

**Site Operations Plan**  
**Revised 08.07.07**

This Site Operations Plan covers the following areas, as they are known to us today;

1. Vehicles
2. House Assembly Time line and Activities
3. House Disassembly Time Line and Activities
4. Special Equipment
5. Disposal or Recycling of Materials
6. PPE Requirements

**1. VEHICLES**

3 Vehicles: one for delivery of the house and two for delivery of support materials and equipment. All will enter together, house first and support trucks second.

**a. Truck One: Cab + House**

The truck pulling the house will be a semi-truck with cab. The house has a built-in chassis with six axles. This truck will carry only the house. It will enter the site first, and once the chassis is in position, the cab of this truck will drive away for the duration of the competition.

The overall dimensions of the house truck are:

CAB + house = CAB + 14'-6" (wide) by 48'-6" (long) x 14'- 6" (high).  
 The overall weight of this truck is approximately; CAB + 40,000 pounds.

It will have eight or nine axles: six on the house chassis and two or three on the cab.

**b. Trucks Two and Three: All other items needed for the Competition**

One truck will be a Tractor-Trailer, the other a 17- foot closed box - panel trucks.

**Cargo Description**

- Bottle jacks, and tie downs
- Foundation pads and piers
- Decking parquets, steel substructure, deck railing and planting
- Power and hand tools
- Solar panels, evacuated tubes, batteries
- PV array support
- Water tanks and Rain Water System
- Solar car
- Scaffolding
- Furniture, small appliances, and household articles
- Exhibition design panels
- Control systems for the house not attached the house

The 2nd and 3rd trucks will follow the house directly onto site. As the house is positioned, the remaining trucks will arrive in position parallel to Decathlete Way but on our team's site, where the piers and jacks will be unloaded. The remaining trucks will stay onsite until the deck is assembled assuming dry conditions. Once the deck is assembled, all remaining components within the remaining trucks can be unloaded, either to be stacked on the deck itself, or loaded into the house. If conditions are wet, the trucks should stay onsite longer to allow for dry storage of all materials not yet unloaded.

The dimensions of the Tractor Trailer are: 53' (long) by 8' (wide) by 8' (high). Its weight is approximately: 40,000 pounds.  
 The dimensions of the smaller panel truck are: 17' (long) by 8' ( wide) x 8' (high) .  
 Its weight is under 15,000 pounds.

**2. HOUSE ASSEMBLY TIME LINE AND ACTIVITIES**

- Stage One – Arrival, All Teams working together (18 HRS)**
- Stage Two – Three Separate Team working (24HRS)**
- Stage Three – Final Walkthrough (10 HRS)**

**Stage One – Arrival- All Teams working together ( 18 HRS)**

The house will arrive in one module that will be approximately 14'-6" wide by 48' long, weighing about 40,000 pounds. All other components are stored on the remaining trucks, with the car and water tanks being the largest modules. The remaining trucks will include a ramp for ease of unpacking.

**1. Arrival (1 HR)**

Enter Washington DC at midnight and proceed to staging area at the mall, awaiting turn to proceed to building site. Inspect house for damage due to travel. Note any repairs needed.

**2. Site (1 HR)**

Survey site for obstructions in the ground and grade differences. Ensure that site is cleared and ready to receive house. Place protective pads on ground along route for truck. Identify location of corner piers.

**3. House Arrival (1 HR)**

The house arrives on the site and drives into position. Bottle jacks secure the house temporarily. Cab drives away, wheels are removed from the chassis and stored on second truck during competition, and leveling of the house commences onto permanent piers.

**4. Leveling (3HRS)**

Piers will be housed in the remaining trucks which will follow the house onto the site. Once piers and foundation pads are placed beneath the chassis, they will be aligned with the steel plates welded to the underside of the chassis, ensuring proper alignment. If there are any obstructions, piers will be moved along the underside of the chassis into the secondary location and a steel receiving plate will be attached to the top of the pier and secured to the underside of the chassis. As soon as piers are in place, the house will be lowered and secured with bolted connections and tie downs. After all connections are inspected, construction will begin.

**5. Solar Panel Array and Supports Installation (6HRS)**

After chassis is leveled, scaffolding is erected around the house to aid in installation of solar panel array. Solar panel frames are attached to mounts already in place on the roof. Panels will then be lifted to the roof and installed by trained installers. All persons working on the roof will be equipped with proper fall protection and training. Individuals not working on the roof will maintain a safe distance and proceed with the unloading of the remaining trucks. Once all panels are installed and wiring completed, the scaffolding will be dismantled and stored on the second truck.

**6. Deck Installation (6HRS)**

The site will be surveyed and piers will be located in their proper placement. Once piers and foundation pads are in place, beams will be inserted into the end of the HSS members of the chassis and attached.

They will be temporarily braced on bottle jacks. Once beams are in place over piers, they will be individually lowered and attached to piers. Once all beams are in place and level, joists will be installed between beams. Deck sections will then be removed from the second truck and inserted onto the deck. After checking to ensure the deck is still level, ramps in the front and rear will be installed. All railings will be installed at this time, along with deck landscaping elements.

**Stage Two – Three Separate Team Working (24 HRS )**

- Team 1 Qualified Student Installers
- Team 2 Systems Team
- Team 3 Architecture Team

**Team 1 Qualified Student Installers**

**1.a Solar Façade Panel and Battery Installation**

The solar thermal loop is installed and checked. The façade PV panels are then installed and wired by qualified installers. After all panels are installed, the battery bank is installed beneath the deck. All connections will be checked at this time.

**1.b Evacuated Tube Installation**

The evacuated tubes will be installed on the rear deck by qualified installers and the system will be hooked up and tested.

**Team 2 Systems Team**

**2.a Systems and Appliance Hookup and Installation**

Any appliances and control equipment not included in the house during shipping will be installed at this time. All systems will be checked for operability and monitoring components will be checked as well.

**2.b. Plumbing Hookup**

With chassis level and deck in place, the plumbing hookup can begin. Supply and waste tanks are located at the rear of the house, and rainwater catchment tanks are placed beneath the deck on the east and west. Plumbing lines and fittings are then installed and checked beneath the house and between the house and the tanks. The system is then filled with air to test for leaks and is then ready to receive water.

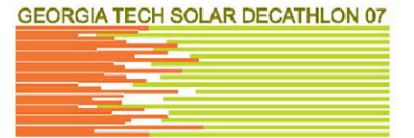
**Team 3 Architecture Team**

**3.a Interior**

Temporary crossbracing will be removed and stored in the second truck. Kitchen window bracing will be removed at this time. Furnishings will be installed after unpacking from the remaining trucks. The interiors will be cleaned to remove transportation dust and debris. Lighting is installed and tested. Touring information and displays within the house are installed.

**3.b Exterior**

Landscaping tanks and planters are installed around the deck. All planters are raised on blocks to protect the turf. The area is landscaped. The car is placed at the rear of the house until competition begins. Display signage is erected around the deck and along Decathlete Way. Exterior cladding not shipped on the house is also installed at this time, including exterior louvers.



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 date drawn:  
**08.05.07**



scale: **NTS**

**T.1.0**

**SITE STAGING TIMELINE**

**Site Operations Plan Continued**  
**Revised 08.07.07**

**Stage Three - Final Walkthrough (10 HRS)**

In time remaining, all systems components are rechecked for operability, PVs and batteries are inspected, water tanks checked, and any remaining issues are completed.

**3. HOUSE DISASSEMBLY TIME LINE AND ACTIVITIES**

**Stage One – Disassembly, Three Separate Teams (12 HRS)**

**Stage Two – Departure, All Teams working together(10 HRS)**

The disassembly will be the reverse of the assembly plan. Several time consuming portions of the assembly plan will not be required during the disassembly, notably straightening of the interior of the house, placing of the landscaping, and most importantly, the time spent attempting to properly level the chassis and the decking components. Additionally, systems will only need to be disassembled, not checked and tested. Departure will simply consist of hooking up the cab to the chassis and the repacking of components onto the second truck, which will arrive ahead of the house truck, instead of the time spent aligning the truck with the proper house placement.

**Stage One – Disassembly, Three Separate Teams (12 HRS )**

- Team 1 Qualified Student Installers
- Team 2 Systems Team
- Team 3 Architecture Team

**Team 1 Qualified Student Installers**

**1.a Solar Façade Panel and Battery Removal**

The battery bank is uninstalled. The façade PV panels are then unwired and uninstalled. The solar thermal loop drained into a sealed storage container and removed.

**1.b Evacuated Tube Removal**

The evacuated tubes will be removed by qualified installers and the system will be drained into a sealed storage container.

**Team 2 Systems Team**

**2.a Systems and Appliance Removal**

Any appliances and control equipment not included in the house during shipping will be removed at this time.

**2.b. Plumbing Disconnect**

The system is drained into the waste tank. Plumbing lines and fittings are then disconnected. Supply and waste tanks are located at the rear of the house, and rainwater catchment tanks are returned to the truck.

**Team 3 Architecture Team**

**3.a Interior**

Temporary cross bracing will be reinstalled. Kitchen window bracing will be refitted. Furnishings will placed on the trucks.

**3.b Exterior**

Landscaping tanks and planters are returned to the truck. Landscap-

ing is returned to the truck. The car is returned to the truck and locked down for transport. Exterior cladding not shipped on the house is also removed at this time.

**Stage Two – Departure, All Teams working together (12 HRS)**

The house will depart in one module as it arrived. All other components will be re-stored on the remaining trucks.

**1. Deck Removal (3 HRS)**

All railings and remaining decking landscaping elements are removed. The front and rear ramps are disassembled. Deck sections are removed and placed on trucks. Joists and beams are removed. The beams will be braced on temporary bottle jacks, and the piers removed and stored. The beams themselves will then be removed and stored, along with the bottle jacks.

**2. Solar Panel Array and Supports Installation (4 HRS)**

Scaffolding is erected around the house. All panels are dewired and removed from the roof. Solar panel frames are then disconnected and lowered from the roof.

**3. House Movement Preparation (2 HRS)**

Tiedowns are disconnected. Temporary bottle jacks are placed beneath the chassis. Nuts are removed from securing bolts on the piers, and bottle jacks then take the weight of the house. Piers are removed and reloaded onto trucks.

**4. House Hookup Preparation (1 HR)**

The cab returns to the house and awaits hookup. The wheels are reinstalled. The cab is reconnected. The bottle jacks are lowered and the cab and ground take the weight of the chassis.

**5. Site (1 HR)**

Site is inspected for remaining debris and once clean to pre-competition state, departure is ready.

**6. Departure (1 HR)**

The trucks exit the Mall and depart for Georgia.

**4. SPECIAL EQUIPMENT**

**Scaffolding**

The only special equipment needed will be scaffolding that can be disassembled for transport. This will only be used to install the roof PV modules and will incorporate the necessary fall protection.

**Generator**

Generators conforming to noise restrictions will be used during the full power construction phase.

**5. DISPOSAL OR RECYCLING OF MATERIALS**

**Small scraps**

The house will be arriving at the Mall fully constructed but in need of assembly. This being the case, there should be very little material needing to be disposed of or recycled. All necessary components of the house will arrive in the remaining trucks, and any scrap, blocking, etc. can be stored on the second truck for disposal/recycling or can return with the team at the end of the competition. The only disposal or recycling necessary would include packing of previously uninstalled components such as controls equipment, appliance packaging, and

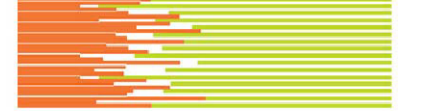
food and beverage packaging and containers consumed by Decathletes. This is estimated to require two 65 gallon containers.

**6. PPE REQUIREMENTS**

Personal equipment, team equipment

Every team member will be required to wear properly fitting PPE, to be worn at all times while on site, including steel toe boots, safety glasses, long pants, short sleeves at a minimum, and hard hats.

Also onsite will be protection equipment for various activities, such as fall protection, ear and hand protection, electrical protection, and other such equipment as deemed necessary by the activity.



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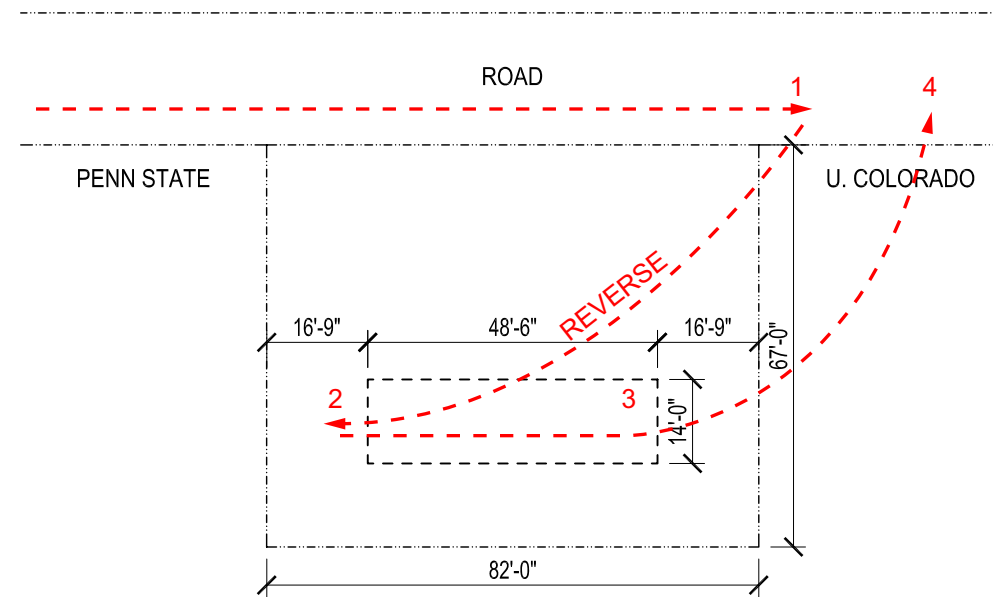
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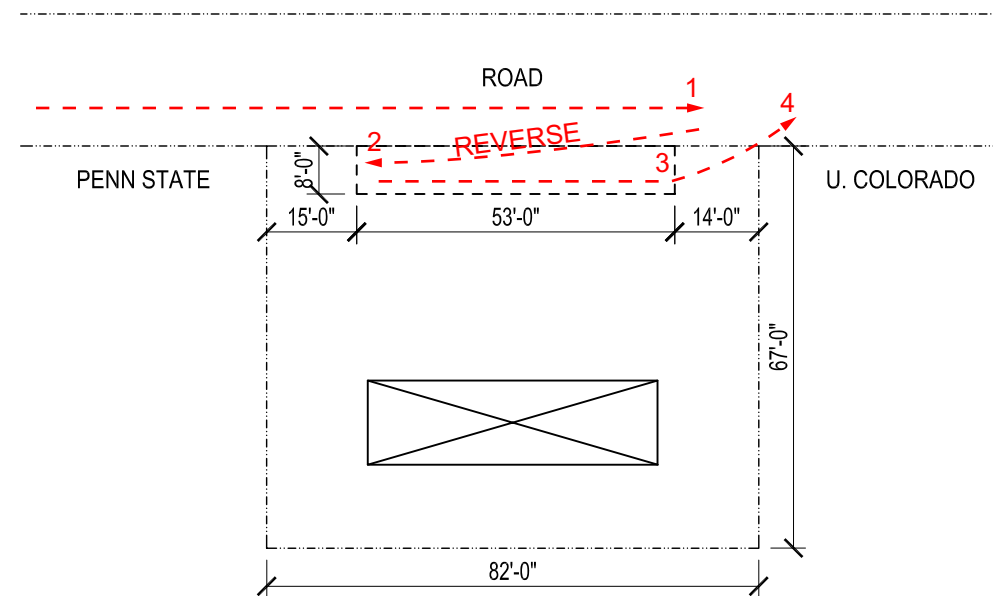
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**SITE STAGING TIMELINE**



1. ARRIVAL ALONGSIDE SITE
2. REVERSE ONTO THE SITE
3. FINAL POSITIONING ON THE SITE
4. DEPARTURE OF TRACTOR FROM SITE

1 HOME ARRIVAL  
T.1.1



1. 53' TRACTOR TRAILER ARRIVAL
2. REVERSE INTO POSITION
3. DETACHMENT OF TRAILER
4. DEPARTURE OF TRACTOR
5. TRAILER REMAINS 3 DAYS

2 53' TRACTOR TRAILER ARRIVAL  
T.1.1

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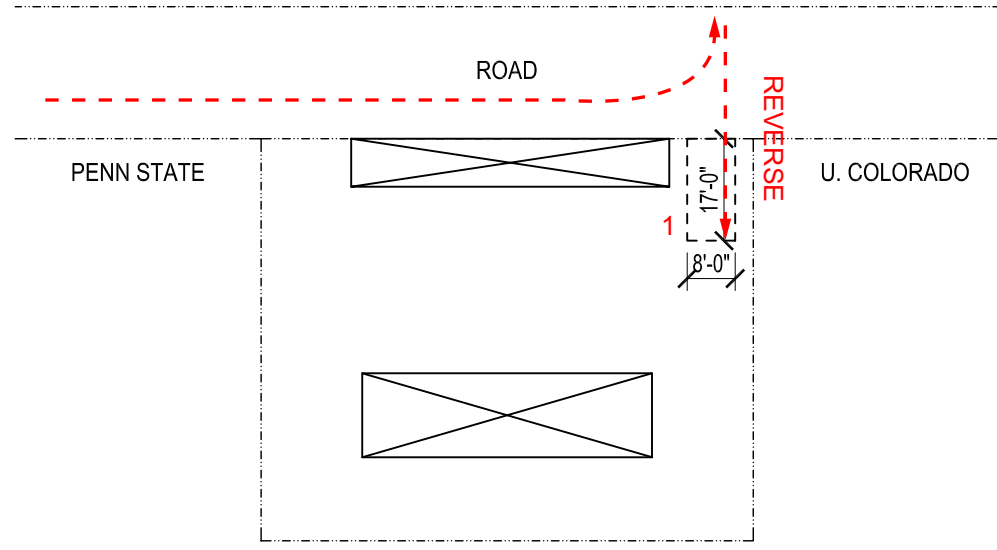


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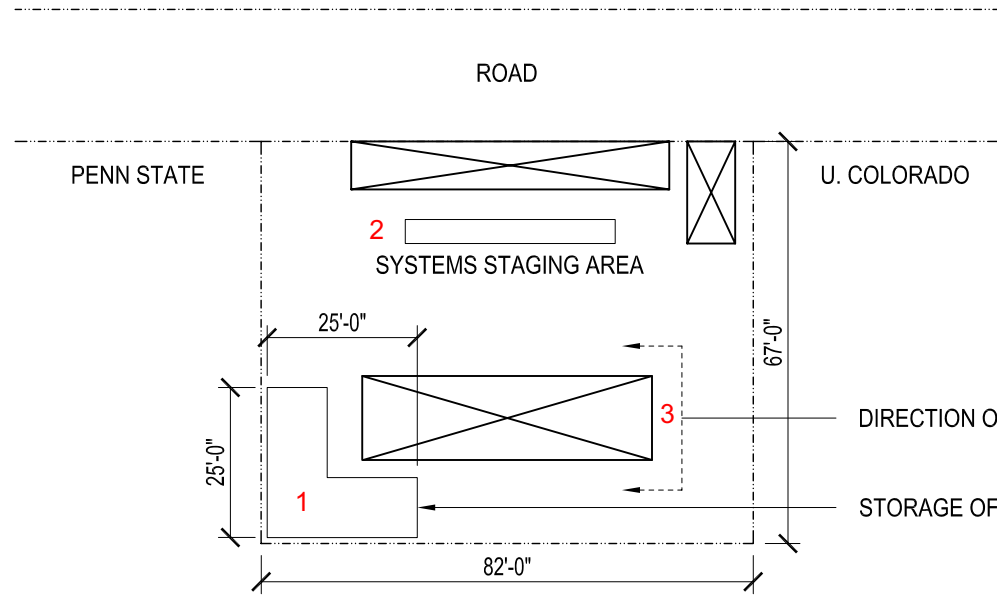
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SITE STAGING OPERATIONS



1. ARRIVAL OF SMALL EQUIPMENT TRUCK
2. TRUCK STAYS ON SITE FOR 6 DAYS

1 17' SERVICE VEHICLE ARRIVAL  
T.1.2



1. ESTABLISH LANDSCAPE STORAGE AREA
2. ESTABLISH SYSTEMS STAGING AREA
3. INSTALL PV PANWLS TOWARDS THE WEST

2 STAGING AREA  
T.1.2

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SITE STAGING OPERATIONS

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