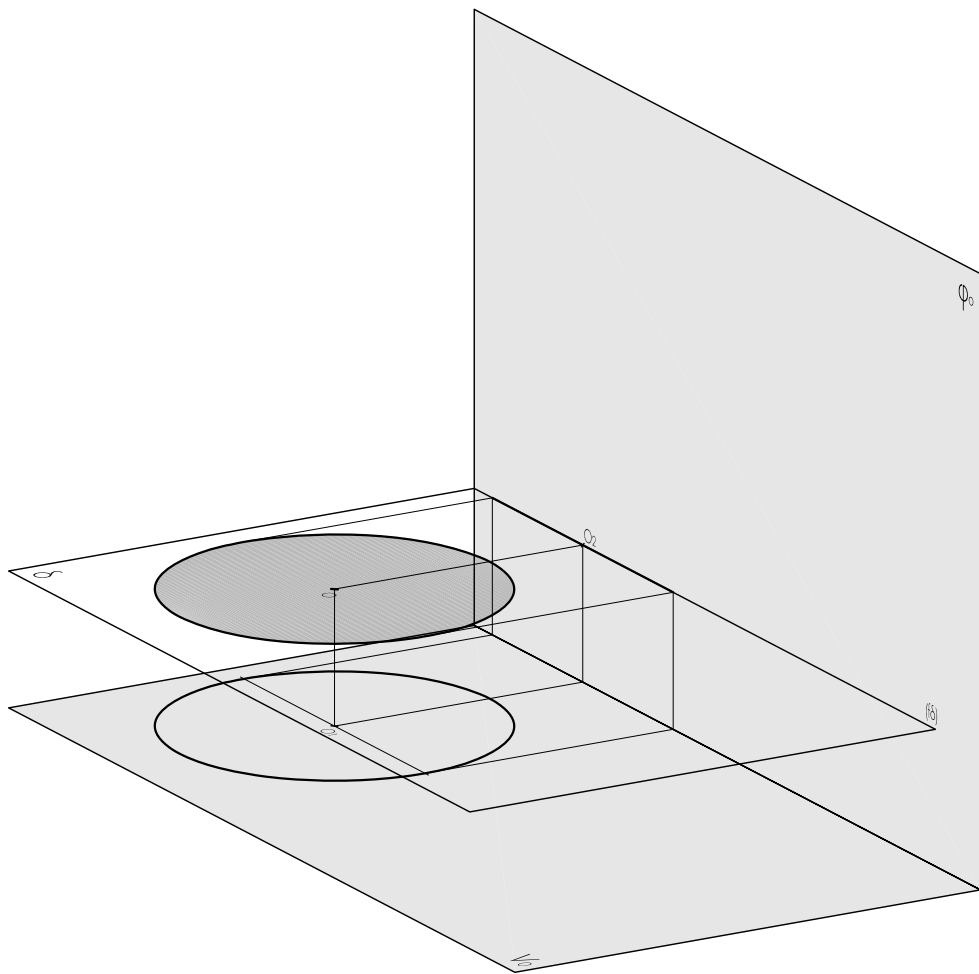


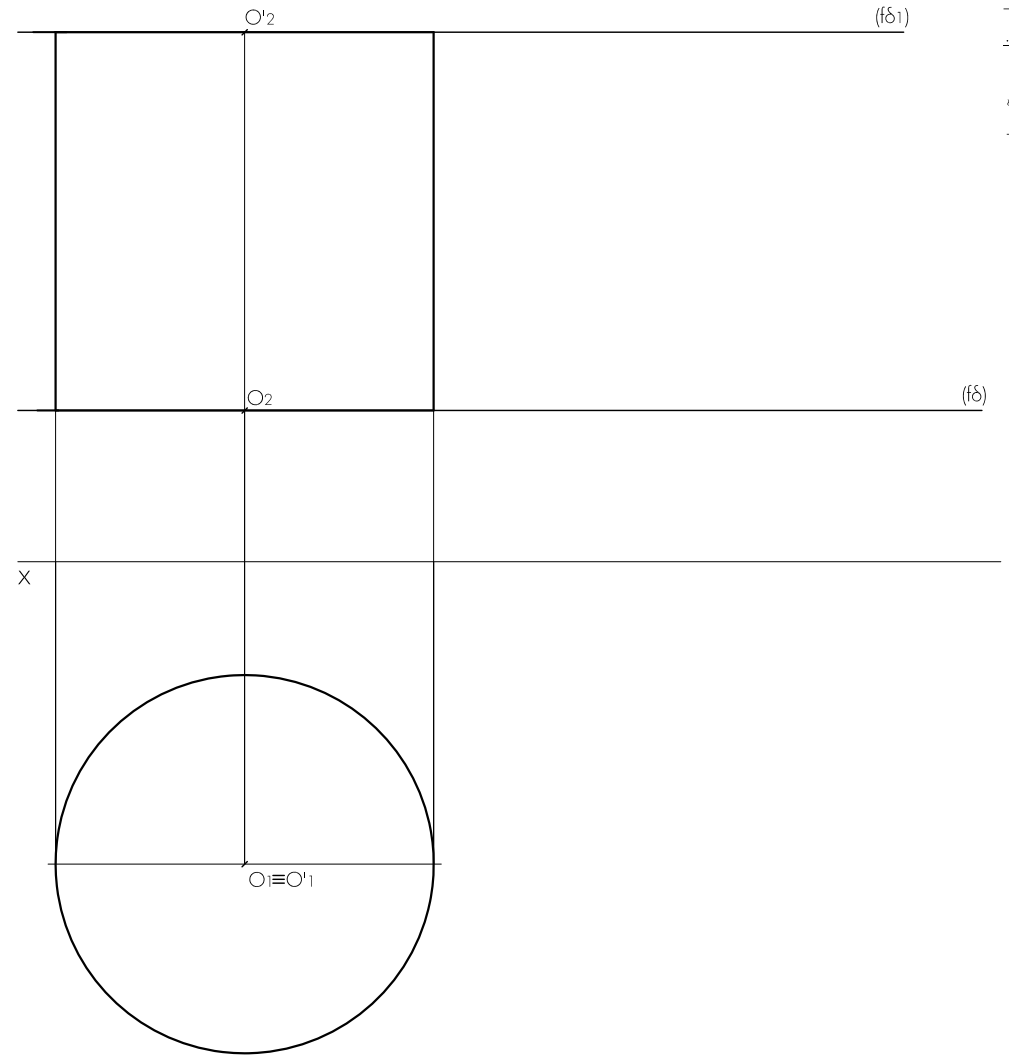
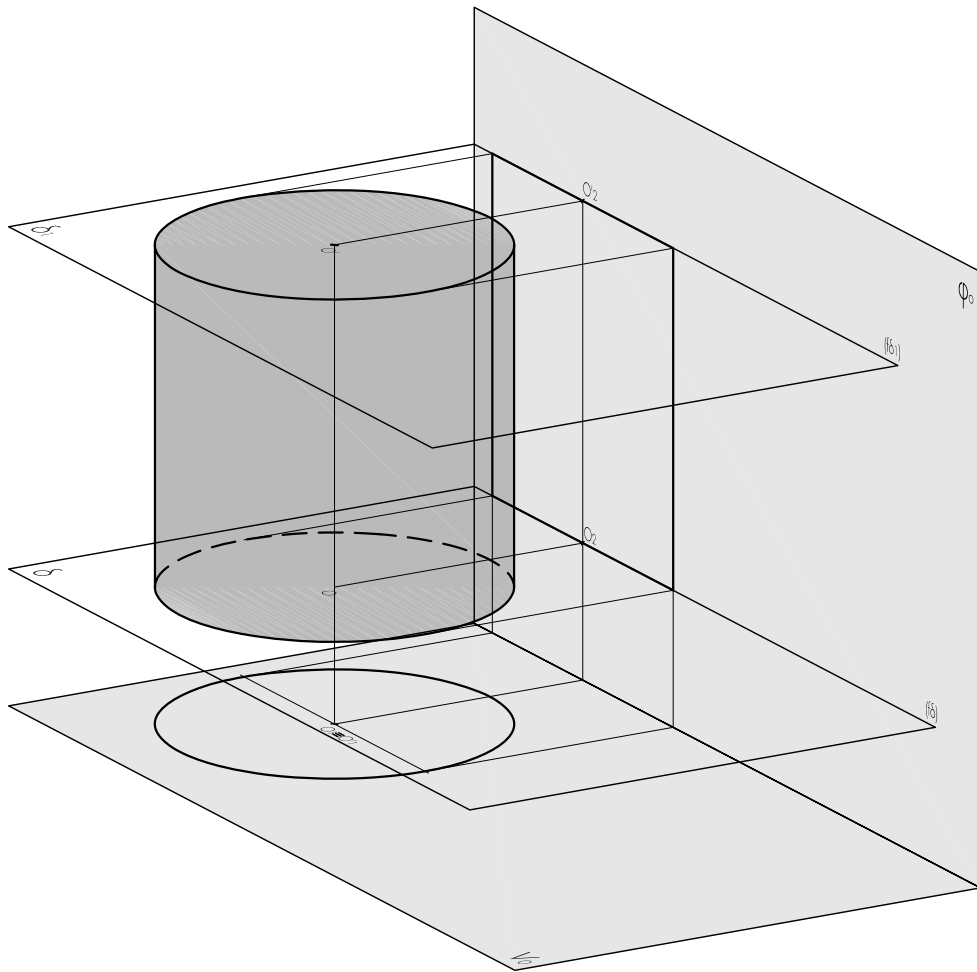
É dado um cilindro de revolução, situado no 1º diedro, e com as bases contidas em planos horizontais.

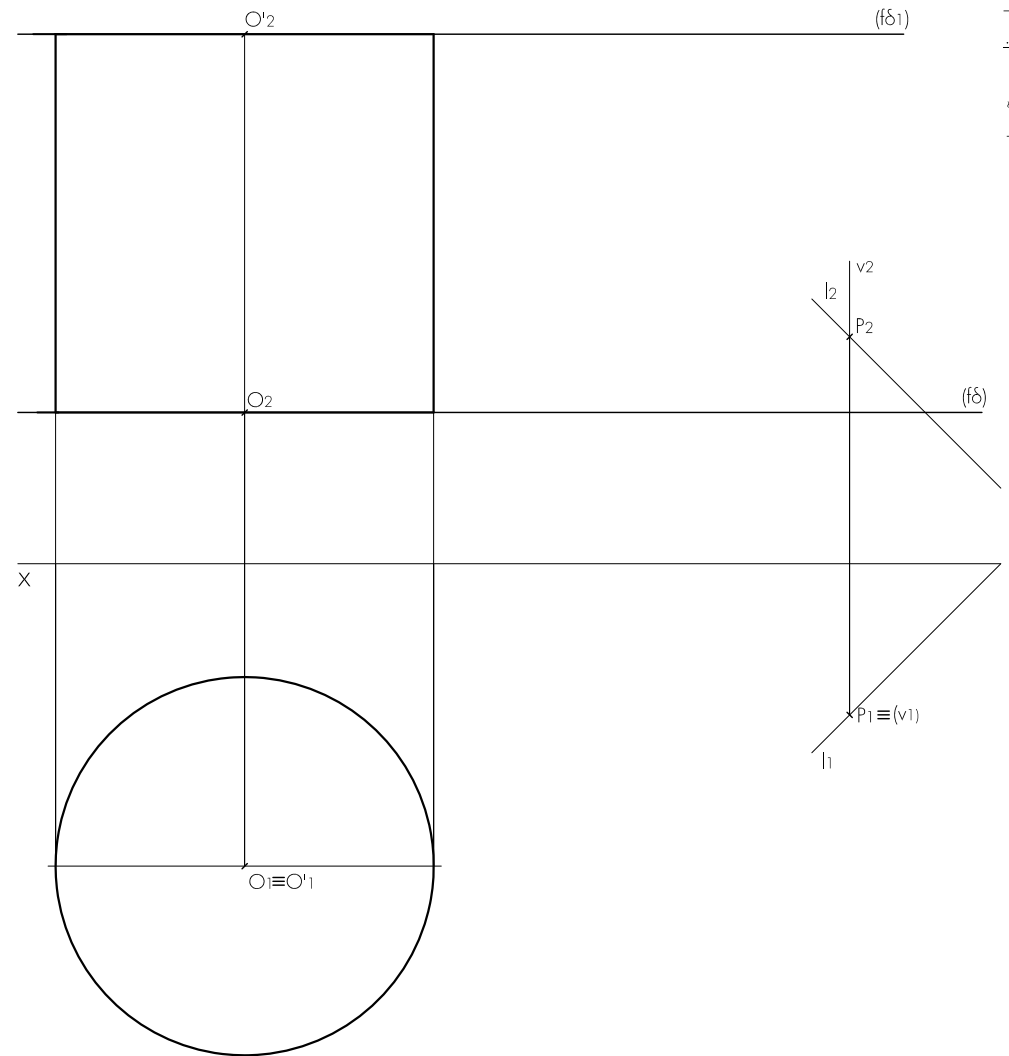
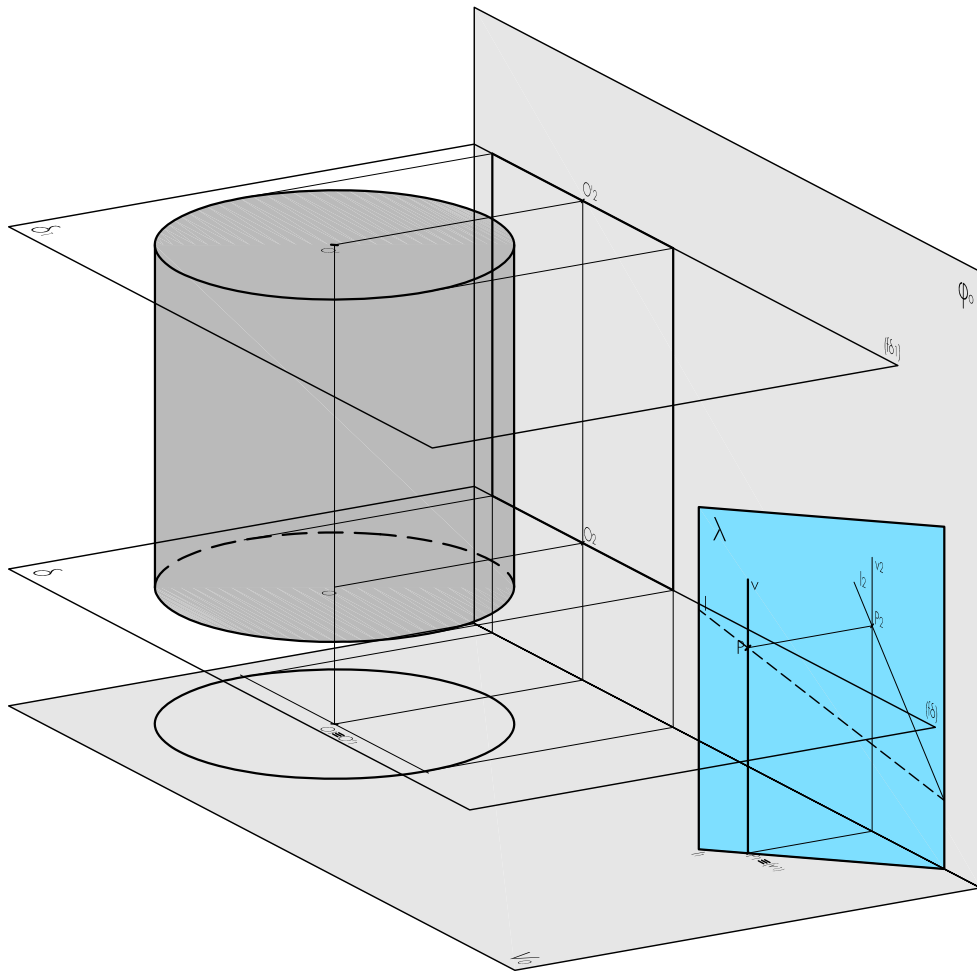
O cilindro tem 5cm de altura e 2,5cm de raio, sendo que a sua base inferior tem centro no ponto $O(0; 4; 2)$.

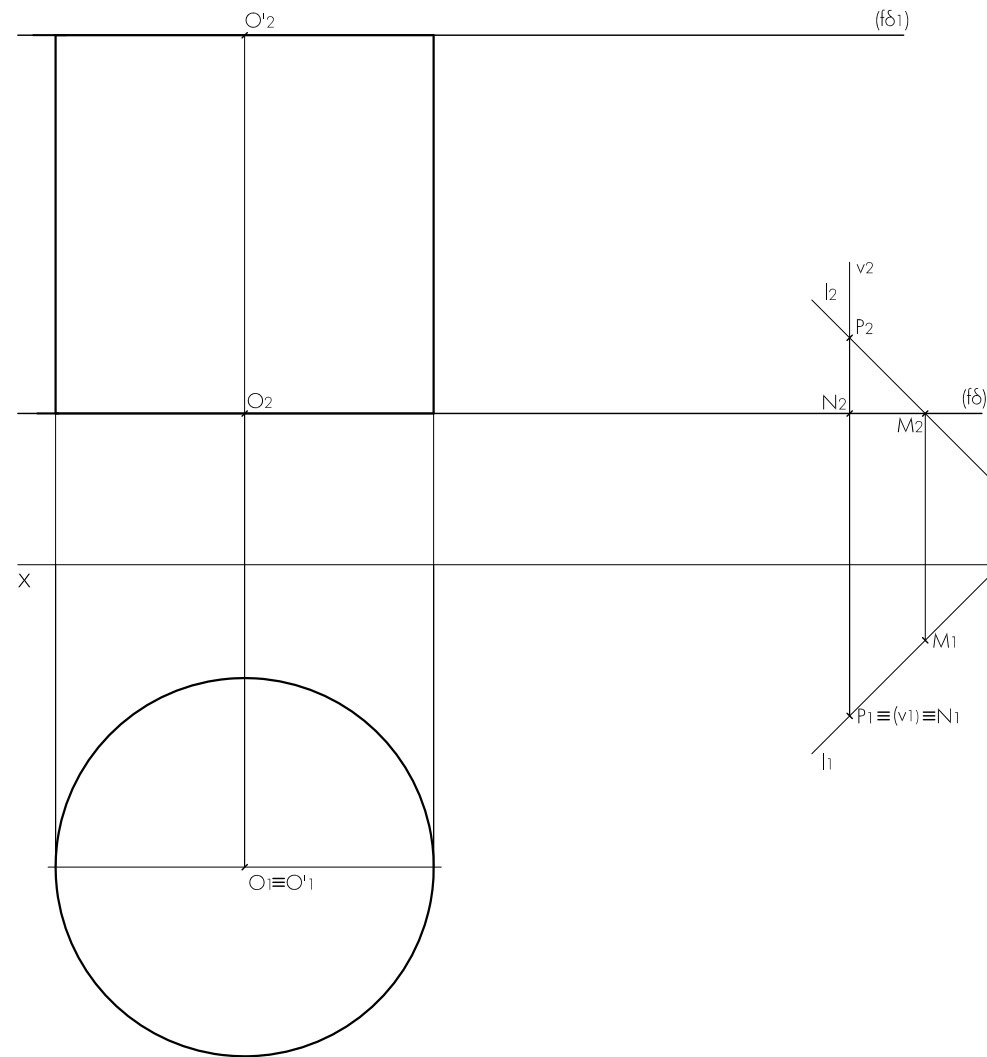
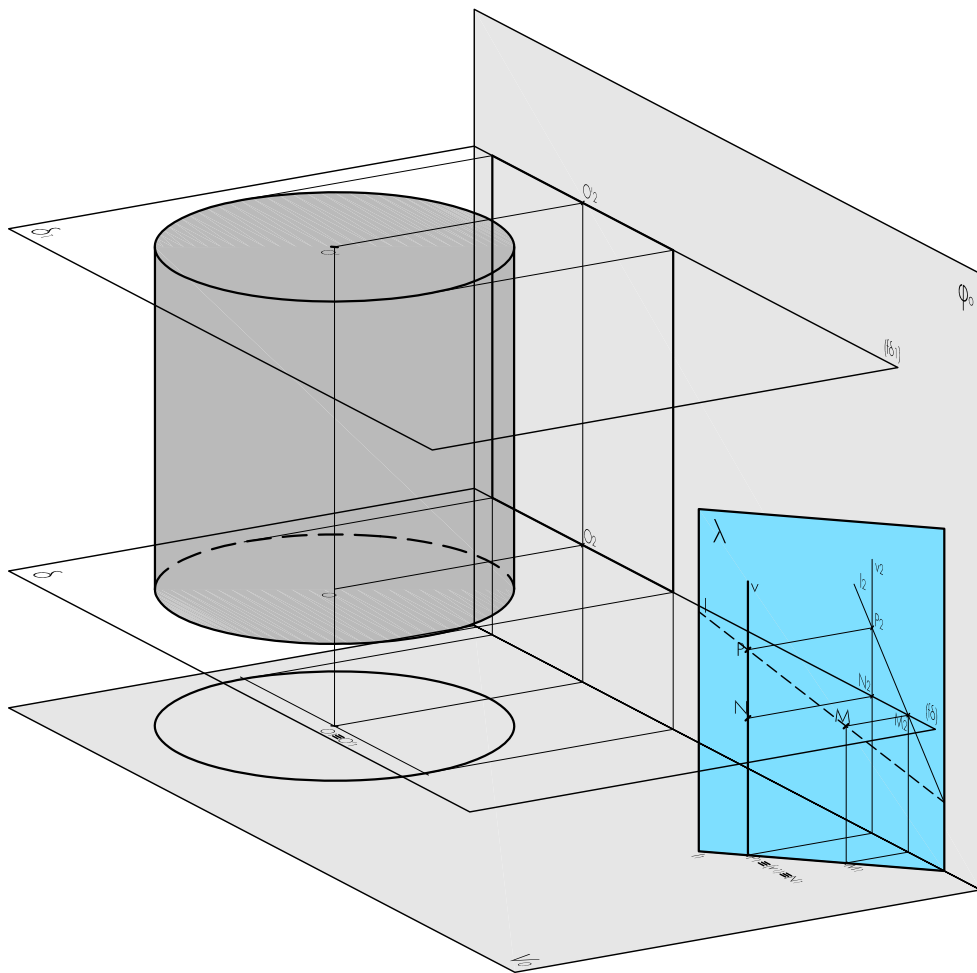
Determine as sombras própria e projectada nos planos de projecção, considerando para o efeito a direcção luminosa convencional.



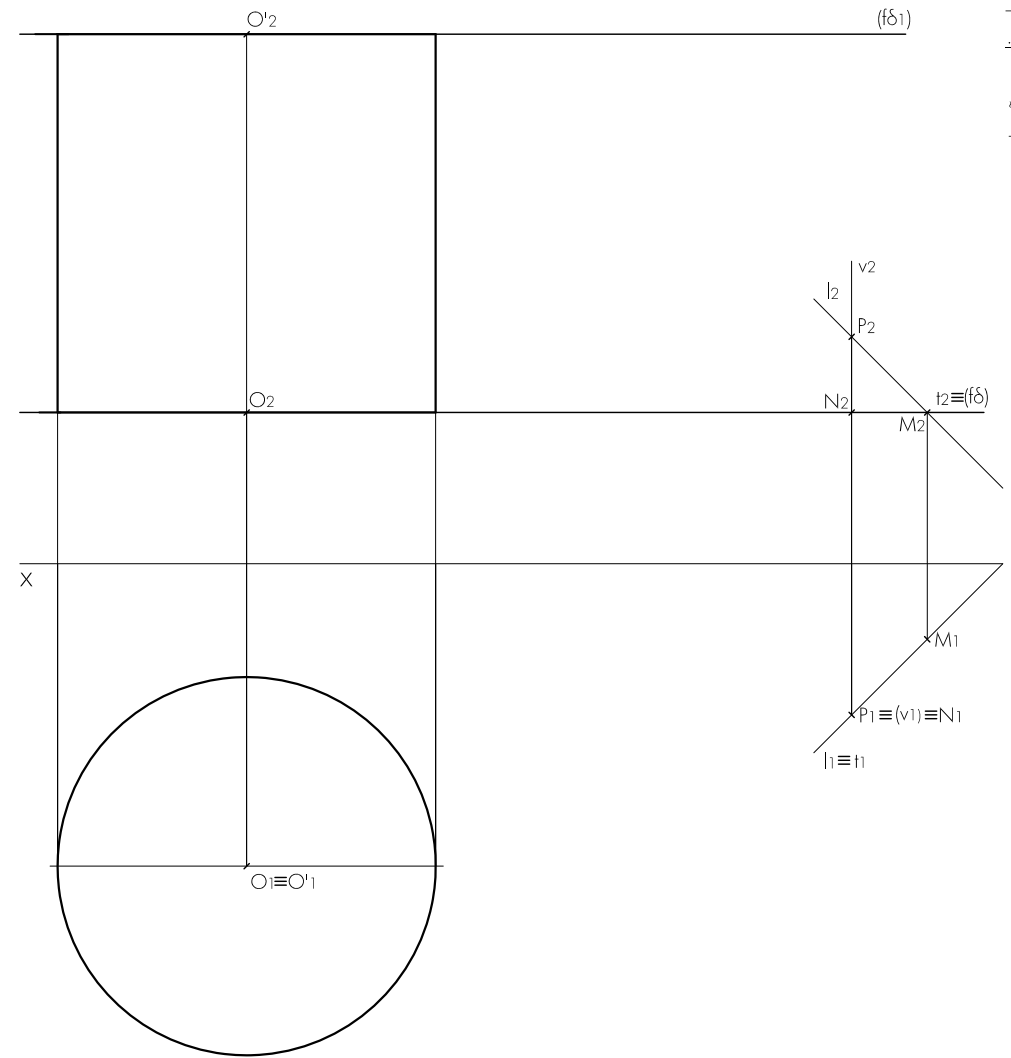
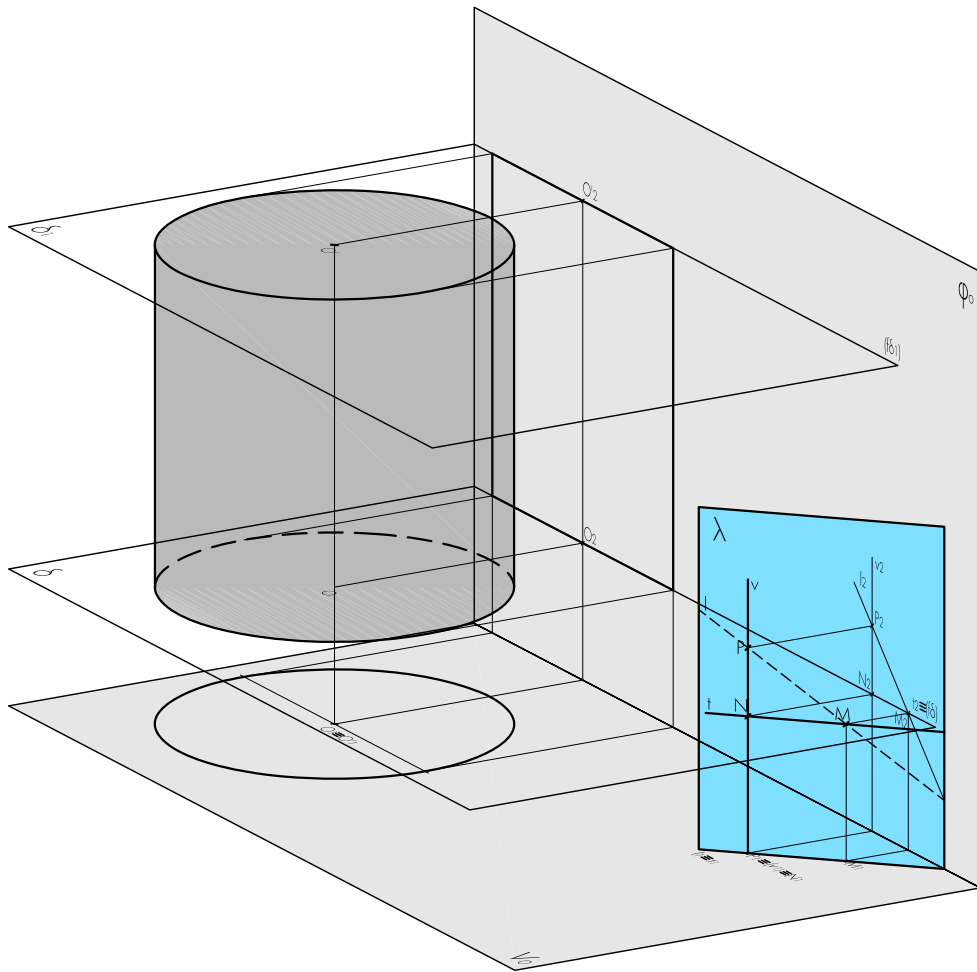
1) tradução gráfica dos dados;

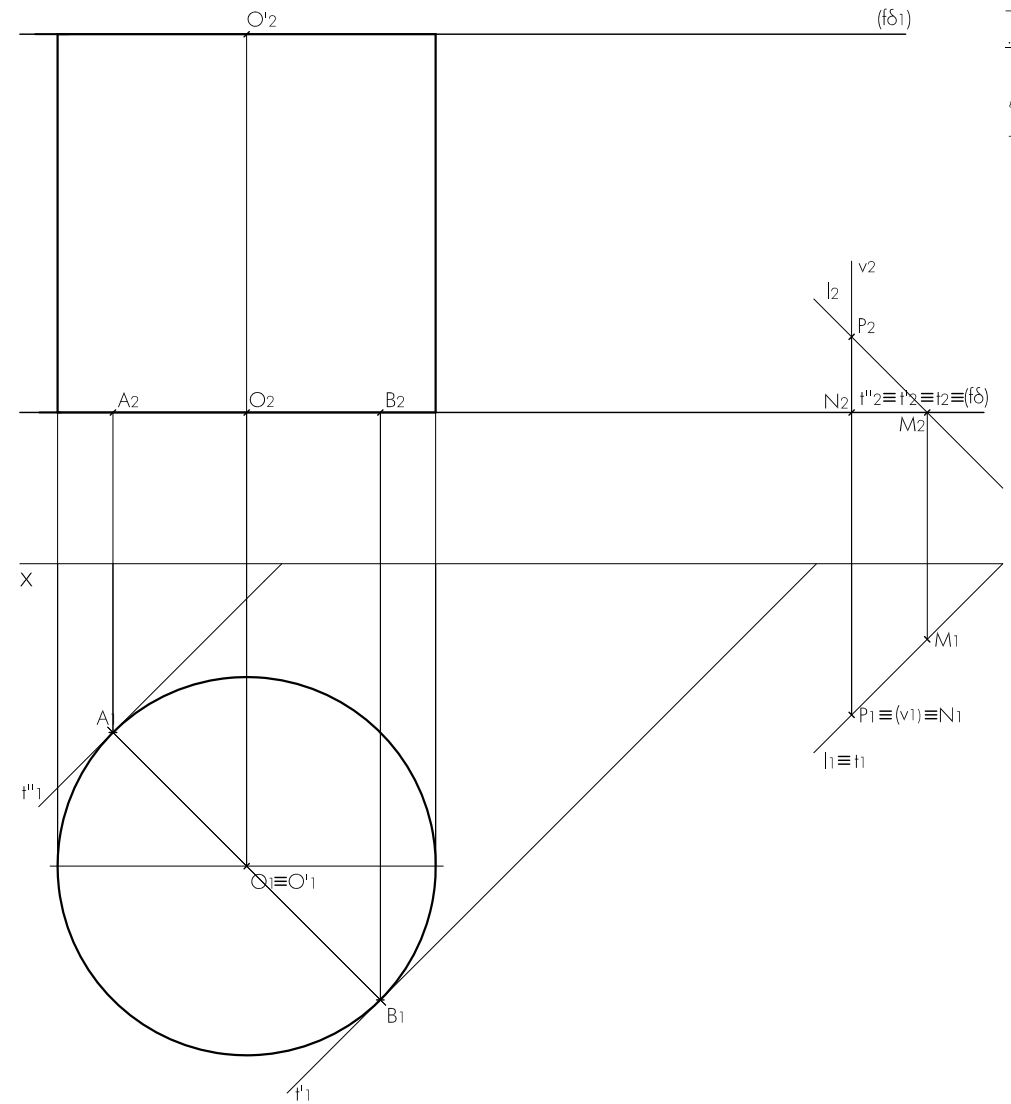
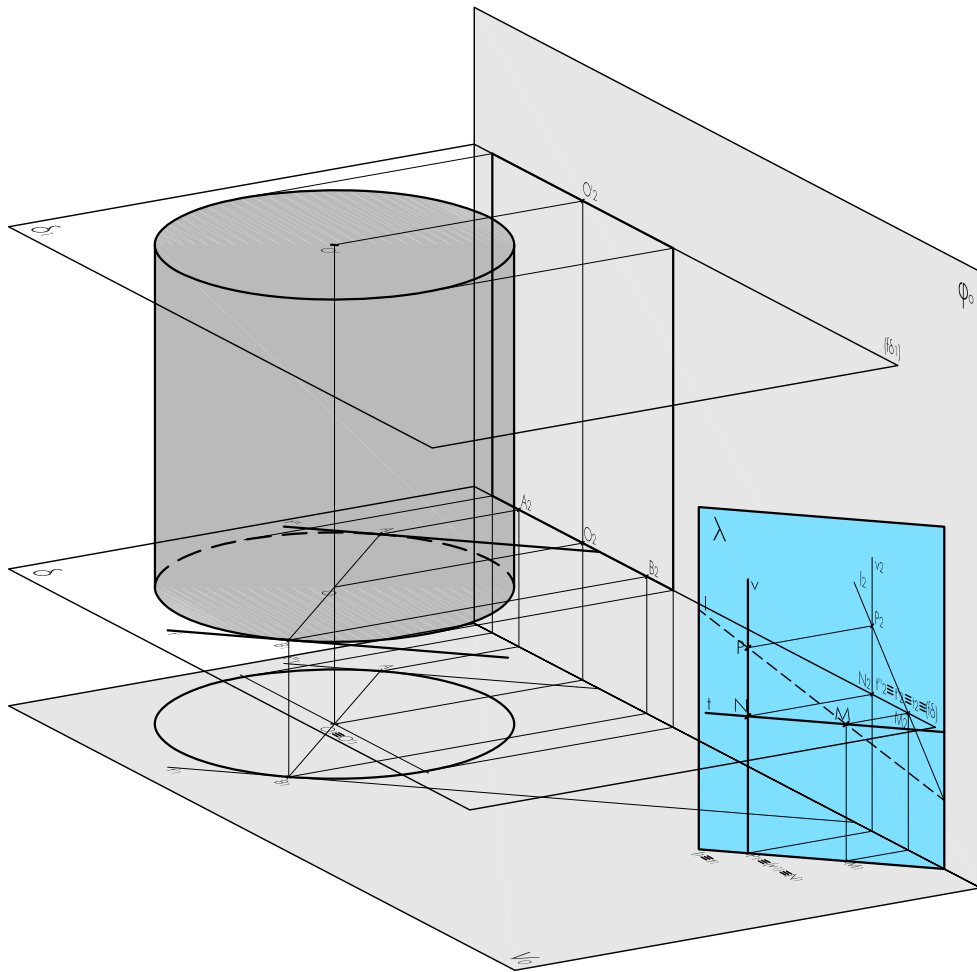




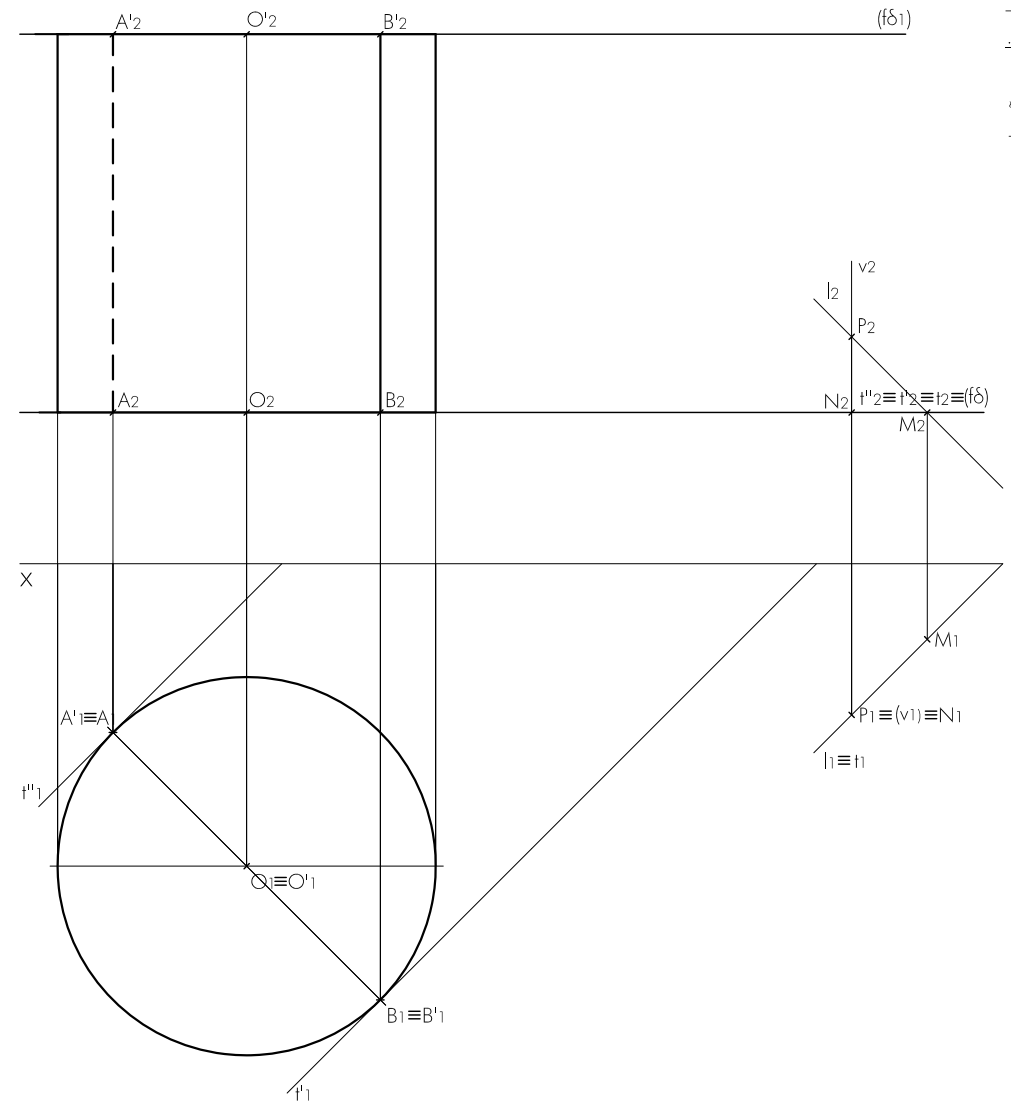
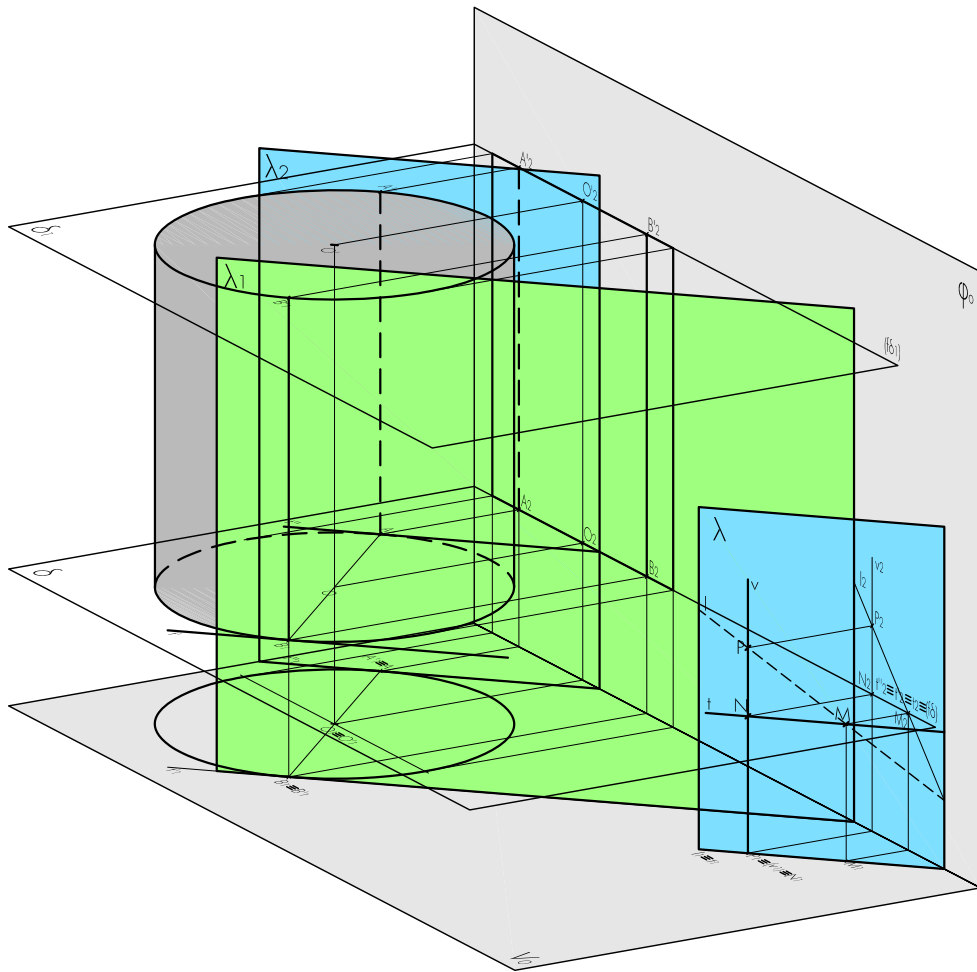


4) determinação das intersecções M e N das rectas l e v com o plano δ da base do sólido;





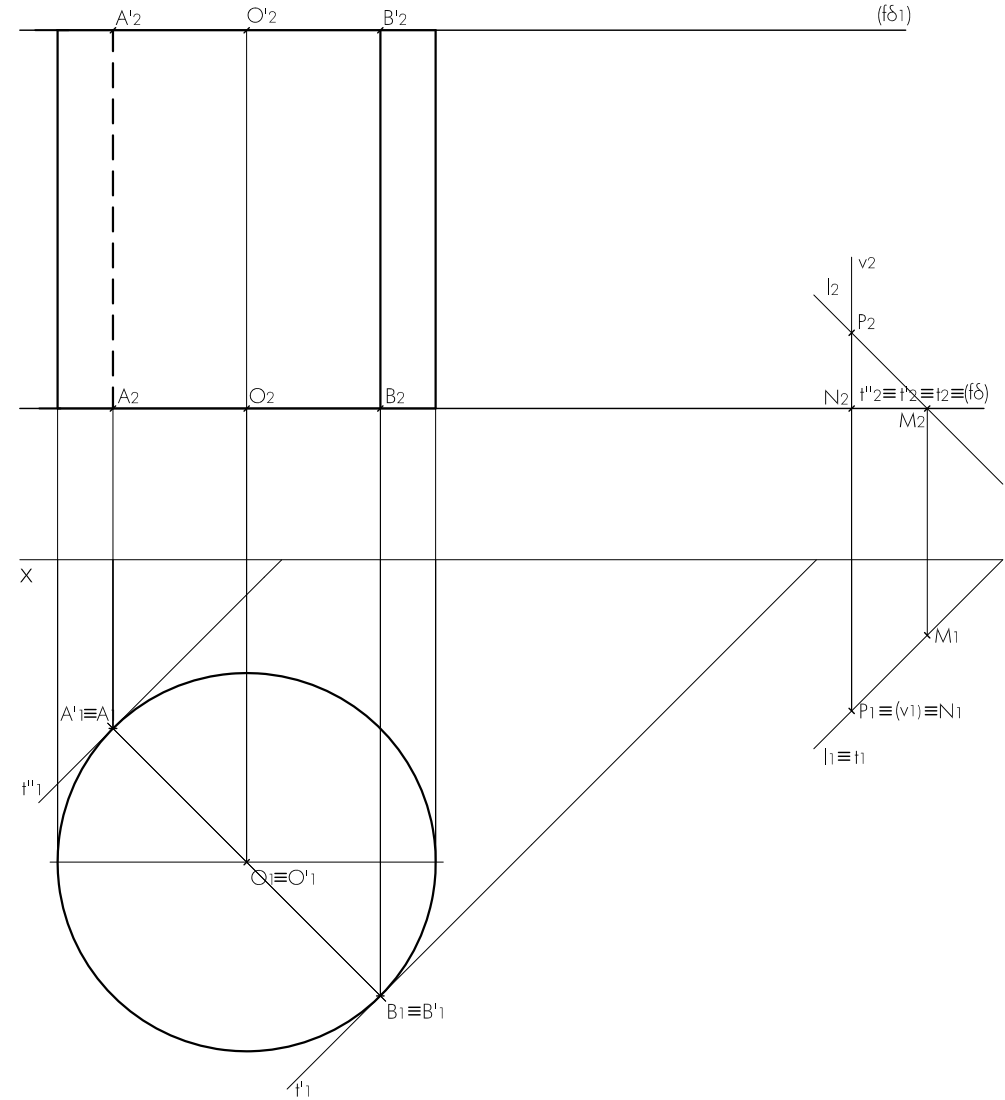
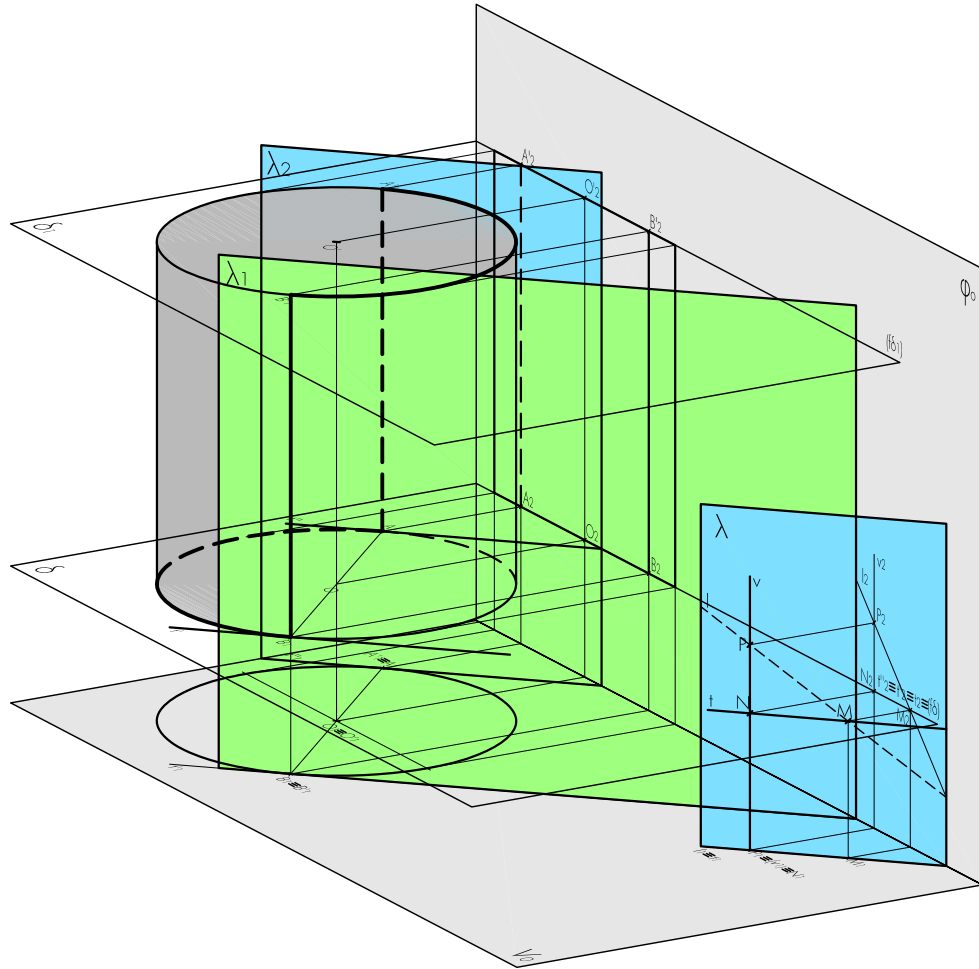
6) traçado das rectas tangentes t' e t'' à base do cilindro para determinação da Linha Separatriz Luz|Sombra - LSL; 7) determinação dos pontos de tangência;



Linha Separatriz Luz | Sombra: $\overset{+}{\widehat{A}}\text{-B-}\overset{-}{\widehat{B}}\text{'-A}'$

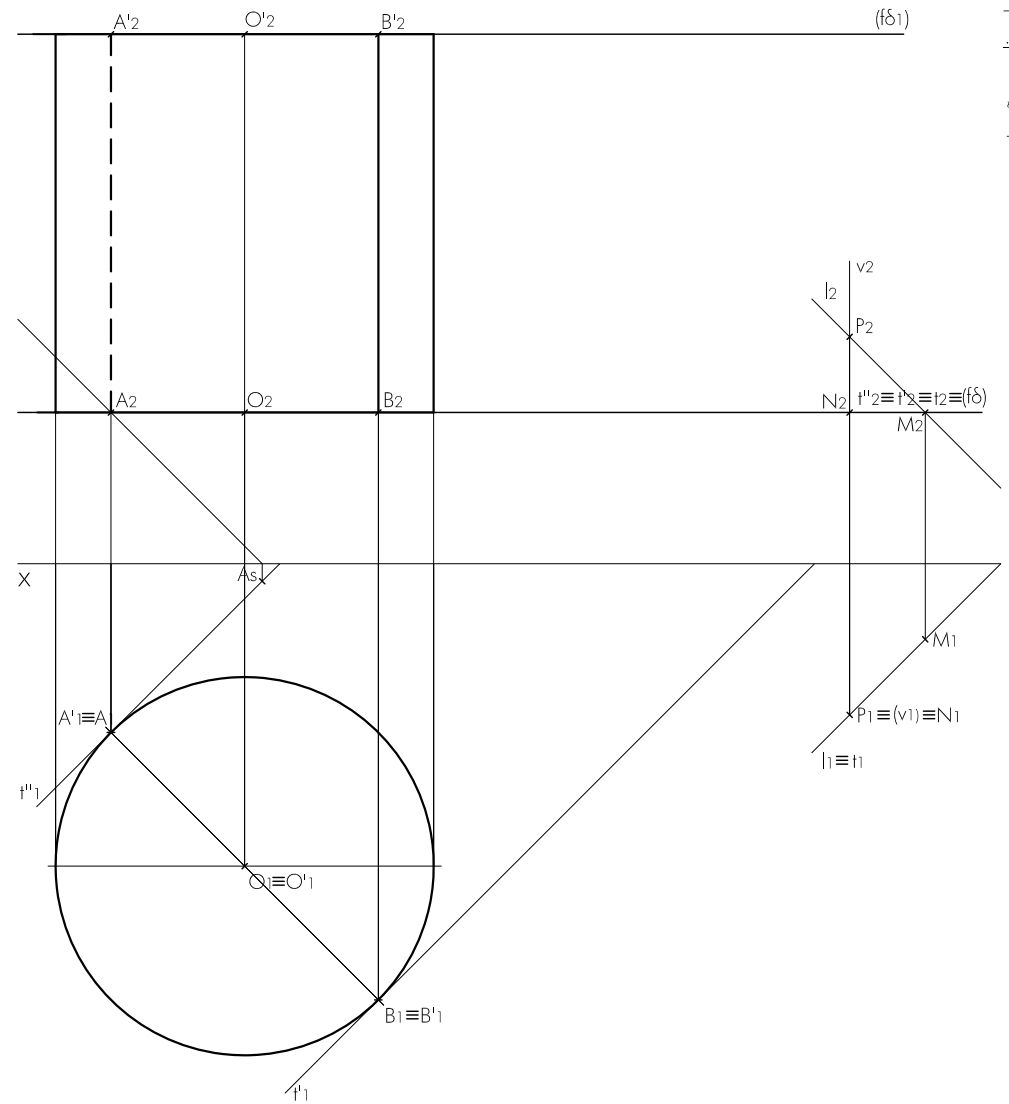
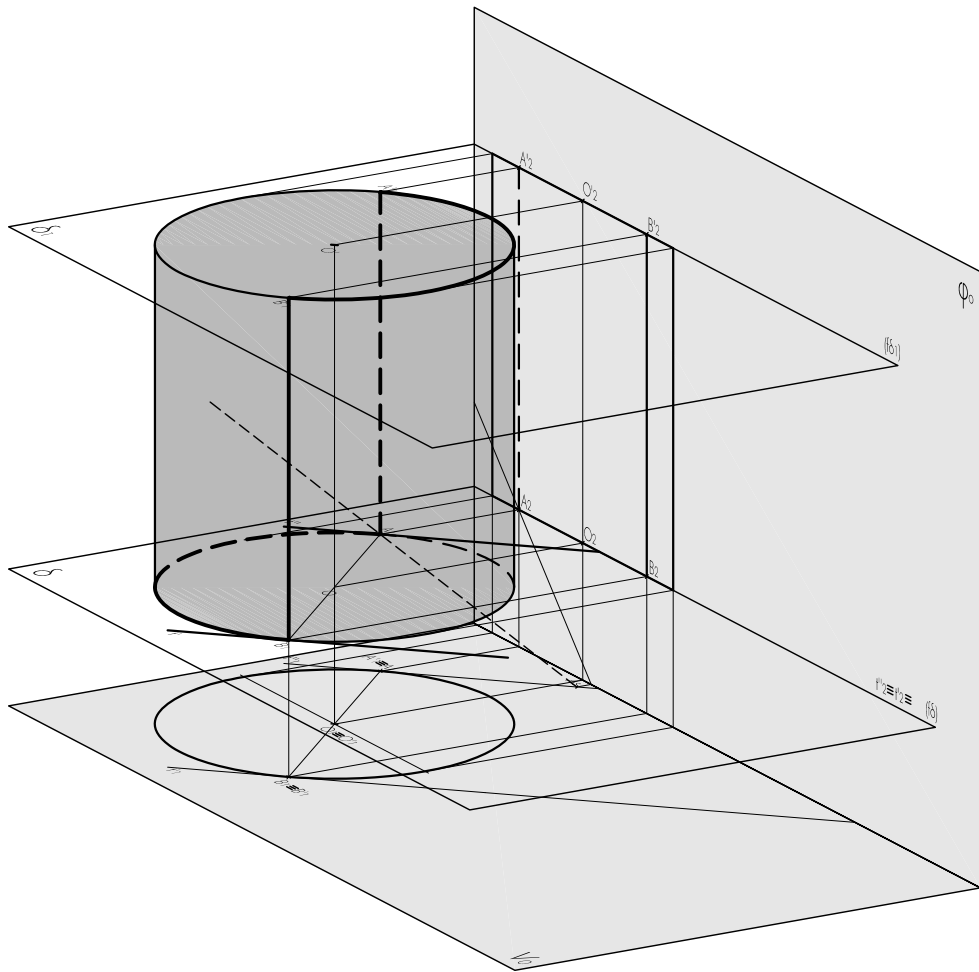
$\overset{+}{\widehat{A}}\text{-B}$ arco de maior afastamento da base de menor cota

$\overset{-}{\widehat{B}}\text{'-A}'$ arco de menor afastamento da base de maior cota

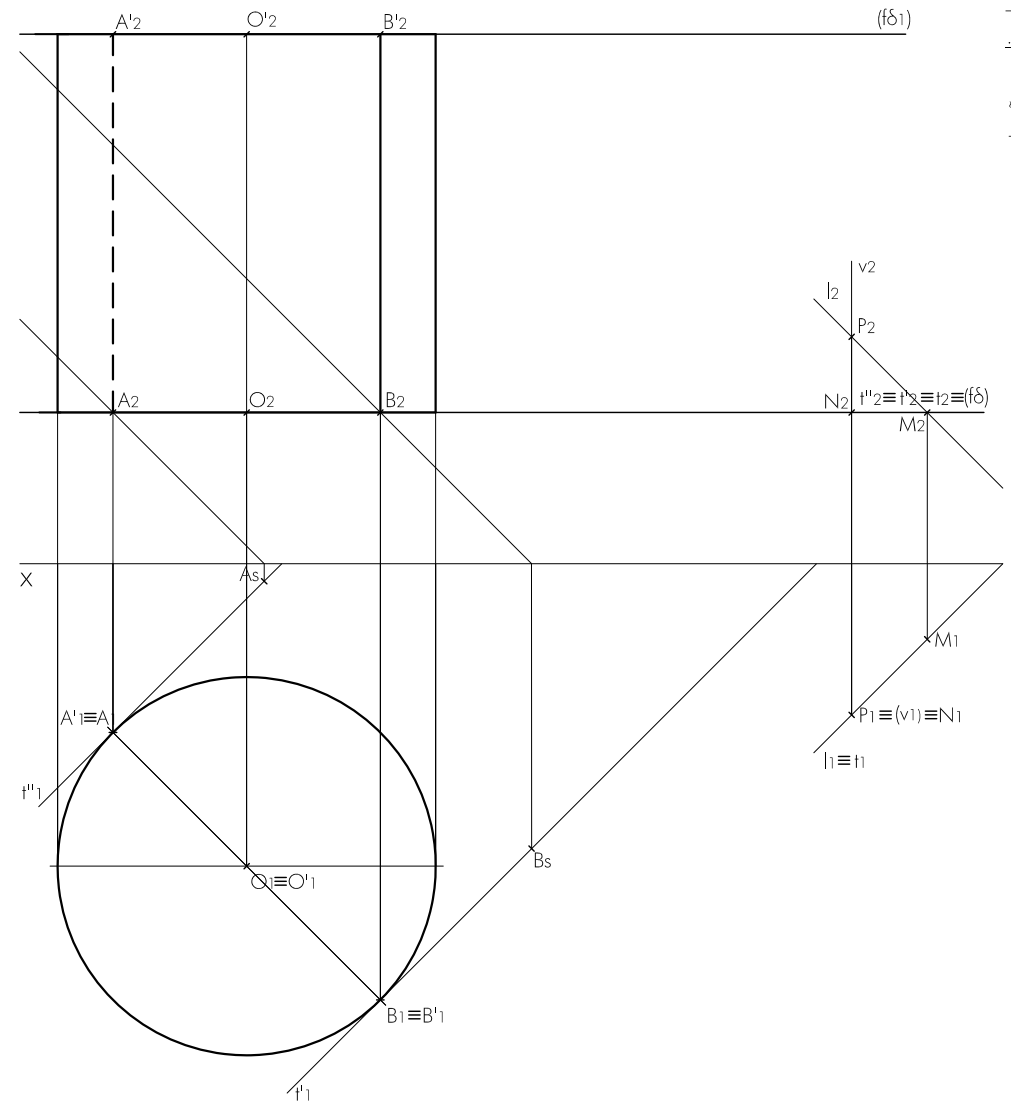
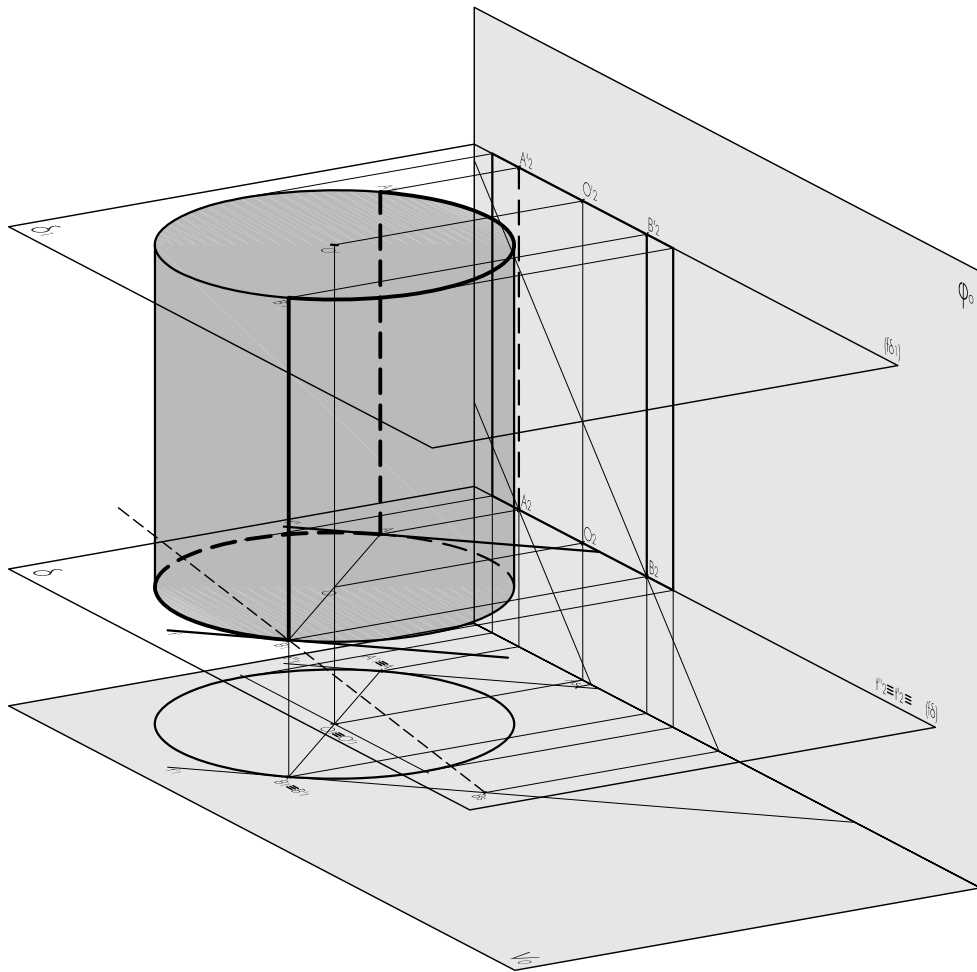


construções realizadas por Estefânio Lemos

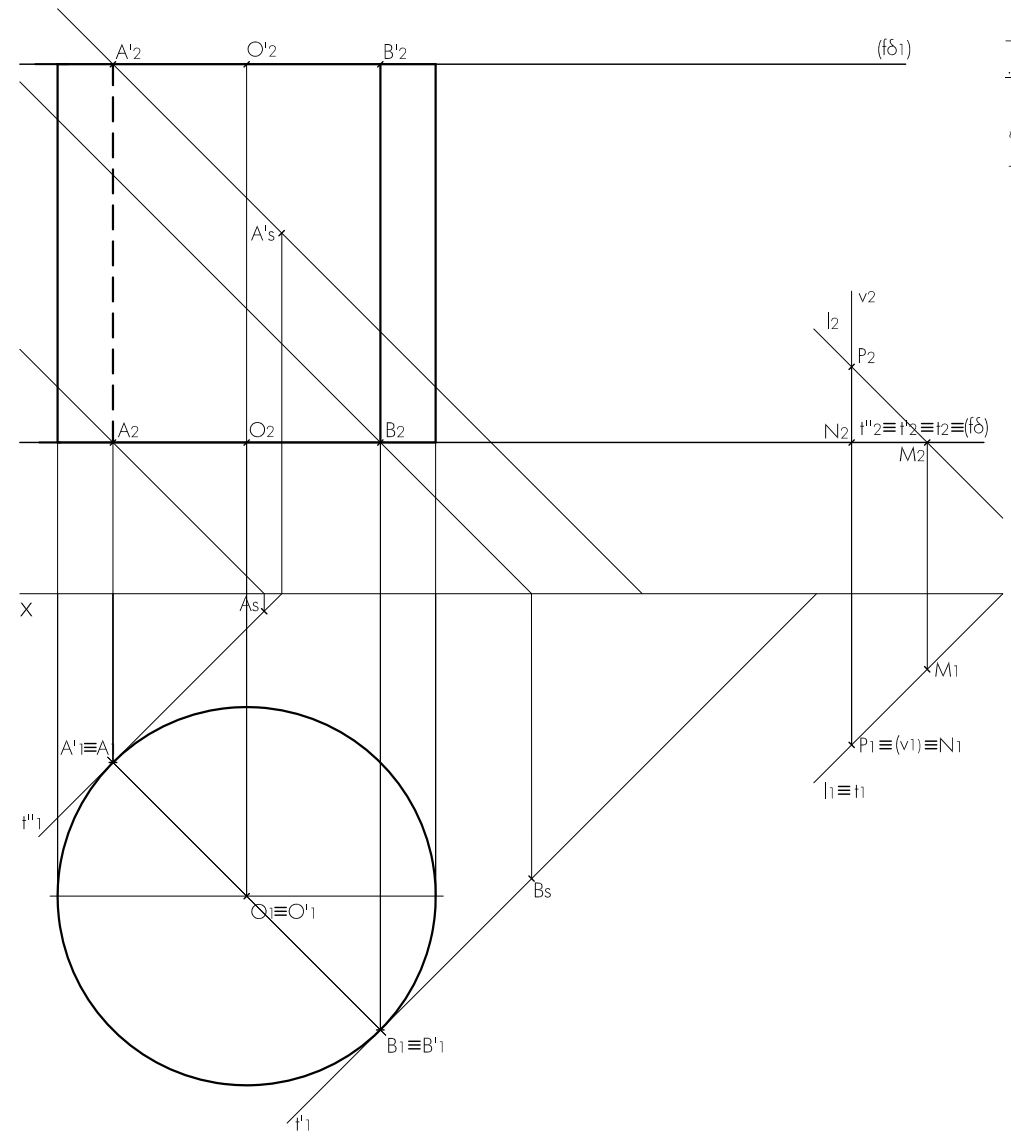
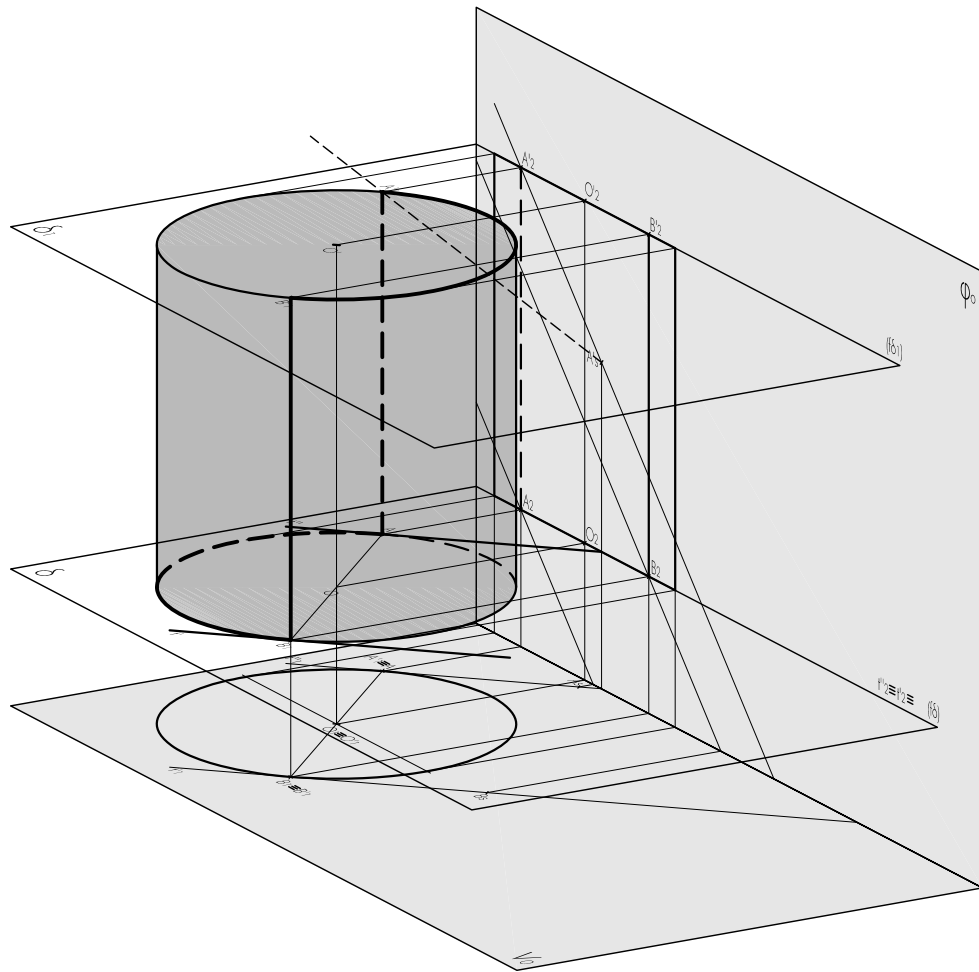
11) a base inferior e a parte de menor afastamento da superfície do cilindro estão em sombra, logo a Linha Separatriz Luz | Sombra é: $\overset{+}{\widehat{A}}\text{-B-}\overset{-}{\widehat{B}}\text{'-A}'$;



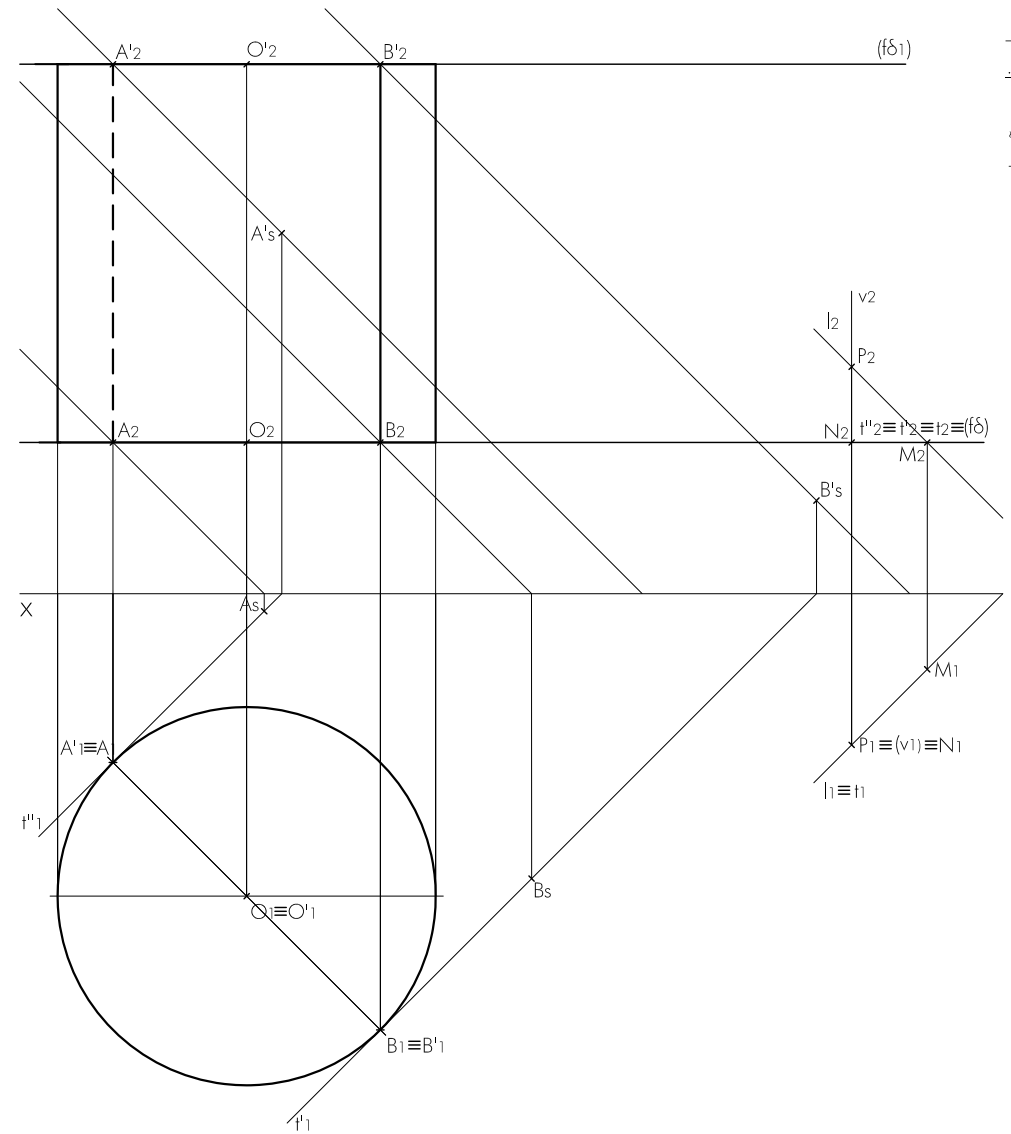
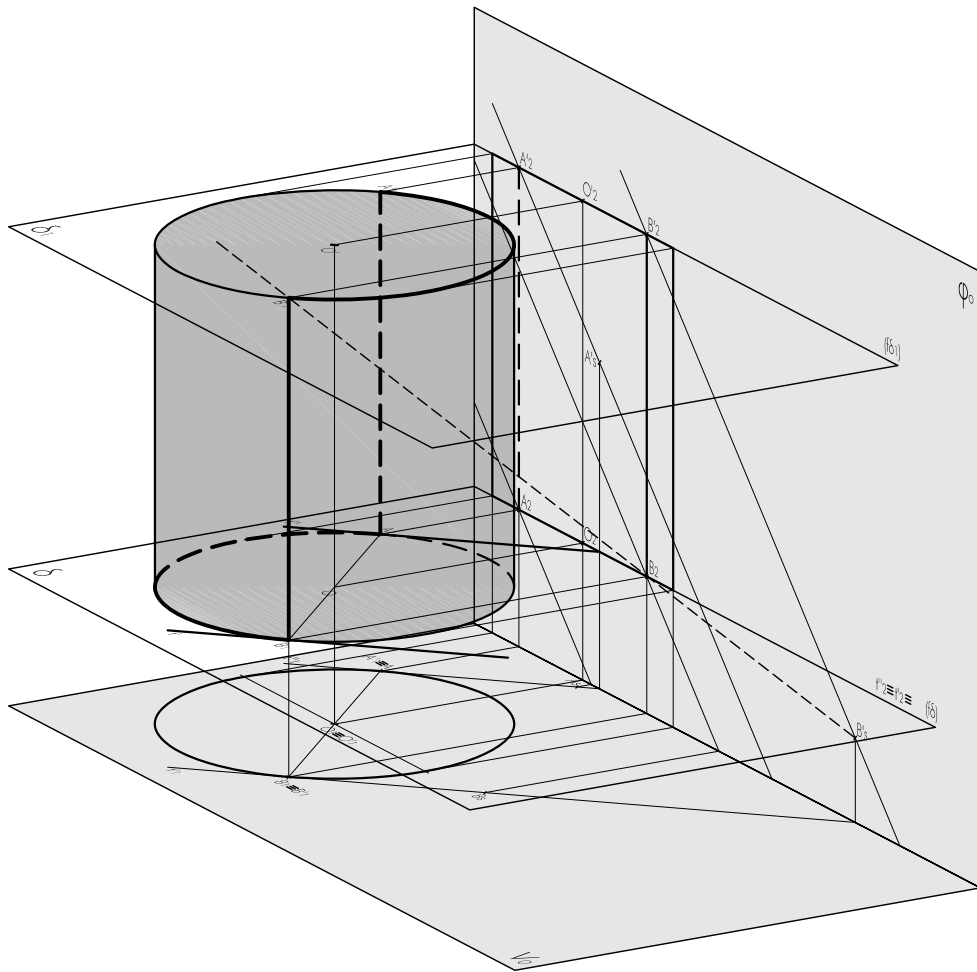
12) determinação da sombra real de A;



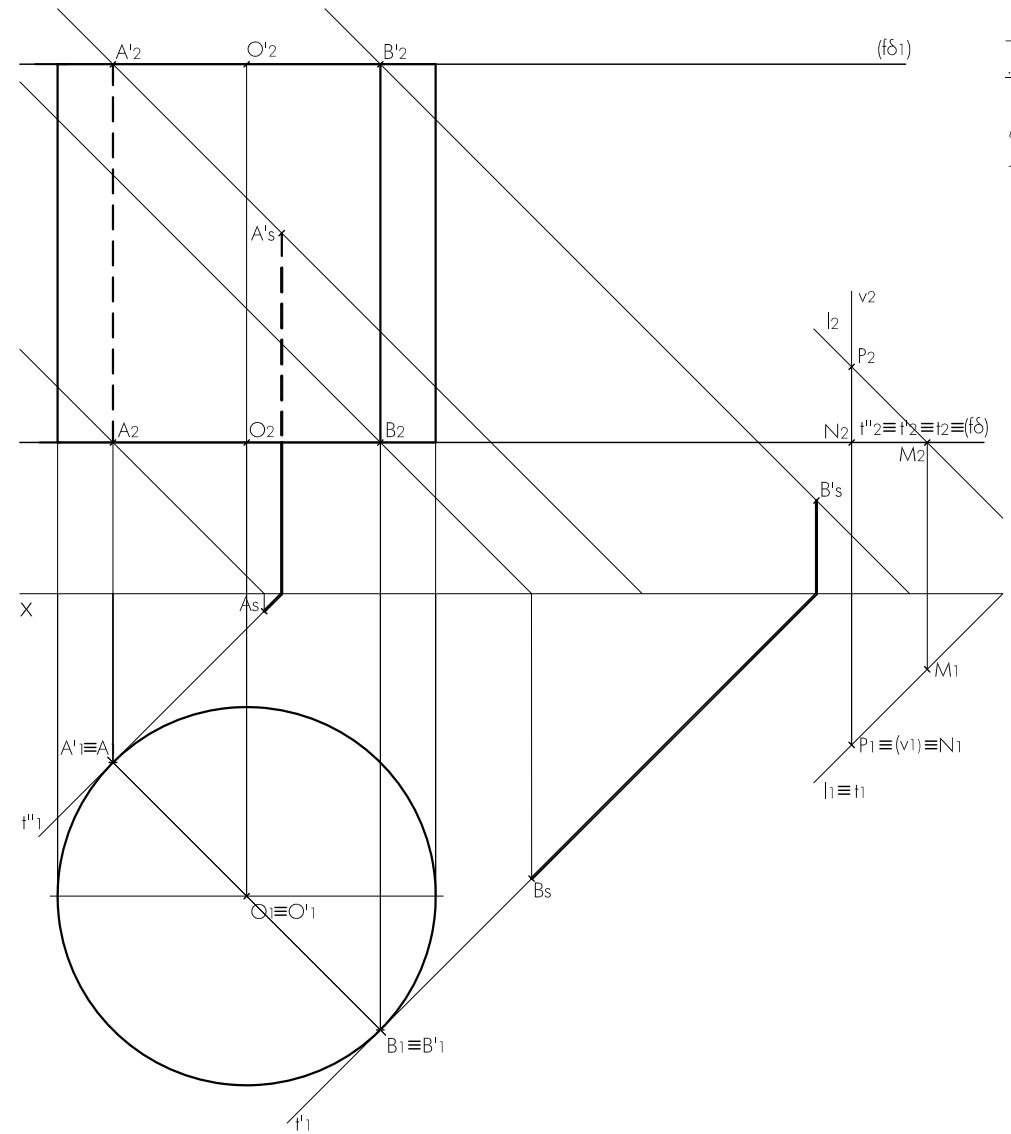
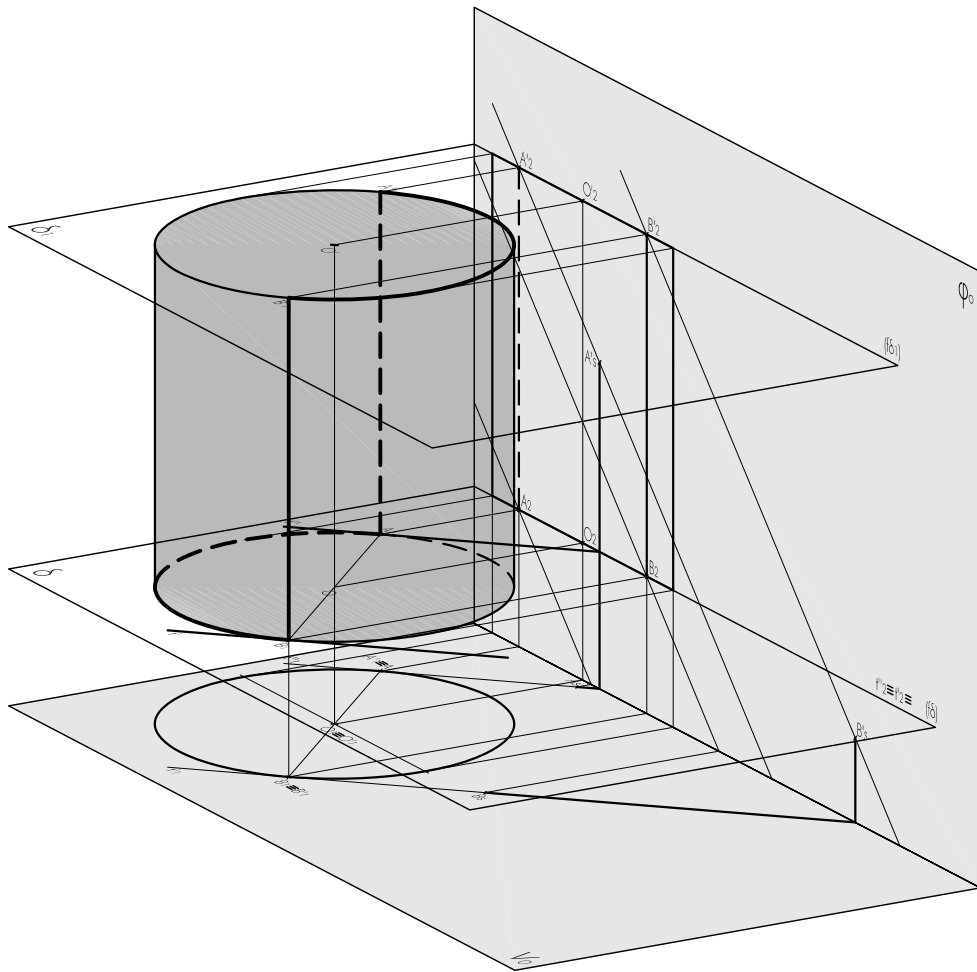
13) determinação da sombra real de B;



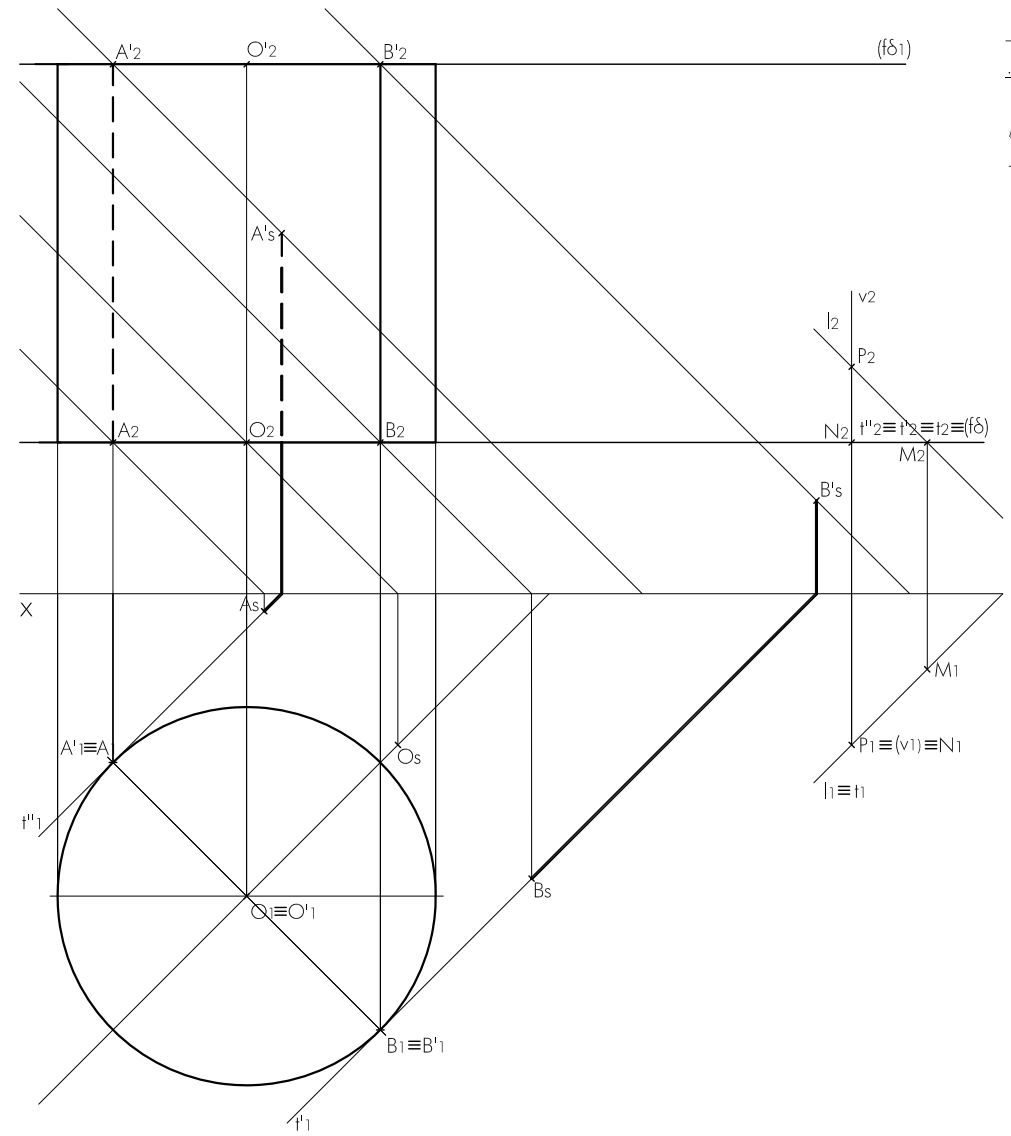
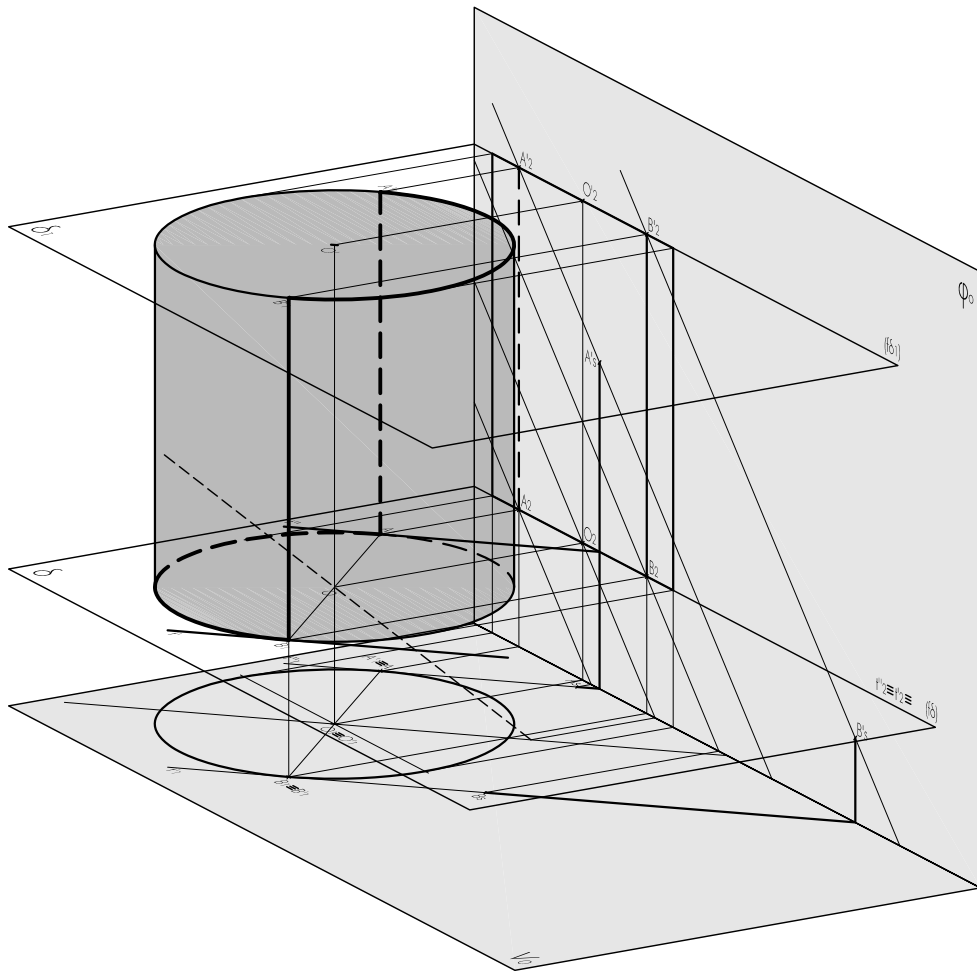
14) determinação da sombra real de A';



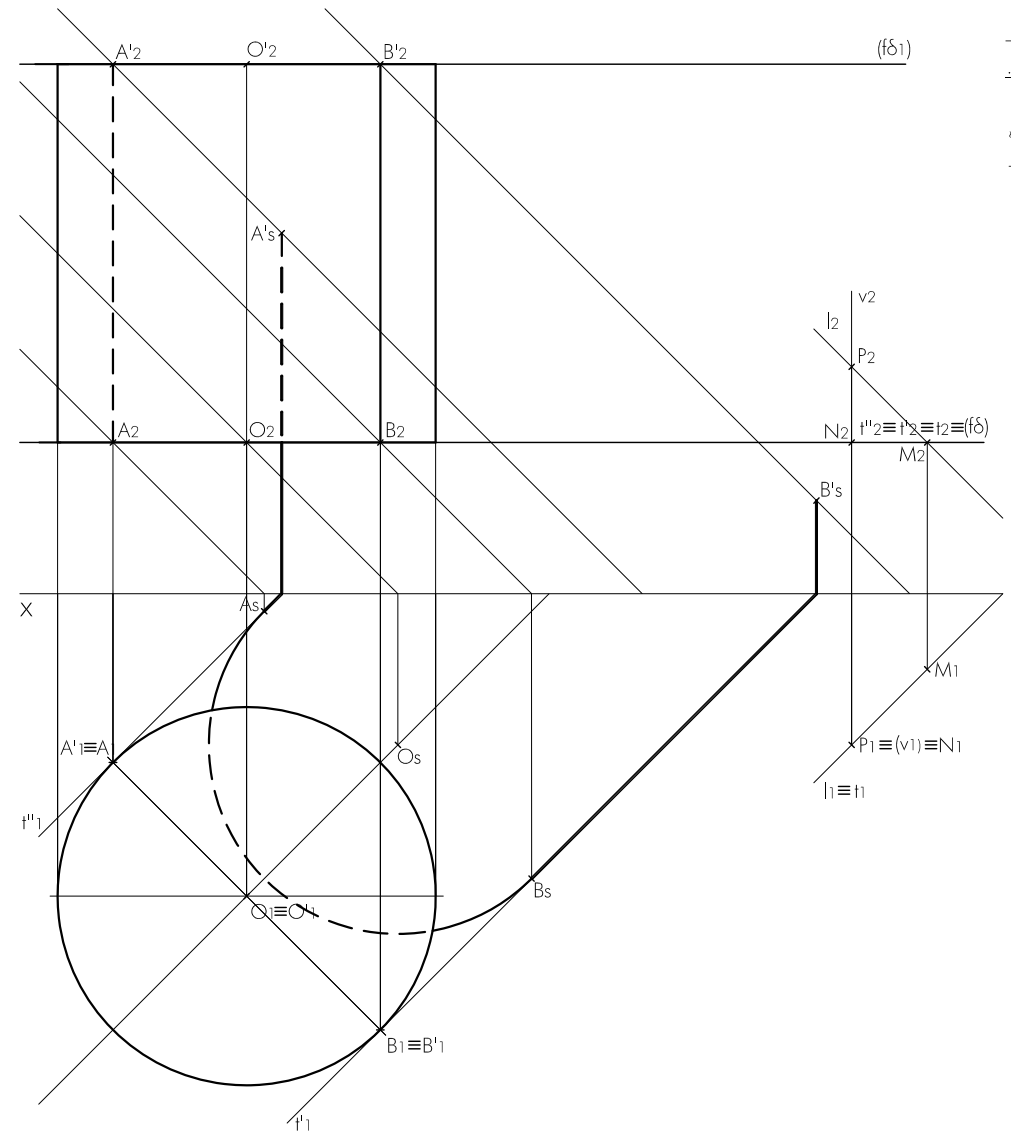
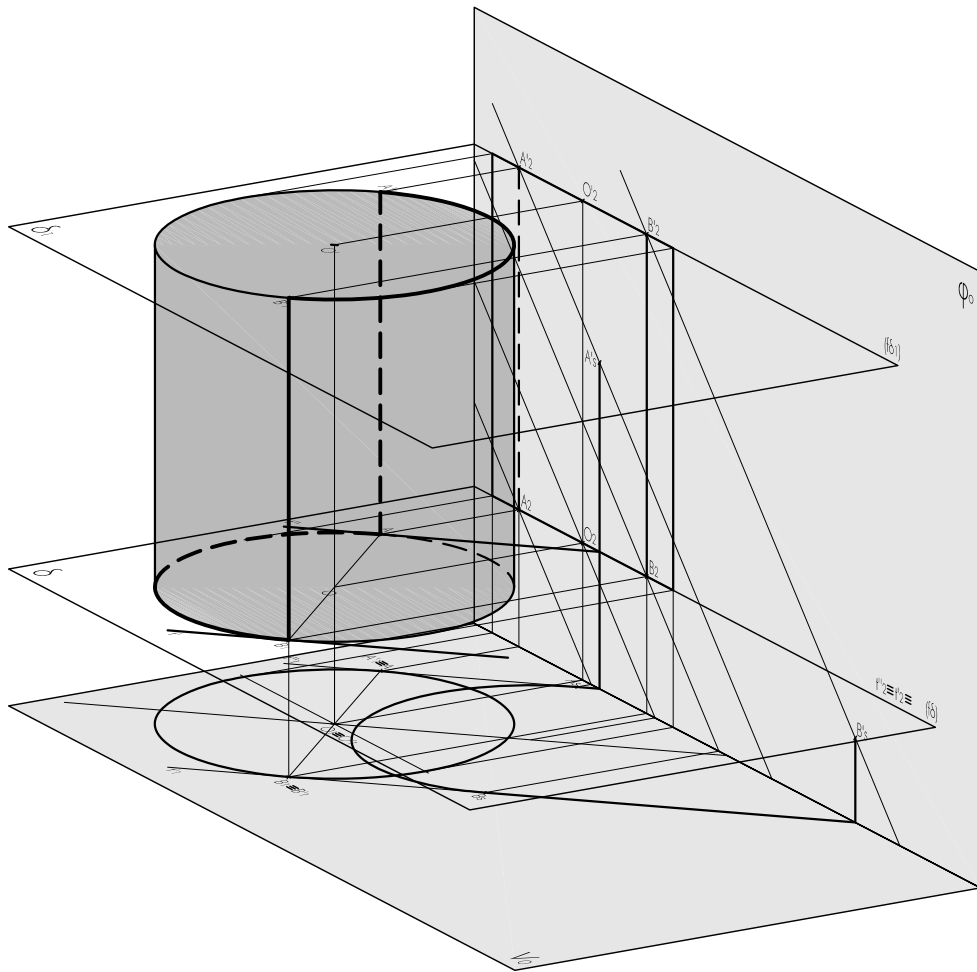
15) determinação da sombra real de B¹;



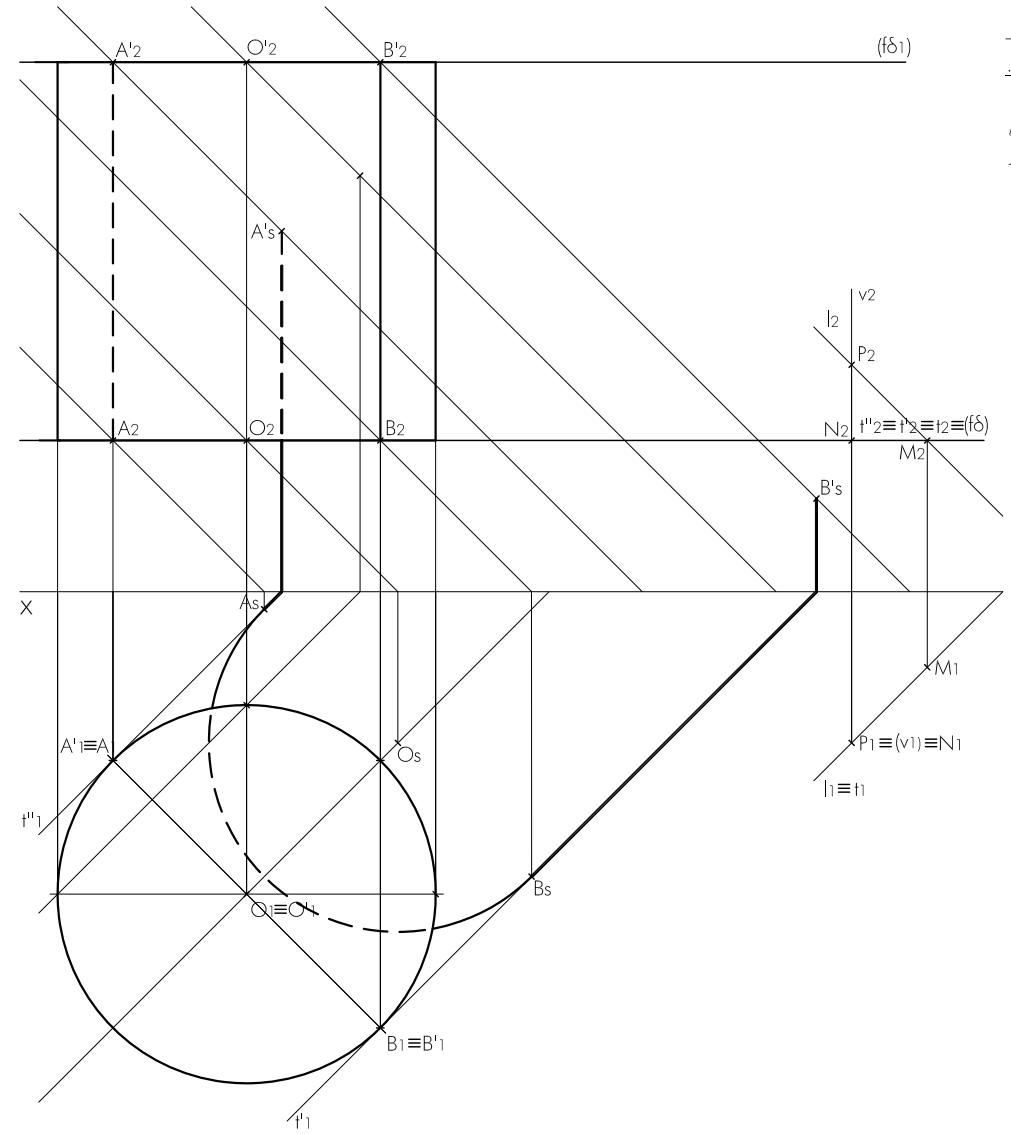
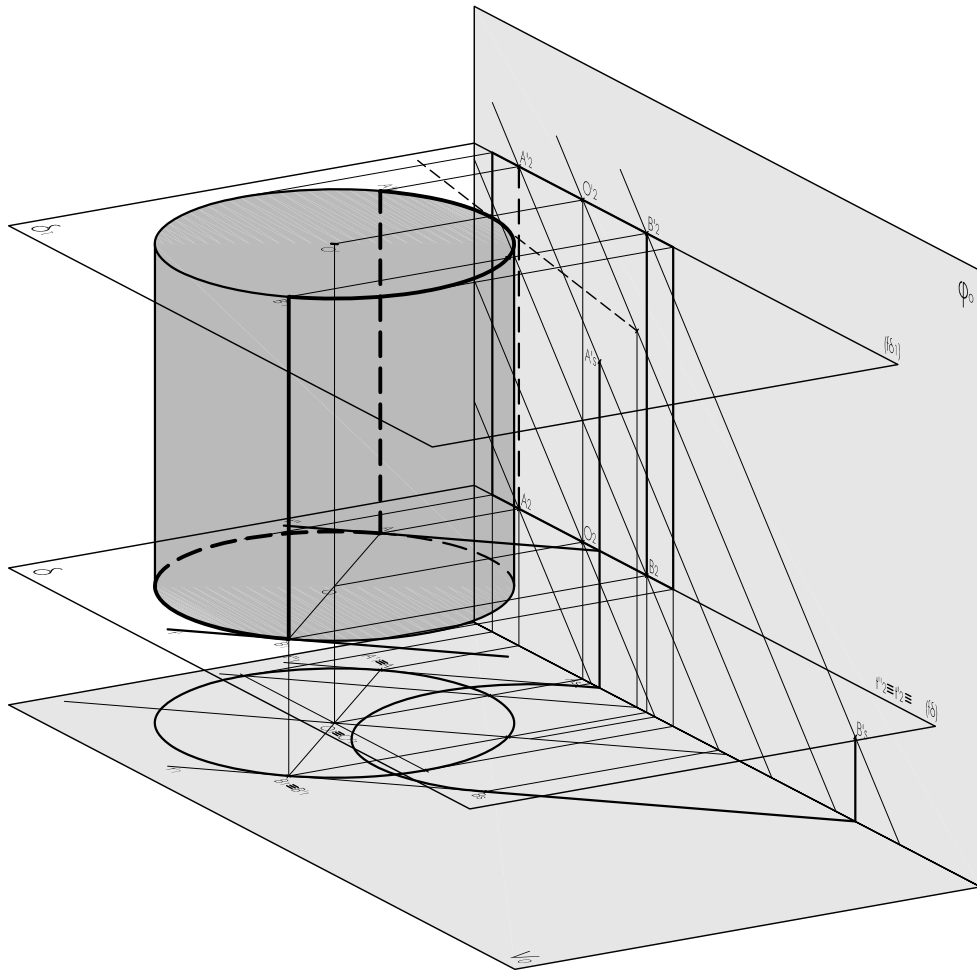
16) traçado da sombra projectada das arestas AA' e BB';



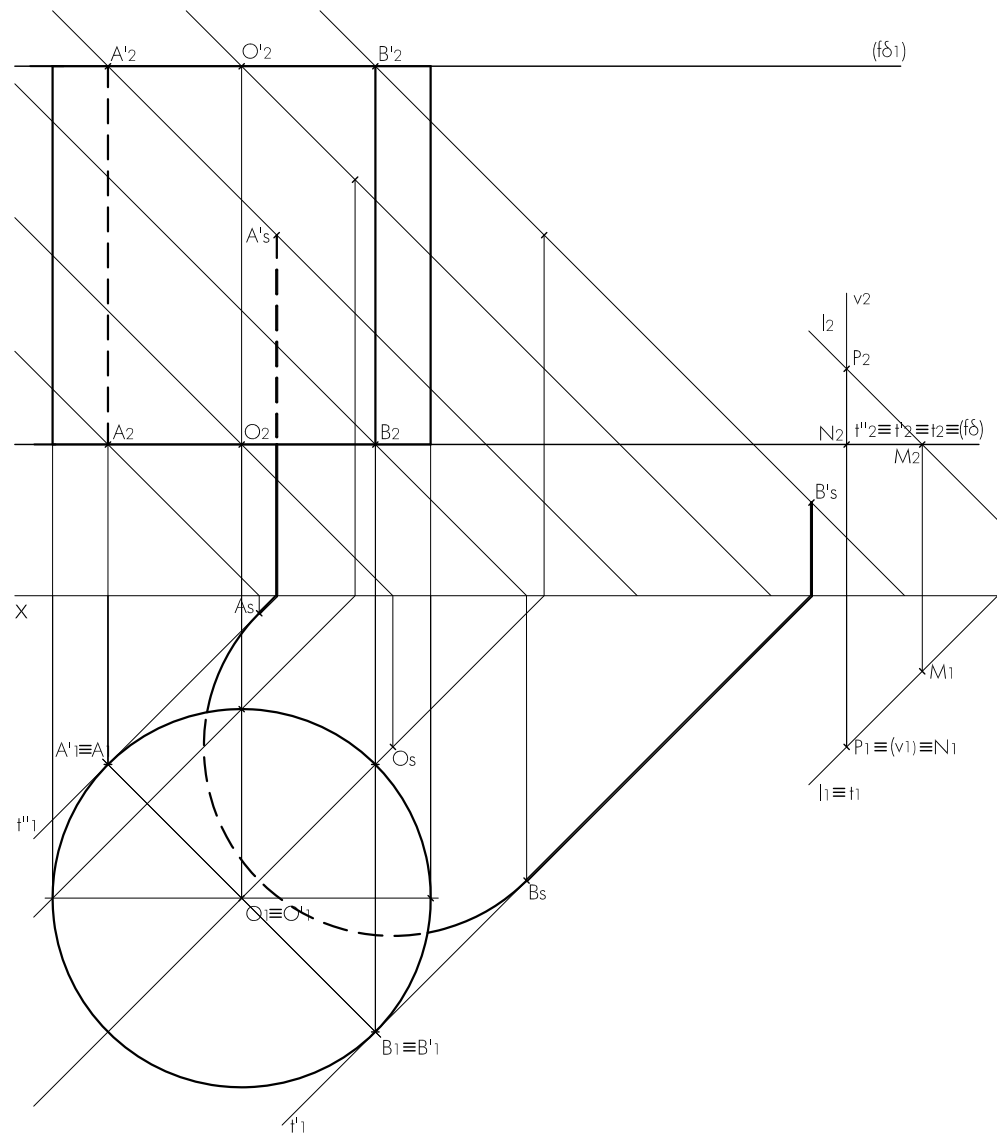
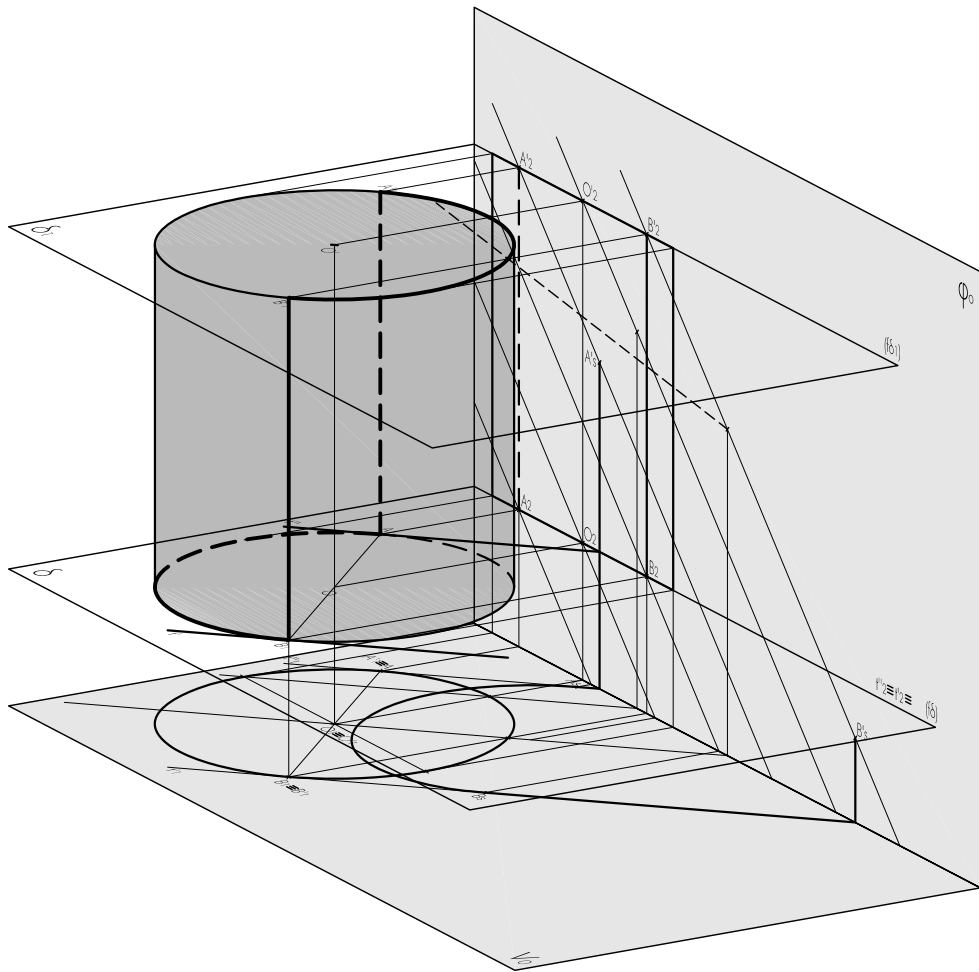
17) determinação da sombra real de O ;

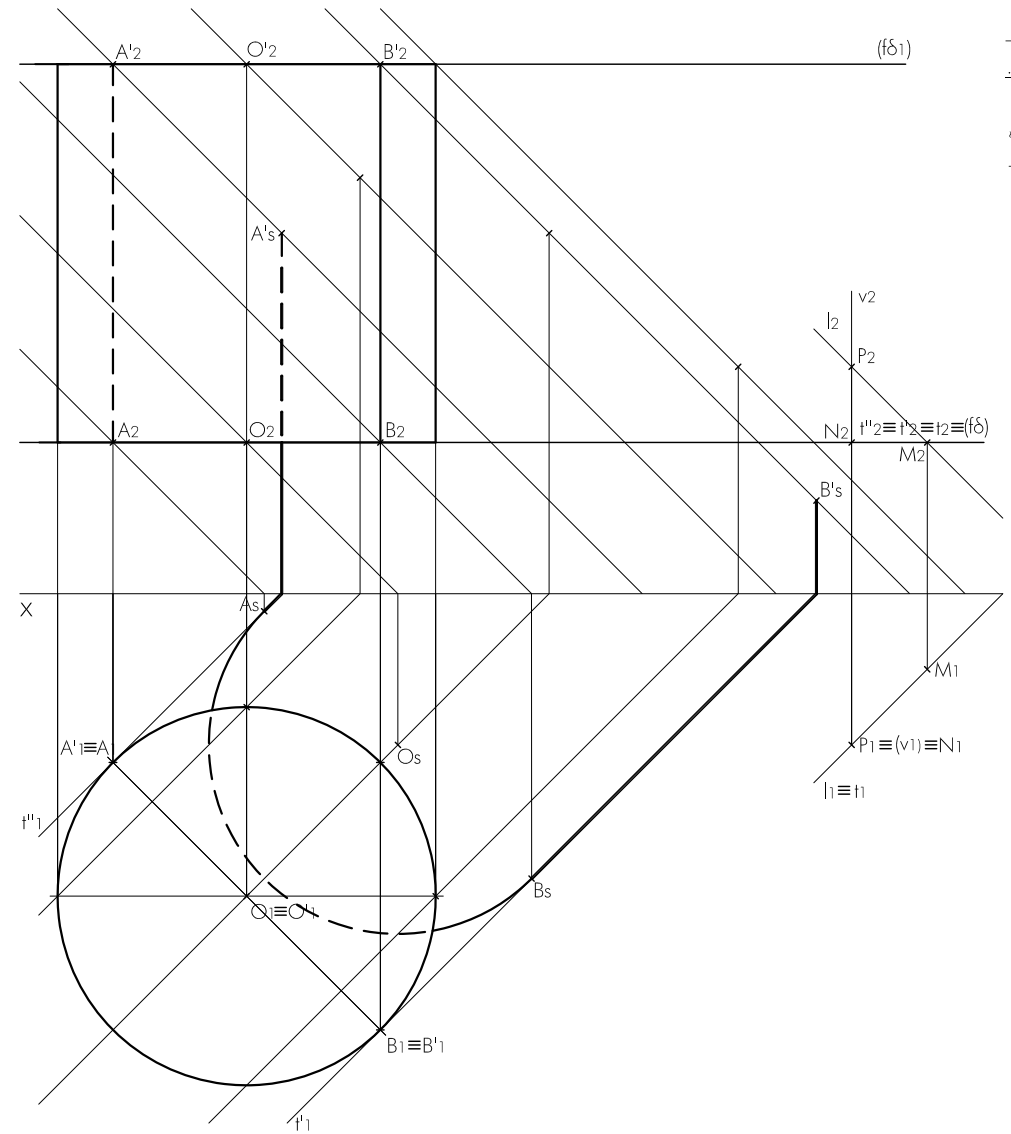
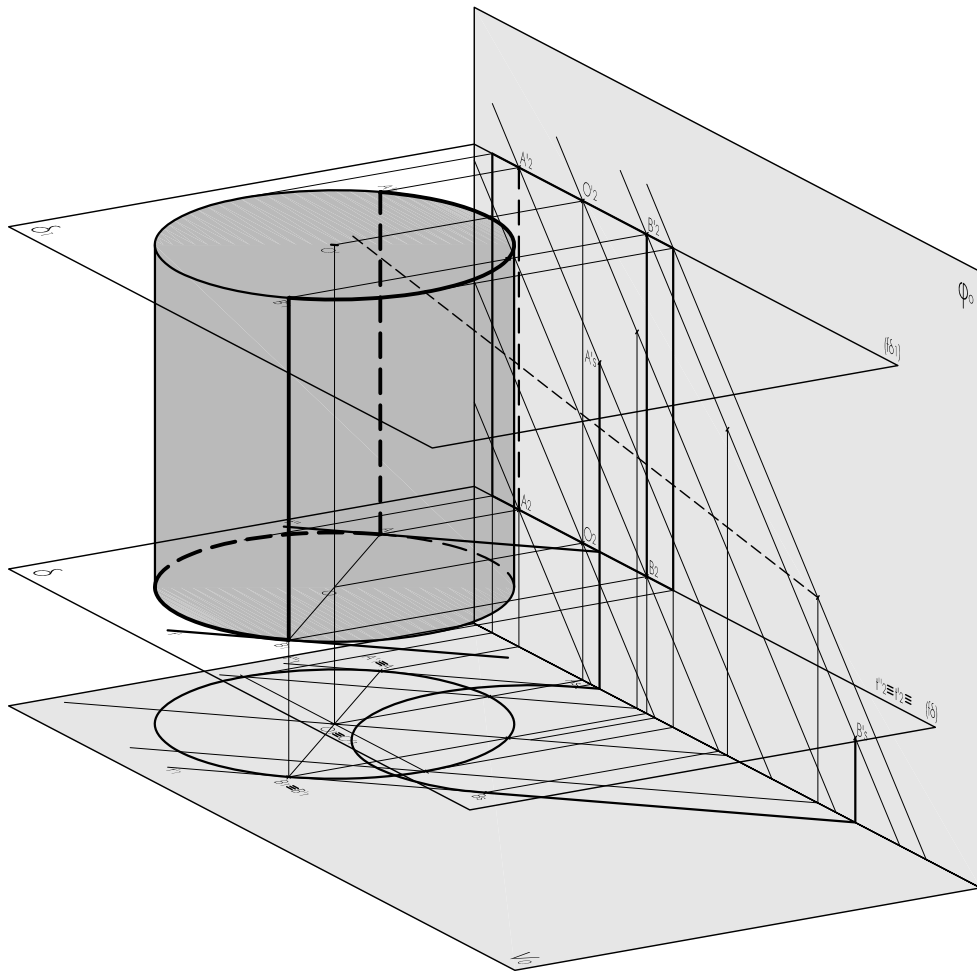


18) traçado da sombra projectada de \hat{A}^+B ;

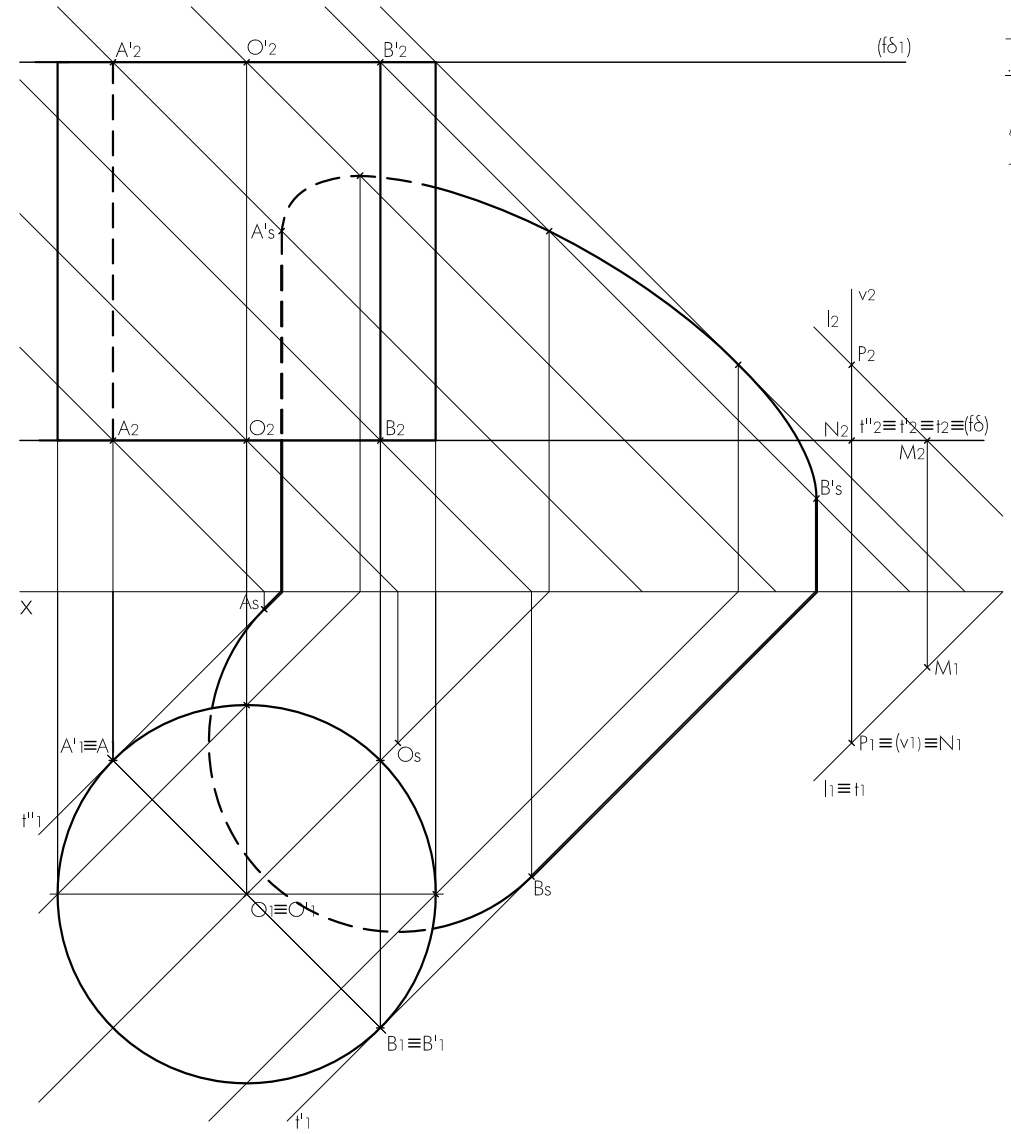
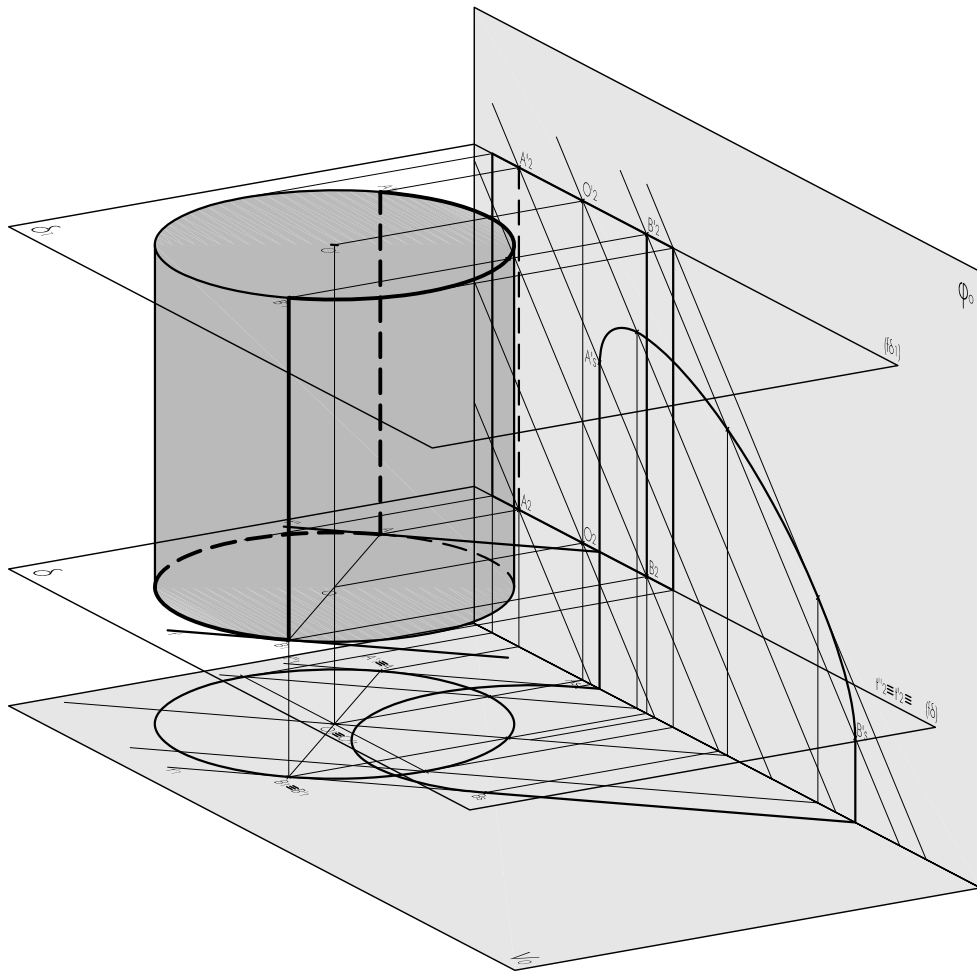


19) definição de três pontos de $\widehat{A^1B^1}$; 20) determinação da sombra projectada do primeiro ponto de $\widehat{A^1B^1}$;

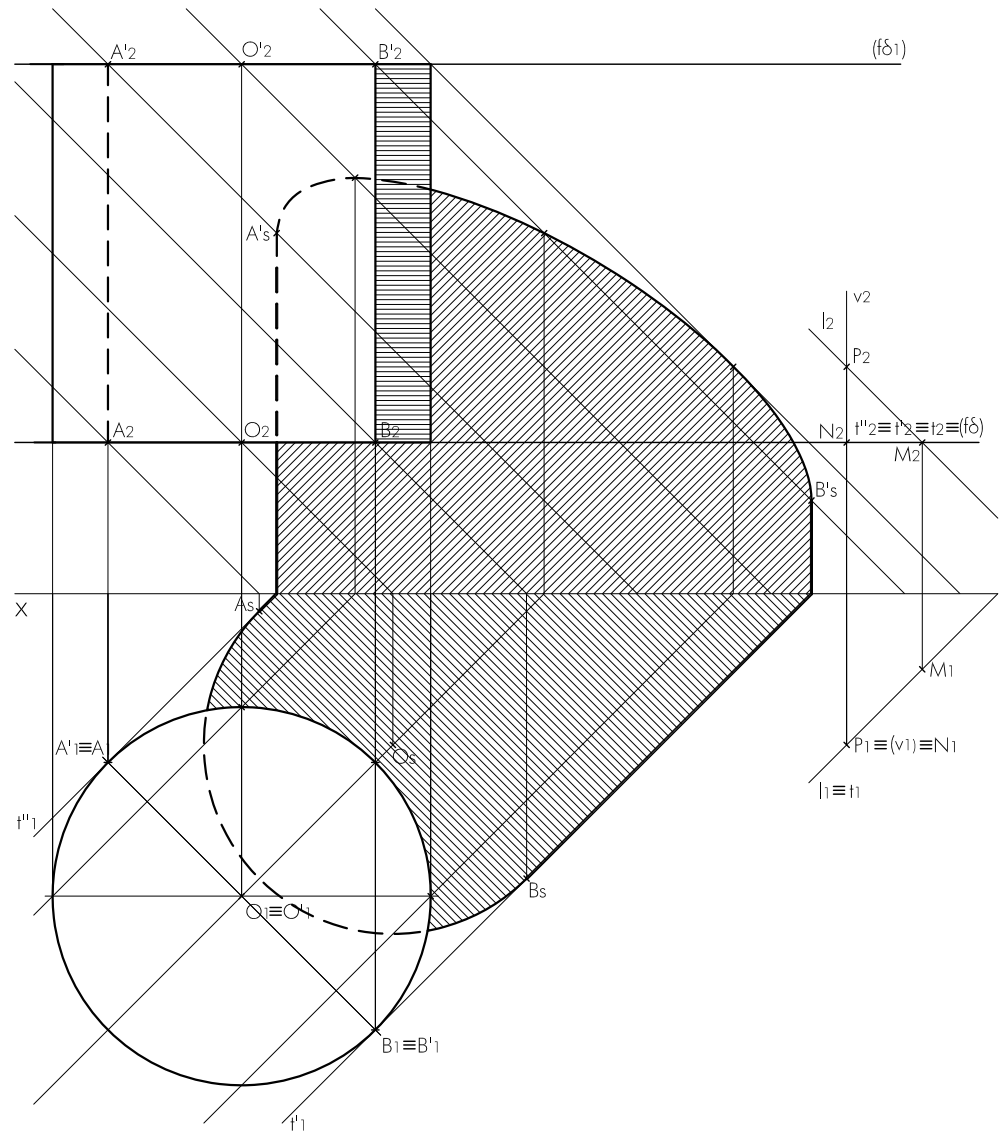
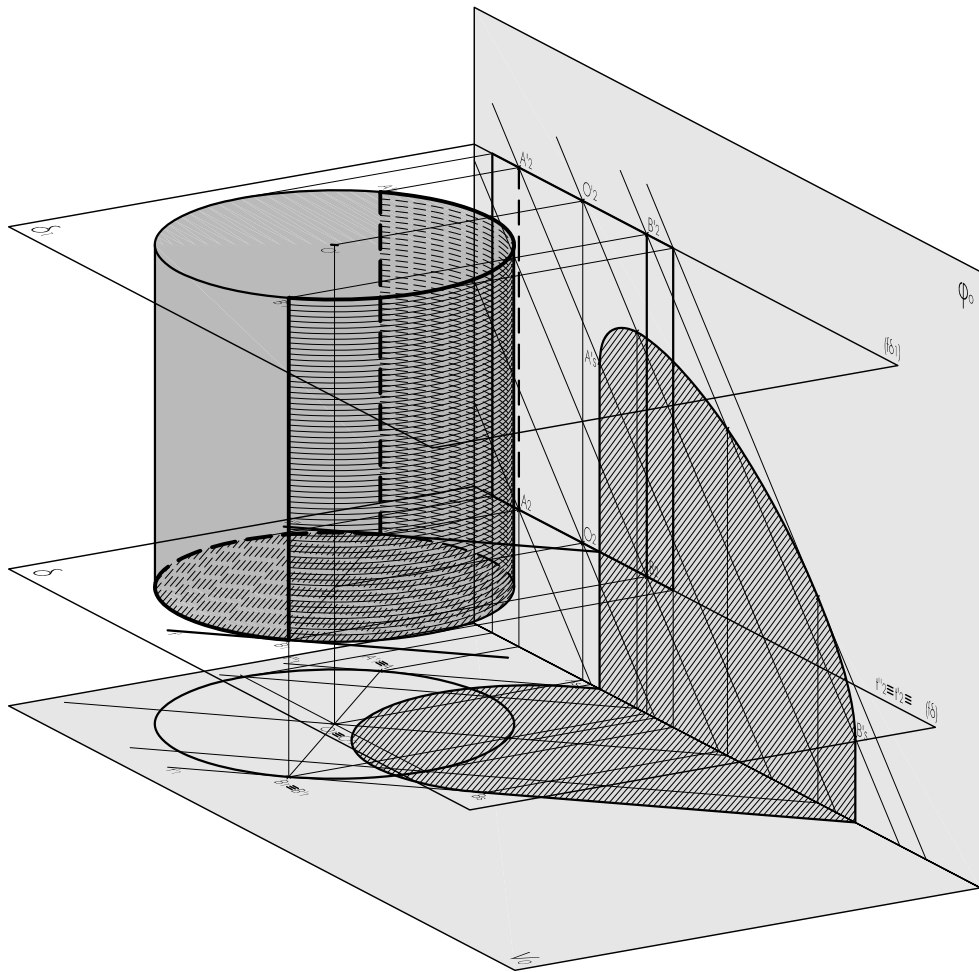




22) determinação da sombra projectada do terceiro ponto de $\widehat{A^1B^1}$;



23) traçado da sombra projectada de $\widehat{A^1B^1}$;



24) marcação do tracejado da sombra projectada; 25) marcação do tracejado da sombra própria da superfície de menor afastamento.

