Illustration by Zina Deretsky, National Science Foundation

1a. ***Photograph of station:***
Credit: National Science Foundation, USAP

1b. ***South Pole Telescope/Aurora:***
Credit: Daniel Luong-Van

1c. ***IceCube Neutrino Observatory:***
Credit: Mel MacMahon, NSF

1d. ***2008 Dedication ceremony: moving the flags:***
Credit: Peter Rejcek

2. ***Hercules cargo aircraft:***
The new station measures 124 x 45 x 24 meters (408 x 50 x 80 feet). All of its components, and the machinery that built it, had to be flown in on ski-equipped Hercules LC-130 aircraft with a maximum cargo capacity of 11.5 x 2.4 x 2.4 meters (38 x 8 x 8 feet). "Hercs" never shut down their engines at the Pole. The cold would make it hard, if not impossible to restart. In the austral winter it is too cold for aircraft to land.

3. ***Antarctica's ice cover:***
The station sits on 3.21 kilometers (two miles) of ice that flows toward the ocean at 10.5 meters (33 feet) per year.

4. ***Exits:***
There are two main exits on either end of the station and six more at the back.

5. ***Windows:***
Windows are a wonderful novelty for those who had worked in the station housed under the geodesic dome and can make a big psychological difference for station personnel. In winter they are covered to limit light pollution for scientific instruments.

6. ***Coatrooms:***
Crew members wear 25 pounds of clothing in up to seven layers to combat the debilitating cold. Functionality cutoffs are -40 C (-40 F) for machinery such as cranes, -45 C (-50 F) for aircraft and -62 C (-80 F) for people.

7. ***Dining Facility ("Galley"):***
The average person must eat about 5000 calories a day to help make up for energy lost in keeping warm at the Pole. Nonetheless, people typically lose 4.5 to 6.8 kilograms (10 to 15 pounds) a season.

8. ***Kitchen:***
The kitchen serves 150 during the summer season. In winter, supplies must last 265 days and feed 50 people.

9. ***Bathrooms:***
Conservation of resources is essential at the station. Bathrooms are equipped with high-tech waterless fixtures.

10. ***Winter berths:***
There are 48 winter berths in wing A1. They are 2.7 x 2.4 meters (9 x 8 feet), 1' wider than summer quarters.

11. ***Biomedical facilities:***
An important part of the station—the biomed unit becomes indispensable in the winter when it is impossible to fly out to get medical treatment.

12. ***Computer rooms:***
Station personnel share facilities. Computer technology is essential for science.

13. ***Summer berths:***
There are 104 summer berths found in wings A4 and B1. Each room measures 2.7 x 2.1 meters (9 x 7 feet) enough for a bunk and desk.

14. ***Skywalk:***
The connecting walkway between the two "pods" of the station is flexible to prevent possible damage resulting from movement of the ice below.

15. ***Utility rooms:***
Utilities at the Pole face unique exigencies and the station dedicates a sizeable space to an emergency power generator. There are multiple fan rooms. All heat for the building comes from "waste" heat generated by other functions of the station.

16. ***Sauna:***
A sauna is among the amenities designed to help lessen the stress of living at the Pole.

17. ***Recycling rooms:***
All waste generated at the station must be packed up and shipped back out.

18. ***Station store:***
People at the Pole can buy souvenirs, candy and sundries.

19. ***Greenhouse:***
The station contains a growth chamber that generates fresh salad, cucumbers and tomatoes.

20. ***Laundry room:***
Even at the Pole, people need to wash their clothes; but to conserve resources, they do so less frequently than at home.

21. ***Reading room:***
Leisure reading is an important pastime in such a remote and quiet place.

22. ***Airfoil shape:***
The new South Pole Station is designed to face directly into the wind. It has an aerodynamic profile. As wind is forced under the structure, it speeds up (the Venturi effect), scouring out the ice and snow from below and limiting snowdrift.

23. ***Vertical tower:***
The vertical tower, with its lift and staircase, provides access to the three arches under the ice that house the garage, power plant and fuel storage. When accumulated snow requires the station to be jacked up, a section will be added to the top of the tower.

24. ***Foundation:***
The 1.8-meter (six-foot) foundation of the station was built up in .15-meter (six-inch) increments of highly compacted ice. Natural ice is 60 percent air; the foundation is only 48 percent air. It weighs 1.8 million kilograms (4 million pounds) more than the station itself which is 3.6 million kilograms (8 million pounds).

25. ***Reference marker:***
The highly mutable substrate of ice makes measuring changes in elevation of each section of the station a challenge. A marker buried 12.1 meters (40 feet) deep aids the surveying process.

26. ***Grid of grade beams:***
The station "floats" on a lattice work of 50 grade beams, or "pontoons." These distribute the weight of the building. The station and its foundation add 4.5 - 6.8 kilograms (10 to 15 pounds) of pressure per square inch on the ice below.

27. ***Outer dimensions:***
At 124 x 45 meters (408 x 150 feet), the new station has a significantly larger footprint than the existing geodesic dome of the 1975 station. Compare it to a football field's 91 x 48 meter (300 x 160 feet).

28. ***Arts and crafts room:***
Outdoor diversions are minimal at the Pole, so indoor recreation is extrememly important to all.

29. ***Science lab:***
Most of the scientific research at the Pole is related to astrophysics and space weather.

30. ***Game room:***
Recreational spaces are important for morale at the Earth's most isolated research station.

31. ***TV rooms:***
Although live video is not available, the station has an extensive collection of recorded programming.

32. ***"Comms":***
This area houses management, station operations, computers, communications and conference rooms.

33. ***Activity room:***
This area serves as a center for social activities.

34. ***Gym:***
The gym spans both stories of the station for basketball and also has a loft with weight-lifting machines.

35. ***Main entrance:***
Unlike the 1975 domed station, the new station's entrance is well above the ice surface and provides a panoramic view.

36. ***Columns:***
Thirty six columns standing 15 meters (50 feet) tall hold up the station and prevent snowdrift. They can be jacked up to lift the whole station two more stories (seven meters / 24 feet) in response to future snow and ice build-up. As ice shifts under the station, the columns are adjusted to keep it level.