Seminole Ridge – Habitat House Project

History and an Update 12/11/11

By: David Porter AIA, volunteer consulting architect for the project

Seminole Ridge High School, located in Loxahatchee, is a part of the Palm Beach County School District (the "District"), and opened its doors 7 years ago. It has one of the four Construction Academy Choice Programs in the District. The District's goal with the Construction Academy is, in addition to the general core classroom requirements, to teach the students about construction and related fields. They are taught by textbook, by hands-on mock-ups, and most importantly, by building real buildings. Students have to opt-in to the program and they have to want to be there. Some are interested in construction, architecture, engineering, and/or related fields. The hope is that the Academy's program will stimulate their interest in what to do after high school ends, whether that be going on to a professional degree or to enter the local construction workforce.

For the first four years of the school's existence, the students were taught about architecture, permits, codes, and construction as they designed and built the Ticket and Sports Storage Building at their school's stadium. I worked with the students on design aspects and processing the approvals through the District. The Academy teacher, Rick Terkovich, brought in other professionals and subcontractors to also work with the students. Mr. Terkovich was able to get all of the project's materials donated by local contractors and suppliers. The students did all of the construction work except for installation of the roof tile. The 82 "student builders" names are prominently displayed on a bronze plaque that was mounted on the building.

For the past two years, the Academy, the District's Choice Programs department, the school's magnet coordinator, and I have been working out a business relationship with the Palm Beach County chapter of Habitat for Humanity. Their executive director, Bernard Godek, thought working with the students to build a house for Habitat was a remarkable idea for both Habitat, for the students' Academy training, and to give the students a chance to give back to their community. The Director of Construction for Habitat, Don Kula, is our go-to guy for all aspects of the project and for ordering and having materials delivered. The experience of building the Ticket Building directly on the school's campus showed the Academy that they needed to try and stay on campus for future construction projects to maintain control of the students and the construction process. That spawned the idea of building a wood-framed, modular house inside the large workshop the Academy has at the school. The shop is big enough that all four house modules and the roof segments can fit inside at the same time so that no finished components will have to sit out in the weather until all are ready to ship to the property.

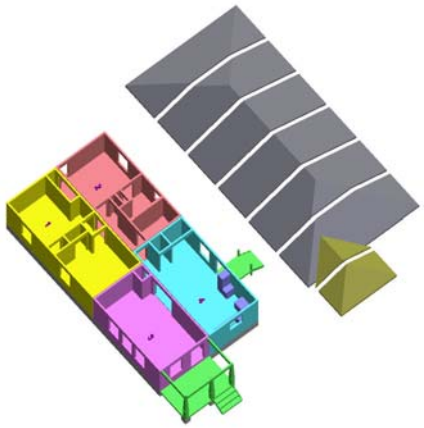
I worked with the students on the design aspects of the modular house and then I completed the construction drawings. Habitat has chosen a vacant lot on Saranac Avenue in the Westgate area in the County for this first joint venture house. The arrangement between the District and Habitat has Habitat providing all of the materials to the school and the Academy is to provide four, completed modular components and the roof segments, and have them delivered to and set onto a foundation at the property that Habitat will have built. Royal Concrete Concepts has graciously offered its rigging and trucking services to transport the modular units from the school to Westgate and then onto the foundation. The house has been designed and will be built to meet EnergyStar energy efficiency requirements. The project is a win-win for the Academy and for Habitat.

A family has not yet been chosen by Habitat to be the owner of this house. When that occurs, the family will be brought to the school to meet the students who are building *their* house. Habitat has also started working with another non-profit agency called "Operation Homefront." That organization assists returning military veterans with becoming assimilated back into civilian life. A part of Operation Homefront's goal is to assist vets with housing. Mr. Godek wants to have each home built by the Seminole Ridge Construction Academy to be for an Operation Homefront family.

The Academy has approximately 150 students who are participating in the learning and construction. The juniors and seniors are the key workforce members with some sophomores assisting. They are divided into classes of 25 that meet two to three times a week for 2 hour sessions. Each class has been divided into four teams. Each team for each class is in charge of all

construction on their designated module. When the next class comes in, they take over where the last class left off. It is shift work training at its best. Color coding of hard hats to identify the various teams was the brainchild of Bill Featherston, the GC advisor for the construction work, and it has helped to corral the students back to their respective modules to keep the progress moving along. A team leader for each group was chosen by Mr. Terkovich to serve as the foreman and for quality control. Mr. Featherson and I make weekly "job site" visits to the shop to look over the construction, advise about the next steps, and to show the students what needs to be corrected. The students are getting a real life construction site experience. There are safety briefings (and reminders) and no one, including the adult advisors, subcontractors, and consultants assisting with the project, steps inside the fenced construction zone inside the shop without wearing a hard hat, proper clothing and footwear, and eye protection. Each of the students has already received their 30-hour OSHA construction safety training and certificate as a part of the teaching by Mr. Terkovich (a certified OSHA trainer). The juniors and seniors have also had the experience that the ACE Mentoring program (Architecture, Construction, and Engineering) provided to them over the past two years. The Weitz Company and Pirtle Construction brought this national mentoring program to the Construction Academy three years ago and I joined them as the "A" component. We developed a 16-class curriculum to provide the students with real-life construction training, experiences, and hands-on mock-up projects that supplement their classroom training (design, BIM, LEED, codes, concrete, masonry, soils, estimating, scheduling, plumbing, and electrical).

The Seminole Ridge – Habitat House is a three bedroom, two bathroom, single-story house containing 1,206 SF of AC area. It is broken into four, 12'-6" wide modules to facilitate over-the-road hauling (in the colored isometric below, the purple area is the living room module, the yellow area is the bedroom module, the pink area is the master bedroom and bathrooms module, and the blue area is the kitchen, dining area, and laundry module). The house will be built on a crawlspace foundation to allow access underneath the wood floor system for completion of the plumbing work once the modules have been set and secured onto the foundation. Since the modules will be completed up through finished interiors (walls and ceilings, all painted and trimmed, and all cabinets installed), it was crucial to design a modular roof system that could be quickly installed and made watertight at the property. The Academy will build the trussed roof in strips that they will dry in. These will be hauled to the property at the same time the house modules are moved. The roof can then be put in place within a half a day and sealed to protect the modules' completed interiors.



To allow sufficient time to develop a learning curve for how long it will take this first group of students to build the first house, 18 months has been allocated for the modular construction. It is hoped that the efficiencies of the fabrication process learned will allow subsequent houses to be completed within a single school year.

For plan review, permitting, and inspections, this project is also unique. Since the school district has its own building department to handle all projects built on District property and since the modular units were being built on District property but for eventual installation on property in unincorporated Palm Beach County, the project required and received cooperation from the District's building department and the County's building department. The County reviewed the plans and issued the permit and the chief inspectors have taken on the project to come out to the school to conduct the inspections. I had wanted the inspection process to be helpful and educational to the students so that they would get a clear understanding of permitting and inspections of their work that are a part of the checks and balances of the construction process. The chief inspectors for the County have warmly received the project and have provided valuable input and insight for the students. Following a recent structural inspection for the floor system, the County inspector noted that the work was done well and that he had seen work by paid, licensed contractors that was a lot worse. The school district inspectors are also offering up their time to assist with the project by making "pre-inspections" of the work by the students so that they will have an advance "heads up" for corrections that might be needed before the inspection that counts by the County. With the volunteer professionals and contractors and the various inspectors looking over this house, it may be the most inspected project to be built in the county.

The project's involvement with the school district has now also expanded to other high schools. Royal Palm Beach High School has an Air Conditioning Academy where students are trained in the installation and servicing of air conditioning systems. Their students and instructor, Patrick Rainey, will be providing the air conditioning installation work once the module units are installed at the property. Vans Comfort Temp, an air conditioning contractor and a member of the Royal Palm Academy's advisory board, and Goodman Air Conditioning Equipment Manufacturing, have offered to donate all of the AC equipment and supervisory management for the Royal Palm Academy in their work on this house. They will help instruct and supervise the students during the AC installation work. In addition to adding Royal Palm to the team, students and a teacher from Palm Beach Lakes High School have committed to build the site-built front porch and the attached storage shed at the back of the house, once the modules are in place. To properly document this momentous project, John Walker, magnet programs coordinator at Seminole Ridge, has engaged the photography and videography classes at the school to chronicle the construction process from beginning to the end when the units are pushed out the door and away to the property.

Some additional participation by various groups that have been associated with the Construction Academy for some time are: 1) The West Palm Beach area masonry apprenticeship program will build the masonry foundation for Habitat on the property, 2) Bill Keene, director of Pipe U, the West Palm Area plumbing training and apprenticeship program and volunteer instructor at the Construction Academy, will provide his expertise to help the students with the plumbing work on the modules, 3) The Weitz Construction Company and Pirtle Construction have both committed project managers to help out where they can with the construction process and in securing subcontractors to serve as mentors and advisors, 4) Simpson Strongtie has donated all of the wood connectors and Quikdrive equipment for the floor sheathing, along with providing their local rep, Ed Grablewski, to show the students how to use the equipment and install the connectors, and 5) Robert Trepp from Cardinal Electric has graciously offered to donate the electrical equipment and wiring and will be advising the students with the electrical work.

The status of the construction as of the week of December 5th, is shown by the photos below.

(These 3 progress photos, courtesy of the Seminole Ridge photography class students)

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