DPIS Engineering, LLC
The Builder's Solution

DPIS Newsletter

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Thank you for a great year in 2006. I'm always amazed and awed to be involved in an industry that touches people in such a personal way. Through the hurricanes, floods and snow storms, the home builders of the United States have persevered. There is no force on earth that can stop the human spirit from longing to provide shelter to their family. Equally, it is impossible to stop the entrepreneurial mavericks who have mastered the art of providing that shelter. While technological improvements may have catapulted us beyond straw huts, today's need for shelter is the same as it was for Adam and Eve.

I'm extremely proud when I see our industry moving toward more efficient and better construction techniques. When you think of the value being built into homes today, you soon realize that a home is still a great investment. Today's homes are extremely energy efficient, structurally sound, low maintenance and affordable. How would you like to own a car that lasted as long as a home?

Very few external forces have the ability to adversely affect our markets as much as the internal force that we all must deal with. The internal force that I'm speaking of is myopia. Things have been so good for the past 12 years that most of the people in our profession have never seen hard times. Most of our younger people think it has always been this way, and even worse….that it always will be. Even some of us older folks are getting to the point where the mid 1980s is just a distant memory.

I don't claim to be the sharpest tool in the shed, but my prayer is that we can be more like prairie dogs over the next few years. Each animal has its own burrow that it protects and defends, while simultaneously looking out for the whole community. This may sound awfully communistic coming from a red neck like me, but in reality it is free enterprise at its best. If we communicate as an industry and warn each other when the hawks are circling overhead, we become invincible.

Please stay in touch. I am very interested in topics for the Better Home Show (700 KSEV AM Saturdays 8 to Noon). If you have suggestions, please email me - dale@dpis.com.

Dale Phillips

2-10 Warranty Program Participants

As a commitment to providing a quality product, builders have long chosen to purchase a supplemental 10 year structural warranty. There are many supplemental structural warranty companies who provide extended coverage for builders to purchase and pass on to the homeowner. 2-10 Home Buyer Warranty (2-10 HBW) is one of these companies and may be familiar to you.

As engineers committed to providing quality designs, we have a unique position to determine the appropriate foundation system which will help minimize the effect of expansive soil on residential foundations.

2-10 HBW Warranty Company issues the Texas Risk Management Manual (TRMM) which outlines the special standards and requirements for the design and construction of foundations for participants in the 2-10 HBW Warranty Program. As indicated in section 4.3 of the TRMM, "The foundation system or soil improvement methods used in the construction of all homes or multi-family buildings proposed for enrollment in the 2-10 HBW Warranty Program will be determined by the Structural Engineer…in accordance with the guidelines set forth in this Manual."

The TRMM identifies four post tension foundation types, with alternatives for conventionally reinforced foundations, as the minimum design requirements depending on the information provided in the Geotechnical report. These four designs are intended to provide an adequate design for a range of subsurface conditions likely to be encountered in Texas. As such, each subdivision or lot must be classified into one of only four types of foundations and the guidelines must be met regardless of where the values fall within the appropriate range.

Due to the limited number of designs identified by 2-10 HBW Warranty Program, we have found we have had to considerably increase the depth and number of the beams and include additional tendons in order to meet these minimum guidelines where a lesser design would comply with standards set forth in the Post Tension Institute Manual, ACI, and Texas Residential Construction Commission. In a competitive business, with the cost of materials constantly increasing this can severely impact the profit margin of many builders.

When working with other warranty programs, our foundation designs address the soil conditions encountered at each subdivision and meet or exceed the same performance standards as the 2-10 HBW Warranty Program without the added concrete or tendons. The difference is the flexibility to analyze on a case by case basis as opposed to using a limited classification system.

Machel Craig

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Grading And Drainage

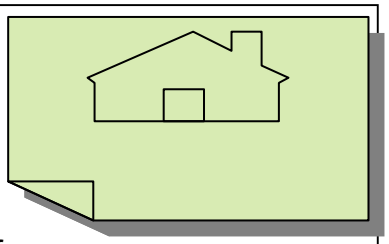
This is a photo of surface water right up against a foundation that has not yet been tensioned. This photo was taken on the third day after the rain that caused the puddles.

Water standing within 10 feet of a foundation can cause a list of undesirable affects.

- Will the cable company be able to access the tendons for tensioning?
- What if the rains start again before the soils dry out enough to let the tensioning crew into the area?
- Should the builder stop progress on the house until the water is gone?

If the lot were properly graded prior to concrete placement this situation, in all likelihood, never would have happened. Aside from the possible engineering mishaps that the standing water may help to facilitate, the builder runs the risk of contractors or employees injuring themselves due to unsure footing or hazards in the mud and water. And building materials could be compromised or ruined. Also, the house will be filled with mud; customers love to see filthy houses. If none of the above happens, at the very least, production will slowed and quality will be in jeopardy.

Billy Rogacki



Much like a puzzle, building a house has many pieces that must be fit together in a precise order and layout to achieve the desired final product. However, unlike a puzzle, building a house in an efficient, cost effective manner requires getting the pieces in the right place the first time. It is for this reason, imperative the builder have a full set of engineering and architectural plans before beginning any construction, particularly in regions requiring windstorm design.

Although windstorm engineering is a small percentage of the plans we provide, in many cases, the windstorm design requires hold-downs (i.e. HTT16, HTT 22, HDQ 8) on interior walls or structural panels with bolts that require embedment greater than 21". Although foundation designers make an effort to locate the beams under load bearing walls, it is not necessary or cost efficient to locate a beam under every load bearing wall. Due to this fact, the windstorm design may require modifications to the foundation not on the original foundation design. The windstorm plan indicates the required embedment of the bolt as well as the increased section of the foundation. If the builder has the foundation plans, windstorm plans and architectural plans on site, he/she should be able to make the modifications to the foundations in the correct location(s) in order to provide the required concrete cover and embedment. Therefore, we are adding the following note to our foundation plans:

"When building in a windstorm area there may be special requirements/ modifications to the foundation not shown on this plan. Consult the architectural and windstorm engineering plans to coordinate these requirements/ modifications."

In an effort to keep pace with the builders, we have issued engineered foundation plans prior to issuing engineered windstorm plans. However, we are striving to be more diligent about assuring all required engineering drawings are available to the builder at the commencement of construction. We have asked our inspectors to verify the builder has a copy of the architectural, windstorm and foundation plans on site at the time of the pre-placement inspection when building in a windstorm area. If the foundation has been poured and the modifications have not been made to accommodate the windstorm elements, the solution will be time consuming and expensive.

Quality home construction requires the cooperative efforts of all parties involved in the design and construction process. The builder must be the team leader and exercise control of construction through their superintendents in order to assure that each home is constructed in strict agreement with all applicable signed and sealed engineered plans.

Machel Craig