Breadth Studies

Breadth is covered in all of the analyses in some form, but some of the analyses require additional investigation to fully demonstrate breadth. In particular, two breadths will be further addressed in order to maintain focus; Sustainability and Mechanical System Design. The focus on sustainability will be addressed in each of the analyses and the mechanical system design will be addressed primarily in *Analysis Description II*.

Sustainability:

The first area of breadth will be the overall sustainability of the project; a sustainable architecture breadth. It will focus on schedule and budget impacts of implementing additional or alternative features, materials, and construction methods into Ingleside at King Farm in order to acquire some of the LEED credits that are not currently attainable. Some additional or alternative features include, but are not limited to, an improvement in material selection, a reduction in energy consumption, and a consideration of life cycles.

This breadth will suggest the appropriate phase of the project that such features should be considered in order to be successfully implemented. When necessary, calculations will be performed in order to prove the credibility of the suggested elements. In addition, the breadth will offer suggestions on greening the project team to allow a smooth and sustainable design and construction process. Each of the *Analysis Descriptions* are already leaning toward developing a more sustainable Ingleside, which not only aligns with the goals of the owner, but allows for integration of the various Analysis Descriptions.

Problem/Opportunity Statement:

Sustainability is sometimes viewed as a gimmick or a fad that ends up leaving owners wondering what happened with their project and leaving them with less money in their wallets. It's closed minded thinking that sparks these ideas, which are not always generated explicitly from an owner's point of view. Designers and contractors often don't take the time to learn about sustainable practices and can easily fall into a closed minded mentality. Seeing the other side of the fence, like the more than 30,000 attendees and 1,400 exhibitors at Greenbuild, one can quickly be enlightened and understanding why sustainability is not a fad. Nature has practiced the concept since its existence and is capable of healing itself under natural circumstances. Many areas of the earth have evolved into unnatural habitats and daily human population has grown exponentially along with human consumption. Some believe that this unnaturalness and exponential growth has caused an environmental condition in which earth is not capable of healing before its resources are spent, so human nature has forced us to seek other resources. Seeking other resources is only a short term solution, but each resource that's harvested from the earth has an impact in some way. No one is really certain where the line must be drawn before earth can't sustain human existence as it is known in today's day in age.

We are certain that there are many types of crisis in the world and many of them relate to the economic status of the countries we live in. The fundamentals of economics are all about supply and demand, which has to do with the quantity of resources available to

manufacture products that consumers desire. Desires will soon be unanswered if there is not a concerted effort to take advantage of every opportunity possible to reduce or eliminate wasted resources and increase efficiency. The United States Green Building Council has been tossing around the idea of restorative projects, or buildings that replenishes as many resources as they harvest, which may also be known as carbon neutral. A breadth study of some of Ingleside at King Farms's systems will be step toward neutrality.

Structural:

Evaluating the exterior wall system design will also require a significant amount of additional work to demonstrate breadth. Part of the goal in this area is to be able to improve thermal performance, improve constructability, reduce the schedule, and add value by utilizing an alternative wall system. With a low effective R-Value of the current design, there are many options to improve.

Problem/Opportunity Statement:

This breadth addresses structural impacts of the new exterior wall system. Ingleside at King Farm's current superstructure consists of a PT floor system with metal stud infill construction. The project consists of three basic wall assemblies, which all support either face brick, cast stone, or EIFS. They are insulated primarily using an R-19 fiberglass batt, which is heavier than the insulation in the proposed wall system.

It is believed that the proposed wall system will perform the same as the current system. Additionally, no improvements to the superstructure (floor and column system) will be required. This breadth will show calculations proving that the proposed system will not add additional weight to the system and will support the currently designed interior and exterior finish systems. It is also integrated into a single existing analysis element, which makes it simpler to evaluate overall impacts of the change.