



*Saturdays have been busy for volunteers at the greenhouse, which is expected to be completed this month; at left are architectural drawings by Colley Architects, P.C.*

# Spotlight shines on solar greenhouse

By Sarah Cox

**G**reen technology is ascending to another level as the new solar greenhouse, sponsored by the Virginia Tech YMCA, takes shape off North Main Street in Blacksburg. The result of community volunteerism, this greenhouse has come together through the collaborative efforts of Green Valley Builders, Evergreen Insulation, Anderson & Associates, David Roper, Tim Colley & Associates and Truesdell Engineering.

Colley, whose architectural firm drew the plans for the 18-by-32-foot solar greenhouse, said his firm donated both sweat and professional equity because his employees are “committed to improving our community and we feel, as architects, we are able and have the experience, knowledge and training to help further those ideas and building types in our community. As a general practice, we try to get involved in things that have a sustainable angle, also.”

Colley said it was thrilling to help realize the goals of Dave Roper, a Blacksburg environmentalist and retired Virginia Tech physics professor, who began researching solar

greenhouses several years ago, and Gail Billingsley, director of the YMCA at Virginia Tech. And those goals will be to grow year-round produce within an environmentally efficient greenhouse that uses subterranean heating and cooling.

This greenhouse is not your average back-yard structure. It collects energy from the sun and stores it for use. While the average greenhouse may get too hot when the sun shines and too cold during the winter, this YMCA solar green house stores energy in a subterranean heat sink of soil/rocks and water under planting beds with a system of underground pipes. A temperature-controlled fan will keep the greenhouse at a constant temperature.

Colley said Roper told him this was the only solar greenhouse east of the Mississippi River.

“We learned about community, more than anything else,” said Colley of the project, which is located on 15 acres and will include a community garden, the solar greenhouse, raised bed gardens, orchards, honey bees, wet lands and a learning center.

While the estimated value of the greenhouse is around \$45,000, Colley

## YMCA GARDENS

The Hale-YMCA Community Gardens at 215 Maywood Drive is devoted to general community use through organic gardening, exploration of environmental/gardening-based community projects, environmental education and social gatherings, according to the YMCA’s vision statement. The statement also says the gardens “will foster a social atmosphere that helps develop an inclusive community, encourages interaction of diverse groups, and encourages the sustainable use and preservation of the property. The Gardens will encourage the use of innovative, green building materials for permanent and semi-permanent structures.”

said it could be scaled down for homeowner use — for instance, designed as a lean-to against the south-facing wall of a house

“It still would be an expensive little greenhouse, but the idea is to grow food in the winter, so it has some validity. There has also been some interest from organic farmers,” said Colley.

Justin Boyle, who owns Green Valley Builders, Inc., along with his brother, Jason, said he learned a great deal through his work on this project.

“It’s a pretty neat concept. We’ve always wanted to help out this community, and that’s kind of the way we looked at it. We did a lot of things we hadn’t done before, working with different materials and installing panels for the greenhouse.”

He said he devoted a lot of Saturdays putting the greenhouse together.

Roper told Tonia Moxley of The Roanoke Times for an article pub-

lished on Nov. 29, 2008 that one of the goals of the greenhouse was to produce food locally, and year-round, rather than transporting it an average of 1,500 miles using a lot of energy and fuel.

Not only does the greenhouse use a subterranean heating and cooling system, but it also will have green building materials donated by Evergreen insulation such as soy-based foam, fiber cement siding, and Insulated Concrete Forms (ICF).

Boyle said the hope is to have the greenhouse start producing food by the spring of 2010, but it will be finished by the end of April, and then there will be experiments and calibrations as well as starter crops. According to Boyle, half of the greenhouse will be used by elementary schools and the other half by the community gardeners. The greenhouse will be rented space and the income brought in will be used for maintenance and upkeep.