

The *Armstrong Limit* of 62.62 millibars is the lowest the human body can survive before the vapour pressure of all exposed liquids (but not liquids like blood within your skin’s pressure barrier), such as tears, saliva and the liquid wetting the alveoli within the lungs exceeds that of its surrounding atmospheric pressure. They will begin to boil away at this point. On Earth, the Armstrong Limit begins at about 19 km above the surface. On Mars, it is already well exceeded at the surface.

Pressure	Respirator	EVA Suit	Description
68 mb	Needed	Needed	These buildings are attractive because they are economical and very light to pack, requiring fabric only 0.2 mm in thickness. For plants, they are fine since plants require only 50 mb of pressure. But for humans, they need at least 170 mb to be able to live.
170 mb	Needed	Unneeded	These buildings cost a little bit more, but you can work in them without wearing a pressure suit. You still need to wear a respirator in order for the gas exchange taking place in your lungs to still work, otherwise you will quickly pass out.
340 mb	Unneeded	Unneeded	These buildings cost a little bit more, but you can work in them without wearing a pressure suit or respirator, although the O ₂ partial pressure levels still need to be enriched. The other main advantage is that the pressure can also be equalized with a habitat making movement easier. As an added bonus, bees can pollinate better at this pressure coupled with the lower gravity which makes it excellent for greenhouses.
1 bar	Unneeded	Unneeded	These buildings cost the most, but they offer at least the same pressure as on Earth. Since everything needs to be three times as heavy as it needs to be, it is a waste of resources, too costly, and unnecessary.

Table 4.1 Martian building pressure ratings.