Unfortunately, speaking directly to the point, the project is behind of planned schedule. This is the cause of previously unforeseen challenges concerning the parts required for completion; namely stainless steel. Throughout the winter break, I have been in contact with Yarde Metals representatives to ensure that our team would have the required stainless steel before the beginning of the academic semester. I have called many times and made frequent visits to achieve this purpose. The stainless steel plates which were ordered for the completion of the standing gardener did in fact arrive on time however proved to be heavier than expected. Regrettably, this was the result of carelessness which could have been easily avoided with elementary calculations. However, the possibility that the weight of the plates may prove to be a problem was not considered during initial planning and for this reason such calculations were overlooked.

Instead of disregarding this fact and continuing with the project as planned our team decided to meet with the Stenglein family to discuss the design and whether or not weight would in fact be an issue as far as the standing gardener is concerned.

A meeting was arranged for Sunday 01-25-2009 at 2:00 pm. Saturday I went to Yarde Metals and discussed our concerns about the weight of the stainless steel. I told the representative that I would notify him by Monday if we do in fact decide to go with something lighter, and he was very helpful and understanding. After returning from Yarde Metals, I printed several pictures from Autodesk Inventor of our designs to show the Stenglein family exactly what we were planning to build. The pictures given to the Stenglein family are included as a reference at the end of this report. We sat down with Mrs. Stenglein and began by discussing the standing gardener. We made it clear that if weight was a large issue we can use a lighter metal such as aluminum, but that it would not be as corrosion resistant or aesthetically pleasing as stainless steel. We were told that weight would not be as large of an issue if the standing gardener has wheels (which it will) but that we should try to keep the weight below 300 lbs. With the plates that were ordered, this rough weight limit would still be exceeded. After a brief discussion we decided not to decrease the quality by substituting the stainless steel with a cheaper
metal, but instead decided to order a 9-10 gauge stainless steel sheet instead. This decision will lead to a design which is much lighter as well as less expensive. Before contacting Yarde Metals I ensured that this reduction in thickness would be enough to give us the required weight reduction based on the dimensions given in figures 1 and 2 as well as the density of stainless steel:

![Figure 1: Bottom Sheet](image1)

The surface area of the bottom sheet is 1830.6 in\(^2\) and the surface area of the top sheet is 1305.47 in\(^2\). The total surface area is 3136.07 in\(^2\). The density of stainless steel is 8000 kg/m\(^3\) which is the equivalent of 0.288 lbs/in\(^3\). Therefore, if we were using the previously ordered \(\frac{1}{4}\) inch stainless steel plates, the weight of the two plates would be roughly 226 pounds. Using 9 gauge stainless steel sheets, the weight is reduced to 102.96
pounds, and using 10 gauge stainless steel sheets the weight is further reduced to 92.125 pounds. On Monday, I called Yarde Metals and placed the 10 gauge sheets on order.

Further complications arose after speaking with the gentlemen at the UConn machine shop. We were notified that the machine shop did not have the necessary equipment to cleanly cut the stainless steel sheets to the large specified dimensions. We were further notified that the steel could be cut with plasma; however, if this process was used clean cuts would not be obtained. For this reason I will speak with Yarde Metals about cutting the sheets to our dimensions if this can be accomplished before next week to avoid falling further behind schedule. If this will not be a possibility, I will attempt to contact local machine shops with the hope that someone will have the ability to cut the sheets to our specifications in a timely manner. If this is not possible we will have to resort to plasma cutting. I contacted Yarde Metals again on Thursday January 29, 2009 to check on the status of the stainless steel and was notified that the shipment was delayed due to weather and that there is a possibility it will not arrive until Saturday. As soon as the steel is at the warehouse I will make all the necessary arrangements to get it delivered to the Storrs campus.

Other than this issue, the client appeared to be satisfied with the proposed design for the standing gardener only noting that an additional handle was to be attached to the top workspace. This handle is indicated in figure 3 with a red highlight box. Furthermore, if time permits a support which will allow Sean Stenglein to lean back against it with the intention to rest while using the standing gardener will be designed and attached.

Figure 3: Modified Standing Gardener Workspace
The client had only one concern regarding the proposed design for the multi-terrain wheelchair which was also overlooked by the team during the design process. Initially, the wheelchair was to be made of aluminum with the intention to reduce weight. However, since it will be used on the beach to make it easier to travel through sand, there is a possibility that it will be submerged in sea-water. Clearly if such is the case corrosion might be a problem if the wheelchair is not washed off after such an occurrence. For this reason, we will keep the option of building the wheelchair out of PVC tubing instead of aluminum open. This option will be further discussed during this week’s laboratory meeting.

The semester began with numerous challenges which have forced us to fall behind our previously speculated schedule. Nonetheless I am confident that our team has the discipline, motivation, and dedication to overcome all challenges and will soon be heading with full speed towards the completion of the proposed designs.
Reference – Pictures in the exact layout given to the client