

At Home in a Moon or Mars Settlement

How resourceful future Lunar and Martian pioneers could make themselves at home.

SEE DIAGRAM ON OTHER SIDE

(Photo of original larger model on display at an outreach event in Milwaukee)
<http://www.lunar-reclamation.org/moonmanor4.jpg>

This is a diagram of a 36"x80" table top model produced for the ISDC '98 Exhibit room. This model is an attempt to illustrate in three dimensions what it might be like to live in a lunar homestead, should business and industry ever decide there was money to be made on the Moon and that a settlement was needed. The model is cut away in places to show the interior of this spacious home. **Points this model strives to bring home:**

- **Manufacturing shelter on the Moon or Mars:** It is too expensive to keep bringing ready to use modules from Earth. It makes more sense to bring up the capital equipment to process moondust into iron, aluminum, glass composites, concrete, ceramics and so on and to construct a factory to make a few basic modules that can be assembled in any of a great variety of modular floor plans to provide pressurized living space and work space. In our model, fittings of 4" sewer schedule PVC simulate glass/glass composite or fiberglass reinforced concrete modules.
- **Covering our habitats with Moondust or Martian soil:** Once fitted together and pressurized, they would be buried under 2-4 yards of regolith (rock powder blanket) to protect against the thermal extremes of surface hot and cold, against micrometeorites, cosmic rays, ultraviolet, and occasional solar flare outbursts.
- **Taking the moon/marsscapes underground:** Even though you'll live underground, you need not live like a mole. The zigzag modules, one facing each direction, are periscopic picture windows with a pair of mirrors on a 45° slant allowing you to see "straight ahead in front of you" the moonscape that is really several feet "up there".
- **Taking the sunshine underground:** The large cross-T modules have a rooftop sun catcher that follows the sun across the sky and, by fiber optics with proper coatings, dump soul-warming, spirit-lifting filtered sunshine inside without excess heat.
- **Modular biospherics:** From a pair of toilets, human wastes feed long banks of plants - first swamp, then marsh, bog, and soil plants - these use microorganisms to sterilize and recycle the wastes into plant food - and in the meantime, freshen the air, replacing stale carbon dioxide with fresh oxygen, and creating an environment of pools of sunshine, the beauty of green plants and flowers, plus fresh air.
- **Look, Ma, no spacesuits!** Every home is connected by a pressurized hallway to pressurized, also sunlit, residential streets, so it is possible to go anywhere in your settlement - to visit, shop, work, play - without ever putting on a space suit. Space suits would be worn by most people only in "decompression drills" like our fire drills, to familiarize them with "emergency equipment." Even to visit another outpost, one would simply walk through a dock-lock to a hard-docked vehicle, which would then disengage, travel to the destination, engage a corresponding dock-lock, and let passengers debark, in shirtsleeves all the way.

In other words, using Lunar or Martian resources and frontier resourcefulness, it will be possible for people working on the Moon or Mars to make themselves at home. When will it happen? Why when business and industry finds it necessary and profitable.

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This is a revised diagram and text, accompanying a much smaller model than the 36"x80" original, painted to reflect equal applicability of these modular underground living concepts along with modular biospherics to settlements on Mars as well as the Moon. Prepared for the **Moon Society** Exhibit at Mars Convention 2004, Chicago.