The I·GRACE COMPANY
Commissioned Private Residences®

NEWSLETTER

FALL 2010

X-RAY vs. RADAR

For those who are unfamiliar with PTS (and no, it's not Post Traumatic Stress), here is a brief description of the process and some benefits of using this method. Post-Tensioned Slab construction is a form of concrete decking that is built using wood forms without the use of a metal deck. Post-tensioning is a technique for reinforcing concrete. Instead of using standard reinforcing steel (rebar), there are many strands of high tension cable (tendons) that are laid within the form in addition to rebar. The tendons, which are high-strength steel wires wound together inside a plastic duct, are often draped making them higher at the tension points than they are in the middle. Once the concrete is poured and has cured and gained strength, the cables are progressively tightened. This "post-tensioning" is a form of pre-stressing and has several advantages over standard rebar construction including the reduction or elimination of shrinkage cracking while creating a stronger, thinner slab.

Why is all of this important? Because now, due to changes to the LA Building Code, the Powder Actuated Guns that were commonly used to secure anchors to

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TWO RECENTLY PUBLISHED PROJECTS

Check out the September 2010 issue of *Architectural Digest*, which features two of our projects.

Interior Designer, Donna Livingston, talks about finding the perfect home in the private community of Trousdale Estates in Beverly Hills, CA, and how her signature style evolved into something "a little funkier" by "living in her own creation."

Interior Designer, Arthur Dunam, embraces the unexpected when finding and designing an apartment with a challenging layout for himself and his partner, Roy Cohen, in New York City. It took him only one day to come up with a solution that is as richly embellished as it is appropriate to the setting.

Click on the magazine images for links to the full articles.

GREEN LIVING

Our Service and Maintenance Team recently completed work on a Tribeca rooftop terrace designed by Dennis Wedlick Architect. The space was completely outfitted with a brand-new, state of the art outdoor kitchen, large custom storage bins designed to mirror the kitchen cabinets, various pathways that bridge different sections of the roof, and a lounge and separate dining area. Richlite®, a paper-based countertop surface, was used for the kitchen countertops as well as other furniture surfaces throughout the design. Richlite® is made from environmentally sustainable resources – primarily of paper purchased from FSC-Certified sources and/or recycled paper - and is an attractive, durable, long-lasting material that complements a variety of design tastes. Additional upgrades to this rooftop space include custom grills to conceal all mechanical work and new resin steps to complement the existing walkway. The bridge, which connects multiple elevations on the roof, was modified to accommodate an LED lighting program that was installed underneath all of the steps and walkways. This serene space has a completely streamlined look and breathtaking views of the city.

I-GRACE SCHOLARSHIP

Just a reminder that the I-Grace and ICA&CA Scholarship deadline is approaching on October 1, 2010. Please visit www.igrace.com or classist-socal.org for more information.

"A few months ago I was very lucky to be awarded the first annual I-Grace scholarship for the Winterim Intensive program in New York. It truly was an honor and the experience was absolutely incredible, vastly exceeding my expectations."

Jeff DiCicco
2010 Scholarship recipient

I-GRACE NEWS

NEW HIRES

Bill Colligan
Senior Project Manager

Elaine Federici
West Coast Office Assistant

Jim Tully
Chief Financial Officer

CONGRATULATIONS

Danny Rodriguez, Service Laborer, welcomed his daughter, Emily Michele, on May 19, 2010.

We welcome your feedback. Please contact us at news@igrace.com with any questions, thoughts or suggestions you may have.

High tension cables prior to the concrete being poured.

the underside of concrete slab ceilings can no longer be used - they do not meet the new 2" to 2 ½" depth requirement. It is now necessary to pre-drill holes and screw expansion bolts into the deck to accomplish the task once handled by the gun. This becomes tricky and extreme care must be taken when drilling so as to not compromise the structural integrity of the tendons running through the slab. As-built plans are not accurate enough for this work, so it becomes necessary to determine exactly where the tendons lay. This can be done in one of two ways.

One option is to use X-ray to locate placement of the tendons within the slab. Film is placed below the slab for floors, or above for ceilings, and a large machine shoots X-rays through the concrete to capture images of what lies within. Once developed, the picture will approximate a 12" square of the floor or ceiling and from this we can locate and determine where to drill the anchors. The downside is that X-ray is slow and costly – ceiling work requires 20 to 22 X-rays per day at a cost of $95 each. For one of our recent LA projects, it was necessary to drill 450 holes in order to bolt the unistrut framing to the ceiling. Every time we encountered a location that could not be drilled, it meant taking 2 more X-rays to determine where to shift our attachment points.

Another option is to use a special ground penetrating technique that can send radar or microwaves into the slab to create imaging of the position of tendons based on the bounce-back of waves. Radar can also determine the depth of an obstruction within the slab – something X-ray cannot. There are several additional benefits to using radar instead of X-ray for these ceilings. Radar does not require access to the other side of the slab, and since radar waves are not dangerous, there is no need to shut down a job site during this process.

For our particular project, we mapped out all of the drill locations on the floor and then used a laser to transfer the information to the ceiling. Using a rolling scaffold allowed us to move the radar machine around to paint the ceiling where obstructions were observed. We relocated the drill points based on the painted spots.

Concrete ceiling with markings indicating where the GPR detected obstructions.

We elected to use Ground Penetrating Radar (GPR) to save both time and money. The cost is about 1/3 that of the X-ray since many more can be done in one day. On our project, we were able to complete 550 radar scans in one day. What could have taken 4 weeks or longer took about one week and gave us the ability to continue radar detection while drilling simultaneously.

For more information, please contact Jon Adir (jadir@igrace.com) or Tom Robinson (trobinson@igrace.com).

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