



ACE Annapolis NEWS FROM THE PROGRAM



April 7, 2010

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Location: Annapolis High School (AHS) – 2 to 4 p.m. - 2010 Winter / Spring Semester

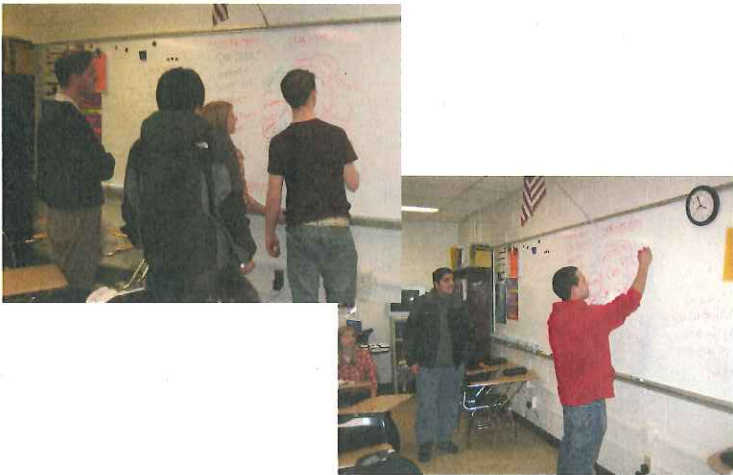
Mentors: Gilbane Building Company – Kelly Rosenthal, Greg Dunkle, Tony Albanese, Ben Alexander, Dan Kodan and Robert Vaughan
Turner Construction Company – Bob Nilsson
CR Goodman Associates – Jason Winters
International Masonry Institute – Maria Viteri and Joan Calambokidis
Annapolis High School – Sunny Deitrick

Students: Abdullah, Andre, Eric, Jonathan, Katie, Mansour, Paris, Peter, Rolin and Tony

Session #1 – Kickoff & Role Playing

Kelly Rosenthal kicked off ACE Annapolis 2010 with an overview of our mentoring program and our focus project for this semester, a new gymnasium for AHS. To familiarize the students with the world of design and construction, each mentor played the role of the different key project team player, explaining what the Owner, Architect, Builder, and Subcontractor each do for a typical construction project. The students then worked in groups, taking on the role of each team player. After brainstorming with the mentors on the different aspects of the gym, each group gave a brief presentation of their ideas.

To the left, Rolin and Mansour are playing the role of the Builder, working their magic on a “bubble diagram” first prepared by the Architect group of Katie, Peter and Paris, which depicts the schematic ideas of what spaces will be needed for the new AHS gym. One of the most unique ideas was a retractable gym floor that actually slides over a new swimming pool !!



Session # 2 – Basic Structural Design

The students had some hands-on fun using basic structural elements to build a “truss” system, just like that used in the construction of bridges and the roof of a gym. Dan Kodan led the challenge for groups of students to design and build the tallest freestanding tower, constructed only of spaghetti and gumdrops!!

To the right, Andre and Katie are building the lower levels of their edible tower, which won the award for tallest and strongest structure. Abdullah and Eric created a sprawling tower of chaos that would make Frank Gehry himself proud, but it simply could not stand the tension and compression forces!! Greg Dunkle and Robert Vaughan built their own tower as well, but they were disqualified from the competition for being far too old !!



Session # 3 – Field Trip – Fabrication Shop

Tony Albanese setup an excellent visit to the Shapiro & Duncan fabrication shop in Hyattsville, MD. The tour started with a presentation on BIM 3D computer modeling software used by their company, then a walk-thru of their shop floor, and concluded with a discussion of their apprenticeship program opportunities for young students. While touring the shop floor, the students each broke into groups for a contest to see who could weld the best sculpture out of scrap metal. Just kidding!!



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Session # 4 – Concept of Design

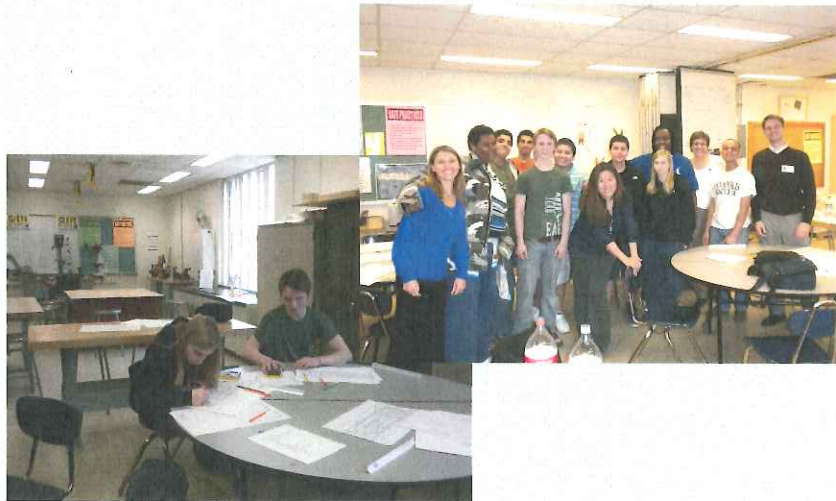
Jason Winters and Maria Viteri introduced the students to basic design concepts by first leading the group into the existing AHS gym to examine the layout, features, and construction materials. Students used tape measures (an important tool of a both the Designer and Builder) to determine the overall length and width of the gym, as well as the location and sizes of the door frames to the space. After the students took their field measurements, Jason demonstrated how a designer translates measurements from an actual 3D physical space by drawing a 2D architectural floor plan using the field dimensions.

Back in the classroom, the students then broke into teams of two for more practice with the tape measures, taking overall measurements of the room, and drafting floor plans of the space. To the left, Jonathan takes the width measurement for the doorway into the classroom, while Tony carefully notes the dimension for their floor plan drawing. A wise saying in construction is to always measure twice and cut once!!

Session # 5 – Reading Design Documents / Quantity Takeoff & Estimate

Jason brought floor plan drawings of the existing AHS gym developed from the previous session, and the students practiced using an Architectural scale to measure the dimensions on the drawings. The students confirmed that the dimensions of the gym on paper matched their measurements taken of the actual gym the week before with the tape measures.

Kelly and Greg then led a quantity takeoff exercise using another set of floor plans depicting gym locker rooms at George Mason University. Students broke into teams of two and used their scales and calculators to estimate the value of the construction components, such as the walls, floor, lockers, benches and plumbing fixtures. To the right, Katie and Peter's estimate was the most accurate, earning them a cash bonus of \$20.00 !! Following pizza, the whole ACE Annapolis gang poses for a candid group photo!!



Session # 6 - Alternative Energy, Sustainability & Site Planning

Robert Vaughan led a spirited presentation comparing existing energy resources and production with more sustainable forms of alternative energy. This is unquestionably the #1 most important area of design and construction where young students can make a huge positive impact on both our environment and our economy. Robert discussed solar panel technology, and even brought a solar cell to run a small fan. After class, the fan did run when the solar panel was brought outside in direct sunlight!! Robert also showed off a model he built of a gym, complete with the AHS panther logo, emphasizing an "intimidation factor" to any visiting schools that step into the gym!! The students were encouraged to shape their new AHS gym project to meet their own goals and imagination!!

Jason discussed sustainability from a design perspective, depicting how the orientation and size of a building in relation to the sun, as well as window placement and shading are critically important factors to consider during the early stages of a project. These factors have a tremendous impact on the overall energy consumption and efficiency of a building, particularly the light fixtures, heating and cooling systems.

Kelly and Ben Alexander led a presentation on site logistics, using a Google Maps "Bird's Eye" view of the entire AHS campus (upper left image). Past Gilbane gymnasium projects, Comcast Center at the University of Maryland, and Coppin State University, were reviewed to illustrate critical site planning decisions that made those projects successful. The students broke into their groups to study the AHS campus site, making an important early site planning decision as to where their new gym project will be located. The groups formed in this session will be the same for the remainder of the semester, as the competition to create the greatest AHS gymnasium ever now kicks into full gear!!

