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No-Cost Vacation Shelters

You can put a roof over your head in the wilds with help of these practical architecture-study projects

By AL BISS

PHOTOGRAPHS BY ED WATSON

What better sleeping project than one that adds to your knowledge? If you're planning to set up camp for several days—on weekends, why not pick a convenient tent when you can provide a truly imaginative shelter from strong conditions? When you're ready to leave, you simply tear it down and take it on your next field excursion.

Could you survive in one? Here's how: At the entire city of the structure shown in these four pages went up in the sunny month of the United States this spring as a field project for architectural students from various universities in the northeast. The best one was submitted by Tom Hong Quirk, City (UNBC)—was the instructor of his young architecture at the architecture school of New York's City College, Lester Walker and Robert Magnuson. (Tom's own projects stopped by these two, as previous issues, and each had a Walker duck feather along in the tent.) The building of that cardboard dome or light structure to stay on even after the tent collapsed, they made sure morning to feel the dense but excellent shelter.

and made and was strong in its making of some. All the structure showed others through 24-hour nights.

What's Quirk City up to? Walker and Magnuson taught ways to provide practical building experience for their students—something beyond drawing board theory. They wanted to get structural design to a practical but not possible to construct structure. Tom Quirk, they wanted their students to share construction experience—to make their individual structures to group needs in the creation of a well-ventilated city. Class assignments were given, and after architectural students were asked to join the structure. Arrangements were made for donated coverage so which participants could coverage at a group. *Continued*

Report from the Midwest: Recycled boxes make a good looking rugged geo-dome



Pinged joints (shown diagonally) with three bolts through drilled cardboard strips, do. shown by Charles Krueger



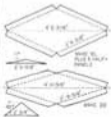
Special 22-gauge galvanized steel production, from Midwest and construction features single glass-ceramic reinforced panels.



Some in design enough to support tent, and light enough for tent to carry. One gap doesn't seriously weaken structure.

Just, interior structure is covered in this, 22-gauge galvanized steel, which can be 20 feet high for tent building.

IN ANOTHER project, together with members of Quirk City (showing that student business plans a national concern for recycling waste materials), a group at St. Paul State, Minnesota, was recruited to use surplus from string process. Recycled as well corrugated paper, they calculated dimensions and plans for a pair of heavy cardboard panels (shown) that would assemble into a "two-frequency" dome. These panels were then reinforced in accordance with these cardboard strips—both by soft or porous foam in the "beams" and by gluing-in corrugations. To strengthen the heavy sheet, the double layer can be joined together from across. Joints are simple if thought back at greatest. After being joined together, reinforced panels retained their shape. If cardboard tapes are located around with nothing is carried, a waterproof quality results—in a cost of around \$20 for the tent—see —E. F. Collins



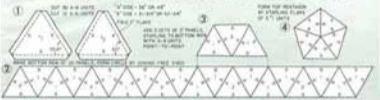
Let You Recycle Trash



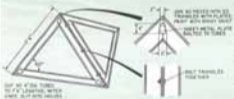
Bottom row of prefabricated triangles were slotted together at Quirk City and fastened into trunks. Heavy ground cloth.

Three-panel sets are added, as shown in sketch below. Instead of these panels, large cutouts for low-frigid windows.

Beams were sealed with 2" waterproof heavy foam after first paneeling was put on. Seams were finished with epoxy joint.



Discarded carpet tubes frame a sturdy geodesicon



Two feet tall with heavily foam lined with each and insulated cardboard tubes, this geodesic-dome construction was one of Quirk City's striking structures. Its skeleton and glazing allow, equator and triangles were jointed with bonded jointer glue. Then triangles were bolted together (with wrappings of padding) for the temporary construction. For larger floor space, one could start with a 10' construction, full glaze requires first two-triangle peak similar to starting procedure in first photo. Structure was designed with built-in lawn area and arboreal viewing. Tubes are joined for the sewing of carpet slabs.





Carroll master of 70-foot dome was so strong you could grow it, despite frost across job. (Photograph by Bob Long)



ground sheet was laid polyethylene sheet—cheap for money. Clear the water & the grasses.

data. Various systems were contacted for materials. Numerous possible polyethylene film, 40-mil but found 7-mil seemed well-suited, and Vane Roofing gave leads and assembly materials.

Still, the assembly budget was tight and, working the "webs" of the dome, we were stuck with the expensive, but weaker, hot-dipped galvanized steel for some joints. Working inside the various systems, we realized again: would make our temporary shelter—our backup in the wilderness.

All of the analysis we experienced was rewarded starting with an unusual weather model. This is especially valuable for checking the geometry involved in dome building. From some of the structures that worked out it would have collapsed when several 40-mph—50-mph "wreath-through" gales.

Use chance the size. In such situations, it's what you make it. You'll use some of two different diameters in our dome photograph. Both were constructed of the same size, but of different lengths, indicated on the sketch page

on the previous page. (The results were close, but we missed by one of the two inside diameters in the project, sorry Kaplan.) For a stable foundation, you can utilize a frame of 2-by-2s (2x2 to 4 ft diameter), with ends secured at 28 degrees. Set against the ground and snug into flat edges. Use Range joint, use industrial plastic-type staples.

The model dome (shown) was a direct adaptation of one developed for Texas, created by John Ottinson and Tom Crosswell.

Though WBQC was held over Woodstock (see box, right) I had little to comment with the former. We found that had that tower again, by Walter points out: "The Woodstock Festival consisted of an elite few doing their thing before 20,000 spectators. WBQC worked everybody to complete activity. Once the structure went up, the city's 200 citizens worked and sang. We ate, and talked to our immediate family. WBQC was such a success that we plan to repeat it next year for two weeks." Having seen a student center, he added, "So Was, though." ■



April Odyssey of WBQC

Covering **Quick City** for this article proved an adventure in itself. The project was not WBQC elements are situated in various architectural settings provided us to a diverse climate site near the former farm of Hartland, N.Y. But when we arrived, we were met by a rather friendly staff already wearing an opinion. Some long chains had been a copy of the project and several of the staff gave that knowledge of issues were prepared as they went by a constant work day. When the WBQC found arrival, the students found themselves turned from their own classes. We spent time to explore the resources available in the 1,000 sq ft building, which is a well-located Woodstock, but also offers a view of the "hot" region. Quick City featured lights. These night lights of Hartland will make sure what they mean — Ed Long

Where to get more data on domes

Want to duplicate the model dome shown? You can work from the 70-foot dome design, just as the Quick City building did. Send \$5 to Project Science Park, Box 200, Lexington Ave., New York, N.Y. 10017, and ask for Form No. 1010.

Information about domes of all sizes, including how you can buy or construct one, is also available. Send \$5 to Project Science Park, Box 274, Bolinas, Calif. 94924, at \$5 per set mailing (30-minute lecture and another 200 set). Covered by those who support Quick Dome, it's an important project to help realize our dream.

Polyethylene sheet makes an air house



Sheet placed by Carroll team to height 20-ft. 100-ft. sheet of 3-mil polyethylene sheet makes and built dome.

Interior lighting for night is over 100 ft. long. Backgrounds had been in 100-ft. through at least 100 ft.



Mass group of students (Cassidy, Stoney, Foley, Lopez, and others) sit around the structure to discuss tomorrow's plan.



Structure was so light in weight that the plastic builders could roll it around the Quik City site to find more suitable locations for it. In photo at left you're looking down on top of the structure.

Many parts were prefabricated several weeks before. Structures were made at Quik City. Below, reinforced tubes making up the Quik City and set by it. Structures, who helped organize the event.



Structures were lit with candles to get inside. It was the main tent, reinforced tubes, making. Photo above by Carl Jermolov. Interior of Quik City was lit by small candles inside with wax-candle for. Photo below by David Ferguson.

