Executive Summary

The American Speech-Language Hearing Association Nation Headquarters is a highly interesting building. Not only for its interesting construction and façade, but also for the restrictions that present themselves to the overall project. These restrictions are not necessarily due to the restrictions of local buildings or zones but more due to the restrictions of schedule, cost, bids, and ground conditions, as well as the LEED rating attempted to be reached.

The contractual arrangements are very straight forward beginning with a design-bid-build with a guaranteed max price and subcontractors requiring lump sum bids. These were done do to the cost restrictions. The ASHA is a non-profit organization that therefore does not have a lot of money to spend on this project. Therefore the cost of the building is essential and the LEED rating may slightly affect that cost. Not only that but the ASHA has already sold their previous headquarters and is now back renting meaning that the schedule is vastly important. If the schedule goes over its date not only will the ASHA be paying for the extra construction but also for the extended period of paying rent. To prevent this, the ASHA did have a GMP contract however they are bidding the exterior and interior of the building separately. This could cost the ASHA money however if the first part of the project comes in high and they are unable to pay for the completion of the interior of the building and have to sacrifice quality.

Not only are the schedule and cost highly important but so are the ground conditions. The foundations are being built just inside of wetlands, and just underneath the ground consist mostly of clay with silt and sand underneath until the bedrock is finally reached which can lead to settlement and future difficulties if not done correctly. The LEED rating is also highly important. The ASHA wants this to be the face of their organization and are very interested in gaining the LEED rating. This is important and could affect the schedule or cost if something was not analyzed properly.

The project is highly interesting with many twists and turns that make it not only interesting but exciting. The importance of schedule and cost are primary while also having to attempt to gain a silver LEED rating and dealing with water and soil concerns. The ASHA promises to be an interesting building with many possible answers to multiple questions.

Project Schedule Summary

The Schedule on the following page contains the schedule of all major milestones of the project as well as the important concerns for Davis Construction during pre-construction. The foundations are very simple but contain a few key elements during construction. The under slab piping must be laid not only on time in order to maintain the schedule but also properly. If there is a problem with the piping and it is not discovered until after the first pour. Either certain pipes and utilities will have to be above the slab or certain areas of the slab may be torn up so that the piping can be corrected. This could and would have a serious impact on a schedule that is crucial to this project. Obtaining the building permit is also essential because the job will be forced to wait until the building permit is obtained which is scheduled to be obtained just before the first pour which again could lead to schedule difficulties. Also the slab will be completed in four pours while walls and other pours occur in-between. If the slab pours are delayed or are not poured properly so that they mesh together re-pours may need to occur again greatly affecting the schedule.

The steel is also a key element. It is important that the steel be erected on time. Not only is obtaining the steel on time important due to its lead time but erecting it quickly is essential. As multiple levels of steel are erected at once such as the second and third floor the concrete for those floors will be waiting until the erection is complete. Meanwhile while pours are occurring the upper floors of steel will be erected keeping the schedule concise and time dependent.

Building Systems Summary

Yes	*No*	*Work Scope*
	x	Demolition
	x	Structural Steel Frame
	x	C.I.P.
x		Precast Concrete
x		Mechanical System
x		Electrical System
	x	Masonry
x		Curtain Wall
x		Support of Excavation

Questions/Concerns

Precast Concrete:

The precast concrete on the ASHA site acts as the façade of the building on three sides. Each precast panel will be its own color. One acting as a white, another as a grey, and the third set of panels a slightly darker grey, each of the panels will be erected using a tower crane. Each section of panel will be cast in North Carolina and then shipped to the site for erection. All three types of panel will exist on three sides of the façade with the fourth façade being a glass curtain wall. All of the concrete will be maintained using steel ties and steel on the exterior of the building that will run the height of the building which all of the panels will be tied into.

Mechanical System:

The mechanical system in the ASHA headquarters consists of two 200 ton chillers with condenser and evaporator, two cooling towers on the roof, a heat recovery unit, and air handling units. The mechanical room is located in the penthouse on the top floor as well as the roof for the open cell cooling towers. The heat recovery unit is located in the penthouse and serves for ventilated air. There is one air handling unit per floor each of a slightly different size due to the size of the floor and its primary purpose. The first floor contains a 25000cfm, the basement has a 8000cfm air handling unit, and the second, third, and fourth floors all contain 22000cfm air handling units while the fifth floor has a 23000cfm unit. There are two open cell cooling towers on the roof of the building. Each acts as a condenser and is an induced draft counterflow cooling tower. The two water chillers are centrifugal. The pumps that are contained in the chiller plant are composed of

three primary chilled water pumps and three condenser water pumps. Each floor also consists of a set of diffusers and the fire suppression system is simply the sprinkling of the entire building.

Electrical System:

The electrical system has not been completely determined due to the fact that the space is not being built out yet. The electrical will come in the next awarded bid. However in the lobby lighting has been determined. The only thing determined for the lighting in the lobby is the lighting fixture schedule. The size of the lighting for the requirements as well as redundancy will not be determined until the next bid is awarded.

Curtain Wall:

The curtain wall consists of the front façade of the building facing Research Boulevard. The curtain wall consists of three types of vision glass, two types of spandrel glass, and a clear storefront glass both tempered and non-tempered. Metal panels will then be placed between each piece of glass running the height of the building to keep each panel in place. In order to place the glass each piece of glass will be lifted into position by the tower crane and then rested and attached to the metal panels that will run between each sheet of glass. These panels will allow each panel to remain in place and adds a aesthetic front to the building.

Support of Excavation:

The support system will consist of typical tiebacks to allow the walls from caving in. After the tiebacks are placed there will be pumps placed to dewater the system until the footer can actually be poured. The dewatering will only be temporary until the footing is ready and the majority of the water has been removed from the site.

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Existing Construction Conditions
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Project Cost Evaluation

Construction Cost: $23 Million
Construction Cost/Square Foot: $168

Total Cost: $40 Million (estimated owner restriceted)
Total Cost/Square Foot: $292

Building System Costs:

Mechanical: $2.8 Million
Electrical: $1.8 Million
Structural: $3.8 Million (concrete) $1.4 Million (steel)
Skin: $1.15 Million (precast) $300K (roof)
$2.43 Million (windows/curtain wall/metal panels

D4:

The D4 estimate used consisted of a simple parametric estimate. The building use of office was simply imputed and then buildings were sorted by square footage and number of floors. Four specific buildings were selected based on their similarities to the ASHA National Headquarters. Each building was a headquarters and had a minimum of three floors as well as a minimum of 130000 sq. ft. a true estimate was then calculated for Rockville, MD in September of 2006.

CostWorks:

A CostWorks estimate was then calculated. A five to ten story level commercial building was selected under the commercial building option. The structural system of precast concrete was then selected to narrow the search even further. Then College Park, MD was selected due to the lack of the option of Rockville, MD. The s.f. quantity of 137000 was then entered and a total value was calculated.

Comparison:

The D4 estimate was actually close to the estimated total building cost of $40 Million. D4 estimated approximately $37 Million. This proximity in the calculation is more than likely do to the similarity between all the jobs selected. All of the jobs that were selected were between three and seven stories and varied from 130000s.f. to 190000s.f. and all were national headquarter office buildings. Due to this range and similarity the D4 estimate was able to make a somewhat accurate estimation.

. The CostWorks calculation on the other hand was no where near the actual value of the project. This is more than likely due to the limited information entered into the program. All the CostWorks program was calculating off of was the type of building, its location, exterior wall and structural system, as well as the total square footage. There is no way for the program to know the complexity of the structure such as a glass curtain wall, or the number of stories as well as other variables that are not entered on a square foot estimate such as elevators and emergency lighting which would only drive the cost up.