
-138°C

1
00:00:12,289 --> 00:00:07,240
Mars desolate

2
00:00:26,150 --> 00:00:12,299
Kord unable to sustain human life on its

3
00:00:30,200 --> 00:00:26,160
surface until now introducing the first

4
00:00:34,970 --> 00:00:30,210
Martian habitat for humans inspired by

5
00:00:37,160 --> 00:00:34,980
biology found on earth built using

6
00:00:41,870 --> 00:00:37,170
state-of-the-art 3d printing technology

7
00:00:44,290 --> 00:00:41,880
and advanced autonomous robotics modular

8
00:00:48,380 --> 00:00:44,300
and made from the Martian surface

9
00:00:52,640 --> 00:00:48,390
without human hands here's the process

10
00:00:54,800 --> 00:00:52,650
overview the landing a lander scans its

11
00:00:58,370 --> 00:00:54,810
surroundings and selects optimum print

12
00:01:00,680 --> 00:00:58,380
area Rover robots deploy for material

13
00:01:02,900 --> 00:01:00,690

gathering the lander seals to the ground

14
00:01:05,630 --> 00:01:02,910
and provides a protected pressurized

15
00:01:10,399 --> 00:01:05,640
print environment mixed materials and

16
00:01:13,540 --> 00:01:10,409
prepare for print the print begins place

17
00:01:13,550 --> 00:01:19,580
continue print

18
00:01:30,890 --> 00:01:22,760
the walking Lander robot moves to create

19
00:01:36,780 --> 00:01:34,980
materials most of the zou phorus habitat

20
00:01:38,160 --> 00:01:36,790
will be printed with materials found

21
00:01:41,160 --> 00:01:38,170
from the Martian surface

22
00:01:42,900 --> 00:01:41,170
Martian concrete made from ice calcium

23
00:01:44,910 --> 00:01:42,910
oxide and Martian aggregate are

24
00:01:47,210 --> 00:01:44,920
collected by Rovers to be fed into the

25
00:01:49,650 --> 00:01:47,220
lander for mixing precision components

26
00:01:51,450 --> 00:01:49,660
manufactured on earth are stored inside

27
00:01:53,490 --> 00:01:51,460
the print chamber for transport to Mars

28
00:01:55,410 --> 00:01:53,500
these parts will be placed into the

29
00:01:57,780 --> 00:01:55,420
active print as needed providing

30
00:02:00,650 --> 00:01:57,790
structure access points breathtaking

31
00:02:03,750 --> 00:02:00,660
views and lighting to the interior

32
00:02:05,730 --> 00:02:03,760
method of construction after the lander

33
00:02:06,990 --> 00:02:05,740
has selected the printing location it

34
00:02:08,790 --> 00:02:07,000
will provide a controlled and

35
00:02:11,460 --> 00:02:08,800
pressurized environment for the print

36
00:02:13,890 --> 00:02:11,470
even in temperature extremes storms and

37
00:02:15,690 --> 00:02:13,900
other environmental variables the print

38
00:02:17,820 --> 00:02:15,700

will continue without interference in

39
00:02:19,770 --> 00:02:17,830
its contained environment once

40
00:02:21,750 --> 00:02:19,780
astronauts arrive the printer will be

41
00:02:23,910 --> 00:02:21,760
available to create additional prints or

42
00:02:27,660 --> 00:02:23,920
can act as a mobile emergency pressure

43
00:02:29,610 --> 00:02:27,670
vessel using two separate print heads

44
00:02:31,170 --> 00:02:29,620
the printer will create structure

45
00:02:34,050 --> 00:02:31,180
pressure chambers without the use of

46
00:02:36,900 --> 00:02:34,060
removable support material the first

47
00:02:39,660 --> 00:02:36,910
material HDPE will provide environmental

48
00:02:41,460 --> 00:02:39,670
enclosure and reinforcing this material

49
00:02:43,350 --> 00:02:41,470
will print two point five centimeters

50
00:02:45,600 --> 00:02:43,360
ahead of the Martian mix to allow

51
00:02:48,449 --> 00:02:45,610
printing of overhangs without removable

52
00:02:50,490 --> 00:02:48,459
support material the Martian concrete

53
00:02:55,430 --> 00:02:50,500
provides primary structural strength and

54
00:02:58,080 --> 00:02:55,440
radiation absorption the finished print

55
00:02:59,960 --> 00:02:58,090
the communal cell structure provides a

56
00:03:02,940 --> 00:02:59,970
space for activities including exercise

57
00:03:04,979 --> 00:03:02,950
recreation meal preparation and social

58
00:03:06,900 --> 00:03:04,989
interaction it also serves as the

59
00:03:09,570 --> 00:03:06,910
connecting point for the Mars rover and

60
00:03:12,420 --> 00:03:09,580
a walkout airlock with suit airlocks for

61
00:03:14,610 --> 00:03:12,430
maximum operational flexibility the

62
00:03:16,320 --> 00:03:14,620
center beams provide extra structural

63
00:03:19,170 --> 00:03:16,330

support and stairs to the upper

64
00:03:21,660 --> 00:03:19,180
mezzanine the mezzanine level boasts the

65
00:03:23,430 --> 00:03:21,670
largest window in the habitat providing

66
00:03:25,890 --> 00:03:23,440
expansive views of the Martian landscape

67
00:03:27,810 --> 00:03:25,900
in addition it gives sunlight for a

68
00:03:29,750 --> 00:03:27,820
small hydroponic garden for growth of

69
00:03:32,100 --> 00:03:29,760
vegetation and production of oxygen

70
00:03:34,259 --> 00:03:32,110
along the back wall are built-in

71
00:03:38,700 --> 00:03:34,269
shelving units supplying the necessary

72
00:03:42,430 --> 00:03:40,990
the crew quarters contained four

73
00:03:45,010 --> 00:03:42,440
bedrooms for the residents of the

74
00:03:47,770 --> 00:03:45,020
habitat each providing a secluded area

75
00:03:49,660 --> 00:03:47,780
for rest and personal time every room

76
00:03:52,450 --> 00:03:49,670
has storage under the bed and a viewport

77
00:03:55,930 --> 00:03:52,460
the sanitation room is nearby equipped

78
00:03:58,150 --> 00:03:55,940
with a toilet sink and shower the shell

79
00:04:00,190 --> 00:03:58,160
also has a ladder for upper access to

80
00:04:04,330 --> 00:04:00,200
storage adding increased radiation

81
00:04:06,220 --> 00:04:04,340
absorption for the crew below the

82
00:04:08,230 --> 00:04:06,230
laboratory is complete with countertops

83
00:04:11,620 --> 00:04:08,240
for experiments storage for tools

84
00:04:13,540 --> 00:04:11,630
equipment and communication systems the

85
00:04:15,400 --> 00:04:13,550
middle desk has under counter storage

86
00:04:18,190 --> 00:04:15,410
and an integrated hookup for a water

87
00:04:20,200 --> 00:04:18,200
supply the lab also has a second Rover

88
00:04:23,080 --> 00:04:20,210

hatch for easy unloading of field

89
00:04:25,300 --> 00:04:23,090
samples the zou phorus habitat is easily

90
00:04:27,340 --> 00:04:25,310
expandable the unique hexagonal shape

91
00:04:30,730 --> 00:04:27,350
will provide interlocking abilities for

92
00:04:33,340 --> 00:04:30,740
future residents and additions the zou

93
00:04:36,940 --> 00:04:33,350
fir is habitat building a new way

94
00:04:38,450 --> 00:04:36,950
forward for space exploration and human