

Building the Dome

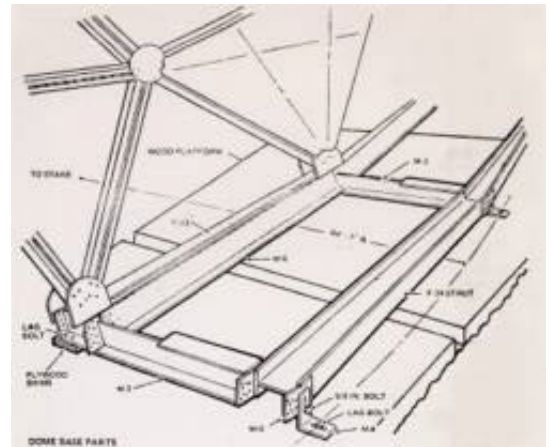


In 1977 we found some old undated negatives from the construction days. Here is a slide we made from one of them, probably taken during the 1973-74 summer ...now for the rest of the story!



Here is a view of the early construction of the dome base ring from the 1971-72 season (*Navy photo, Antarctic Journal (AJ) 3/72*). Very little of the ring actually got built during the first season.

This diagram from the TEMCOR dome erection manual shows the details of the foundation base ring. The differential settlement of the timber pads underneath this foundation caused some of the aluminum nodes and base ring beams to break eventually, these were repaired in 1989-90.



The photo at left (this and the next 2 photos courtesy Bob Nyden from a 72-73 cruisebook) shows early construction of the dome ring, while excavation for the utilidor is also proceeding.

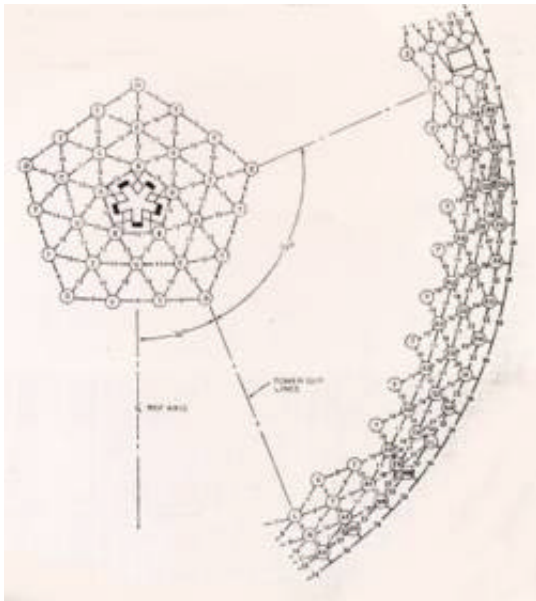
The lower portion of the ring is mostly in place



Seabees assemble the lower portions of the dome.

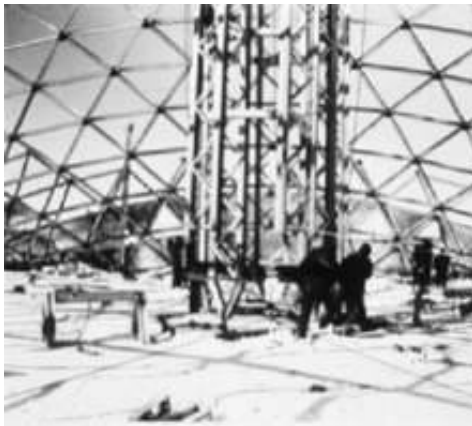
Erection of the dome required scaffold towers around the edges to support the lower portion of the dome ring until the entire geodesic structure was completed. The central portion was erected on the surface, and slowly raised on a central scaffold tower. At left you see the tower being erected (*Navy photo, AJ 7/73*)





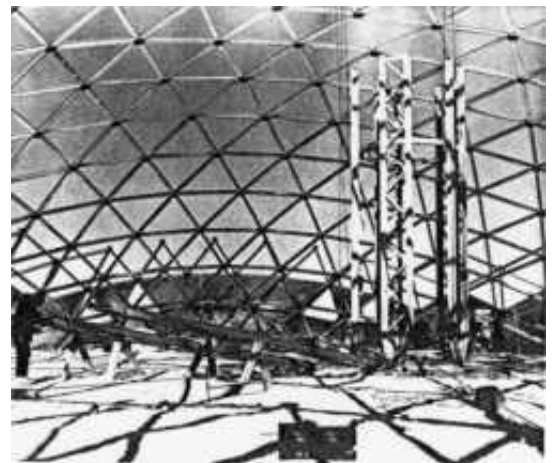
This page from the TEMCOR manual shows the central tower and the initial assembly of the upper portion of the dome. The 5-legged tower had 10 winches which attached to the upper portion, after each ring was added the assembly was pulled up and the next ring installed.

This view from outside the dome shows the central tower supporting the skeleton of the upper portion of the dome, behind the lower portion which has some of the skin panels installed. (this and the next photo from NSF courtesy Jerry Marty)

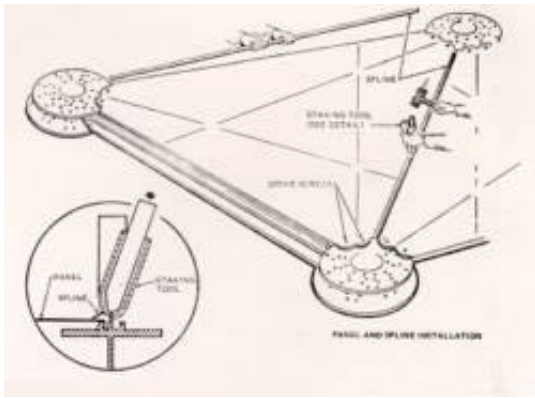


At left, a closer view of the tower, as the raising of the central portion of the dome is underway.

portions of it will be erected at 10 equally spaced points around the edges of the upper section, to lift it up to join the lower portion of the dome ring, which is visible in the background.



At right, later in the season (Navy photo, AJ 7/73) the dome upper portion assembly has been completed, with its outer edge resting on the snow surface. Here the central tower is being dismantled;



This page from the TEMCOR manual shows how the sheet aluminum dome panels are installed. As you can see, removing the panels is rather difficult (as we found out in 1989-90; also all of the fasteners which connect the nodes (circular pieces) to the beams, are "Huck" fasteners, or aluminum rivet-like connectors which must be ground off to remove. Some of the reasons why nondestructive removal of the dome for reuse elsewhere might be a bit labor intensive.

Putting in the rest of the node fasteners (NSF photo courtesy Jerry Marty)



The last dome beam was installed on 4 January 1973. At left, the dome is fully erected, with panels being installed. The machine parked in the right foreground is one of those Peter Snow Millers (photo from Bob Nyden).

At right is a closeup view of the dome exterior frame with the panel installation underway. (NSF photo courtesy Jerry Marty)



Meanwhile, the arches were happening too....This view from 1972-73 is looking southwest with the construction camp in the distance. (from the Pole Soul mystery negatives we found in 1977)

This unique view shows the dome and power plant arch near the end of the 72-73 season. When the dome was designed, NSF didn't know how large the modular sections of the main station structures would be, so the dome design included provisions to remove a portion of the dome wall to get the "vans" inside. This proved unnecessary; all of the components for the interior structures were brought in through this entrance. *US Navy photo courtesy Billy-Ace Baker*



Here is a construction Jamesway west of the newly completed dome. The emergency exit is visible to the right. *US Navy photo, AJ 7/73*

(this and the next picture from Bob Nyden).

At right, the partially complete power plant and garage arches at the end of the 1972-73 season, boarded up for the winter



Another view of the 2 partially completed arches at the end of the season.

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