

To: Government Agencies Concerning Support of Closed, Balanced Ecologies

The Martin Company is considering the development and construction of a research facility (Lunar Housing Simulator) specifically for the solution of problems which will be encountered in a closed ecology of the type required of a lunar or planetary base.

In order to enable the Martin Company to make a decision whether to support a facility of this kind as a part of its Space Medicine Research Program, an expression of your interest in a program of this nature, or the individual parts mentioned below, is respectfully requested. Wherever it is possible to do so, we would like a list of contracts now supported by you and applicable to this program, and an indication of other specific areas, which you might be interested in supporting.

It is proposed that such a structure could provide research facilities for the study of the many different kinds of problems associated with a manned lunar base. Such studies would be conducted either on a contractual basis or as a joint or team effort between your scientists and ours.

Description of Facility:

1. Completely sealed and vacuum surrounded.
2. Capable (structurally) of pressure differential between living quarters and the vacuum surround of 0-10 psi.
3. Living quarters for a five-man crew.
4. Photosynthetic gas exchange system for atmospheric regeneration.
5. Hydroponicum for food production.

6. Animal colony for food production.
7. Fish farm for food production (possibly combined with hydroponicum).
8. Waste processing system for re-utilization of all waste matter as nutrients for algae and hydroponicum.
9. Pressure lock for access to and from vacuum area and/or the outside.
10. Vacuum area would simulate lunar environment to the extent of our knowledge and capability of doing so. (temperature, radiation, pressure, etc.)
11. Simulation of meteorite puncture, and development of leak site detection methods, and emergency and permanent repair techniques.
12. Simulation of biological emergencies (human, animal, plant, and algal), and their handling within the facility.
13. Would be used to establish design criteria and to improve future design.

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