



The CU Team Gets Ready for the Big Trip

From the start, the CU team knew they had a long trip ahead of them. In addition to the proverbial bumps in the road the project endured over the last year and a half, the CU house also had to endure 1700 miles of bumps in the road in the literal sense as it was shipped on flat bed trucks from Boulder to Washington, D.C. The house was designed with this challenge in mind and the construction materials and schemes were chosen accordingly.

When designing the house, quick construction and modularity were two of the driving factors. Two ideas considered in the design were a roll-off structure with metal ribs and a sectioned house that snaps together. The team chose the second option. Their house breaks into seven sections: three lower boxes, three roof or "hat" pieces, and the "tech pod" which houses the engineering systems. The pieces were designed to be light and somewhat flexible so they could endure the long trip across the country. Each piece of the house was sized with the truck dimensions and transportation requirements in mind. The goal was to design house pieces that were less than thirteen feet wide and fourteen feet high. The house dimensions complied with these requirements in all but one case. The kitchen section was intentionally oversized by two feet to create a more spacious environment. The team paid for this decision through the extra cost of pilot cars and trucking permits.

Another transportation challenge was getting the house on the mall and set up in less than a week. In order to do this successfully, the house was nearly completed at its construction site in the Home Depot parking lot near Boulder. All of the walls were painted, the bamboo flooring was laid, and the appliances were installed and functioning.



T&R Inc. and Set-It Inc. worked with the team's construction group to formulate a plan for transporting the house to the mall. The accepted bid for the round trip moving and trucking service was \$71,000. This included three flat bed trucks, cranes, house wrapping, and labor. The moving company worked with the team's structural engineering firm, Peak-to-Peak Engineering, to design temporary support walls and to select lifting points. The house's extraneous components, such as the batteries, solar thermal collectors, and furniture, were packed and shipped in a Ryder truck.

The CU house was designed with the intention of lifting the pieces from the Home Depot site to the trucks and off again in Washington with a crane. Fortunately, all teams were permitted to use cranes on the National Mall after many months of uncertainty. To lift the hat pieces, the crane strapping was hooked into a steel channel bolted to the fascia and then raised. The lower house pieces were lifted with a strap under their bases. All pieces were wrapped and all interior appliances were firmly secured. After this process, the trucks departed the Home Depot lot and the CU team watched with their fingers crossed - the house had five days to arrive in Washington, D.C. intact.

CU Decathlon Website - <http://solar.colorado.edu>

The U.S. Department of Energy's Student Competition to Design and Operate a Solar-Powered House
www.solardecathlon.org

