

**TABLE 6-10: MINING METHODS**

METHOD	DESCRIPTION	TYPES OF ORE	
<b>Surficial Methods</b>			
Area mines (Strip mines)	Usually in a large area of relatively low relief, often open-pit. Dragline shovels are used to remove overburden. After deposit is removed the overburden is replaced back in the void.	coal, oil shale, copper, phosphates, evaporite minerals, bedded uranium	
Contour mines (Benching)	In mountainous areas the overburden is removed along the contour of the hill forming a bench. After the deposit is removed the overburden is replaced.		
Auger mining	Often used in conjunction with contour mining. The bench is used for the equipment that augers out a horizontal drift to remove the subsurface ore before the overburden is replaced.		
Mountaintop Removal	In mountainous areas where the economic deposit is close to the top of the mountain, the overburden is removed and often fills the adjacent valleys instead of being replaced.		
Placer	The mining of heavy minerals from an alluvial deposit by panning, hydraulic jetting (Hydraulic Mining), or excavation by heavy equipment.	gold, platinum group metals, tin, diamonds, thorium, uranium	
<b>Underground Methods</b> - The ore is generally brought to the surface through a Shaft (vertical opening) Drift or Adit (horizontal opening) or Slope or Decline (inclined tunnel to the depth of the deposit).			
<b>Soft Rock</b>			
	Room & Pillar	In horizontal deposits the ore is mined out in large rooms where pillars of the ore are left to support the overlying rock. Sometimes if the rock is strong enough the miners then mine out the pillars and let the opening progressively collapse behind them as they withdraw from the mine.	coal, oil shale, phosphates, evaporite minerals, bedded uranium
	Longwall mining	An enormous machine that shears away at the headwall of the opening and transfers the ore along a conveyor belt to remove it. The overlying material is then left to collapse after the ore is removed.	
<b>Hard Rock</b>			
	Stoping	Stoping means creating underground openings by mining, but generally refers to excavations following steeply inclined or vertical veins. This is often done using drill and blast techniques and constructing supporting structures like square sets.	gold, silver, copper, zinc, nickel, lead, gems, diamonds
	Block caving	A large weak, fractured, or friable ore body with disseminated ore is blasted to break the ore up and then the ore is removed through the undercutting process from the bottom while the rock above continues to cave providing a continuous stream of ore to be removed.	

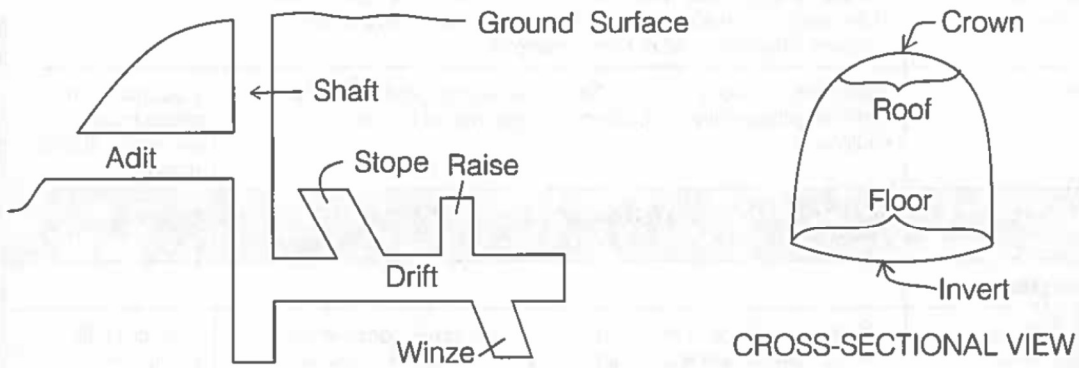


Figure 6-4: Cross Sectional View of Underground Openings

