S&T TEST REPORT

Home-Dome

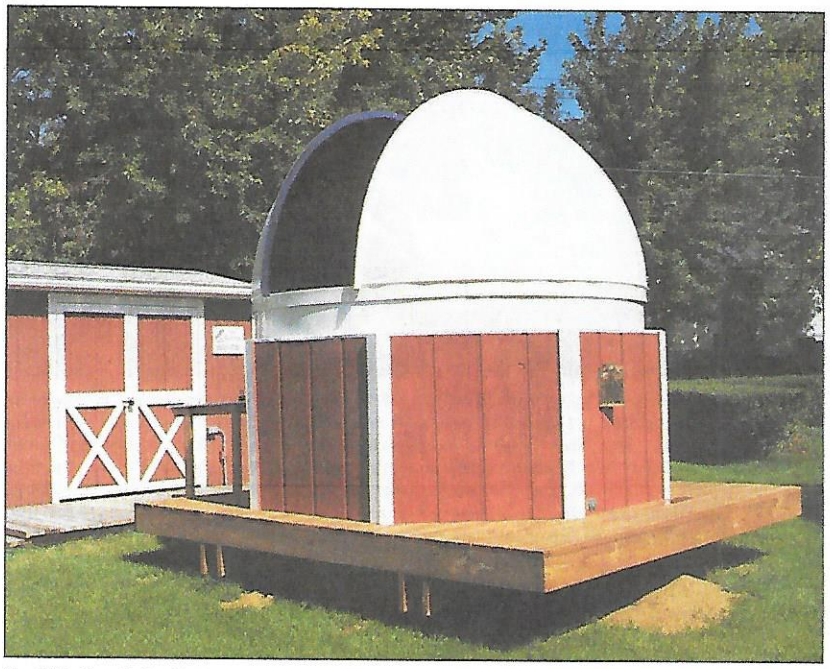
Technical Innovations, Inc.

22500 Old Hundred Rd.

Barnesville, MD 20838

301-972-8040

List price: $3,750



Paul R. Castle built his observatory with a 10-foot Home-Dome just south of the shed that was originally used to store his telescope. The shed now serves as a warm-up room.

The Home-Dome from Technical Innovations

HAVING MY OWN backyard observatory was a lifelong dream. So I eagerly requested the free information on Home-Dome advertised in this magazine early last year. Soon I was poring over material describing the 10-foot-diameter fiberglass dome kit, and my wife and I felt that this was a perfect project with which to begin my retirement.

The dome pictured in the literature was a one-of-a-kind prototype. The first production unit was set up in Barnesville, Maryland, at the home of Technical Innovations owners Meg and John Menke. So in early April Bob Custer, a fellow member of my local astronomy club, and I traveled to Maryland where we spent several hours looking over the dome's construction.

The Home-Dome has a 36-inch-wide, two-piece shutter that slides up and over the dome. The hemisphere itself is made of five sections, including the fixed rear shutter panel, that are bolted to a support ring. This assembly rides on a 119-inch-diameter base ring that contains 12 rollers. The design and construction of the observatory walls are left to the owner, but several options are discussed in the Home-Dome manual, including walls made in whole or in part from circular fiberglass rings available from the company.

I am very pleased with the Home-Dome and recommend it to anyone wanting a high-quality shelter for a telescope. It was especially easy to assemble in place, making it an ideal choice for people who have to work in tight spaces.

Custer and I felt the Home-Dome would work just fine with only a few minor modifications. For several weeks after the visit, I drew and redrew plans for the observatory until I was satisfied that I could build it with a minimum of effort.

I had several friends on hand when the truck arrived with the dome kit. Everything was packed in a single 6-by-6-by-4-foot crate that weighed about 750 pounds — and we had to take it off the truck! The driver, however, was experienced in handling large boxes and coached us in safely unloading the crate.

It is important that the dome's base ring be as level and circular as possible. The instructions say the ring must be level to within ¼ inch, but ⅛ inch is a better tolerance. The 12 rollers are mounted on bolts that attach to the side of the base ring. Custer and I felt that it would be better to support both ends of the roller shafts, so I substituted longer bolts and made a short wooden brace to hold the inner end of each bolt.

The dome is made of 15 fiberglass pieces plus numerous small components. All the hardware is stainless steel to minimize corrosion. With the dome support ring assembled and riding on the rollers, each half of the dome was bolted together from two pieces, lifted onto the support ring and bolted into place. All the seams were caulked with silicone sealant supplied with the kit.

The shutter sections slide on nylon strips and open or close with little effort. Because of the design of these sections, they should be positioned either fully opened or fully closed. If left partially open, the shutters can slide unexpectedly, and there is nothing to prevent the wind from lifting them off the dome. Depending on security requirements, each

Replaced when set up at Nordic

Left: **Castle's observatory base is a 12-foot-square deck supported by these four 6-inch-square pressure-treated wooden posts set into concrete. The octagonal, 4-foot-high walls are made of 2-by-4 studs with 2-by-6 lumber forming the top plate upon which the dome's base ring sits. The siding is rough-sawed cedar, and a door is included in the northern wall section.** *Right:* **The Home-Dome kit can be shipped in a 750-pound box that the purchaser is responsible for removing from the delivery truck. The crating charge for truck shipment is $250, and transportation costs in the contiguous United States range from about $100 to $250 depending on the distance. The dome can also be picked up from the factory with a $50 charge for packing materials, but even out-of-state owners must then pay a 5 percent Maryland sales tax.**

owner needs to devise a method for latching the shutters when closed. For example, I latch mine on the inside with two threaded rods bent into hook shapes and held with wing nuts.

Technical Innovations offers optional electric drives for turning the dome and operating the shutters, but I've found that both functions are easily done by hand. Nevertheless, the drives can be added at any time.

The dome finish is very attractive, with a white gel-coat outside and a medium blue coating inside. Even on sunny days with the shutter closed, the temperature inside rises only about 5° Fahrenheit above that outside. Furthermore, the observatory cools down very quickly when the shutter is opened in the evening.

Other than washing the dome once or twice a year to remove dirt, the manufacturer does not suggest any special maintenance. Any damage can be taken care of with conventional fiberglass repair kits available at auto and marine supply shops. According to the dome manual, the exterior gel-coat may dull and chalk after 15 to 25 years, but the surface can be painted or a new gel-coat applied if desired.

I am very satisfied with the Home-Dome, which went into service last August. I can begin stargazing less than five minutes after entering the observatory, and all my telescope accessories are at hand. In addition to added comfort, the dome prevents wind buffeting of the telescope and reduces dewing. It also helps to block nearby lights.

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FOR YEARS I have observed from a deck located over my kitchen. My 9-inch f/15 folded apochromatic refractor was attached to a special pier but remained in the open, protected from the elements by only a tarp. I wanted an observatory, but every design had problems. The domes I considered all required assembly on the ground and a crane to lift them onto the observatory. But there was no place for a crane near my deck. Then I learned about Home-Dome and that it could be assembled in place without the need for a crane.

I had a contractor build the observatory, which is 12 feet square with 6-foot walls. The dome was assembled in one day by two carpenters who had no previous experience with an observatory! The fiberglass pieces are all prefabricated, with dimples in the flanges marking the points where holes must be drilled for the assembly bolts. The dome can be preassembled by the manufacturer with holes already drilled at additional cost. The instruction manual is very detailed and has many illustrations. In fact, there is so much information that it can seem a little overwhelming at first. It would be great if a video were available showing just how easily the dome is assembled.

A series of clips around the base of

At the suggestion of his friend Bob Custer, Castle (pictured) modified the support system of his dome. He used longer bolts than originally supplied on the axles of the roller wheels and placed wooden braces on the inside ends of the bolts. Although early versions of the dome had 12 rollers, current units are equipped with 16.

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the dome secure it from lifting off in high winds. During a fierce storm last March, the dome withstood sustained winds of 50 to 55 miles per hour and gusts to 80. It has also braved several South Carolina downpours with no sign of leaks.

When the shutter sections are closed they are amazingly secure, but it is important to have some form of tie-down to keep wind from lifting them off the dome, as I learned the hard way. On a Friday afternoon the contractor and I discussed a locking mechanism but decided to put the work off until Monday. On Saturday night a 55-mile-per-hour gust lifted the front shutter and sent it crashing through my bedroom window. Nevertheless, even with the shutter off, the dome remained safely in place.

Although I originally ordered the electric shutter control, the dome opens so easily that I do not plan to install it. To turn the dome, I replaced several of the carriage bolts holding its sections together with eyebolts, which are easily grabbed with a hook on the end of a pole. The dome rotates easily, but not so easily as to turn by itself in the wind.

I am very pleased with the Home-Dome and recommend it to anyone wanting a high-quality shelter for a telescope. It was especially easy to assemble in place, making it an ideal choice for people who have to work in tight spaces.

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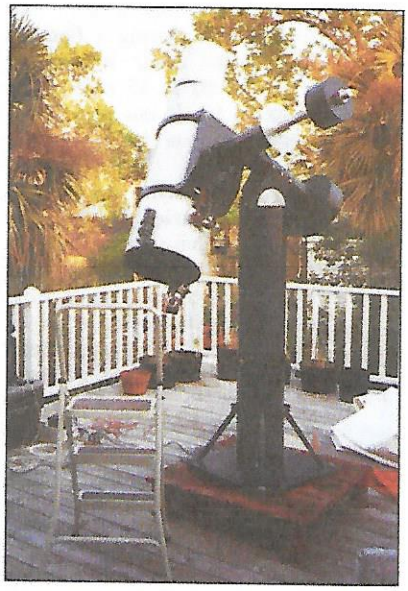
The New 6-Foot Home-Dome

Technical Innovations co-owner Meg Menke demonstrates the new 6-foot version of the Home-Dome, which features a 30-inch-wide shutter. The entire structure shown here costs $2,950, while the dome alone can be purchsed for $1,950.

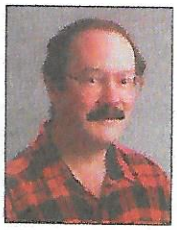


Left: **Phillips's observatory was built around his telescope and pier, which are permanently installed on a small deck over his kitchen. Limited space had ruled out earlier designs that called for a roll-off roof or lifting a dome with a crane. All photographs with this article are by the respective authors.** ***Right:*** **Jim Phillips with his 10-foot Home-Dome. The observatory was built and the dome assembled by two carpenters who had no previous experience working on an observatory.**

SINNOTT'S SLANT

By Roger Sinnott

There's No Place Like Dome



IN RECENT YEARS amateur astronomers have learned to become mobile. Except for the occasional hermit or Thoreau type living in the wilderness, to observe from one's backyard has been a never-ending struggle against city skyglow, streetlights, and neighbors' annoying porch and security lights.

I predict, however, that all this will soon change. Oh, we'll still have light pollution — probably more than ever. But two amateurs I know have already crashed through the 20th-magnitude barrier with ordinary 11- and 12½-inch scopes in East Coast suburbs, thanks to the CCD revolution. Unless an astronomer really *has* to get out of town — for deep-sky photography or comet seeking, for example — why not just stay home?

Poised to take advantage of this trend are dome makers Meg and John Menke of Technical Innovations. Not exactly your typical basement tinkerers, they've each had wide business and management experience in the public and private sectors, and John still spends most days working as a physicist for Mitre Corp. While they did make the original plywood-and-Formica patterns themselves, they farm out the production runs of fiberglass parts. Lucky thing, too, for they have sold 50 Home-Domes since first advertising in our March 1992 issue.

Originally their 10-foot model rode on a dozen 2-inch wheels, but feedback from customers like Paul Castle caused a recent switch to 16 wheels of 3-inch diameter. "Just the other day," Meg told me, "a fellow complained that his dome turns *too* freely!" A would-be buyer worried that the dome's fiberglass shell might flex, so John placed a bar across the open slit at zenith and did a chin-up to demonstrate that it didn't. Apart from the basic 10-foot dome, the Menkes also have a 6-foot in production and are designing a 15-foot model.

Indeed, with or without products like Home-Dome, backyard observatories will surely sprout up everywhere in the next few years.

Indeed, with or without products like Home-Dome, backyard observatories will surely sprout up everywhere in the next few years. David Oesper's innovative "tool shed," described in May, page 90, is a good example. Saddled with monitors, disk drives, and a tangle of cords, today's telescopes are much happier in a secure enclosure where they can be left set up between observing sessions.

Each month Roger Sinnott takes a close-up look at the ever-expanding world of astronomical products and how well they meet observers' needs. He will help you read between the lines of a company's promotional literature.