

**Public Hearing Testimony for the Planning & Development Committee
On HB 5180- An Act Concerning the Documentation of Concrete Foundation Applications
February 19, 2016**

Dear Co-Chairs, Senator Osten & Representative Miller, Ranking Members, Senator Linares & Representative Aman, and members of the Committee,

Thank you for the opportunity to provide testimony on House Bill 5180- An Act Concerning the Documentation of Concrete Foundation Applications. **The Joseph J. Mottes Company applauds the efforts of this committee to ensure greater documentation of and accountability in the foundation installation process.**

With the recent reports of many residential foundations showing cracks and deterioration, and the interest of the Connecticut officials looking to find solutions, **it is imperative that any legislation proposed this year properly addresses the issue of foundation installations, in order to avoid these issues in the future.** As an illustration of how **good concrete handled badly can lead to diminished durability**, the fact that the vast majority of foundations built during this time experienced no problems indicates that a confluence of events could be the source of these problems and could have been prevented by proper installation techniques.

The American Concrete Institute's Guide to Durable Concrete (ACI 201.2R) summarizes this issue best:

"The strength and durability of concrete can be significantly impaired by the use of improper placement, finishing, and curing techniques while concrete is in the unhardened state. Appropriately proportioned concrete mixtures that are properly placed, consolidated, finished, cured, tested, and inspected will help to ensure that the desired durability characteristics are achieved."

The manufacturing of ready mix concrete in Connecticut is almost universally an automated process. The manufacturing processes are inspected; the aggregates, cement and admixtures are periodically tested and each batch of ready mix is recorded on batch tickets when sent to the job site. In a certain sense, making the ready-mix concrete is the most automated, repetitive, and monitored part of the making a foundation wall. In many cases, such as ours, **there is no difference between the raw ingredients for concrete sent to a residential build versus a commercial build—the material leaving the batch plant is the same, and is held to the same standards.**

However, the actual preparation, construction and installation of walls and foundations bring their own set of unique challenges for each and every job. Ready mix concrete is delivered to a job in a liquid state. It is the installer who manipulates it into the forms, and improper handling at this point can have a bad effect on the resulting foundation. Further, how the foundation is cured, waterproofed, and backfilled can also have profound effects on the foundation itself.

The way that a foundation is installed at a residential build is the most critical part of the process, as there are a number of factors involved which have a bearing on the foundation's long-term durability. The actual installation is also the most difficult and physically demanding part of the job. Despite this, **there are currently no state nor local inspection/supervisory standards in place for residential foundation installations.** Alternatively, ready mix installations at state, municipal and commercial job sites are subject to various rigorous inspections.

Given this discrepancy, we believe that statewide standards for residential installation should be developed and enacted to limit the occurrence of flaws in the placing of concrete foundations, and to ensure accountability if errors occur. Attached are our thoughts on how to amend the proposed bill to reflect the actual elements that go into creating a foundation. In addition, below are our suggestions for added safeguards that Connecticut should implement to better ensure homeowners are protected in the future:

- **Require all concrete installers be licensed by the state** to ensure competence and standards. Other participants in the homebuilding process are licensed, and the same should be true of those placing the foundation of a home.
- **Ensure inspection of foundation installation at home build sites.** One possibility could be to utilize American Concrete Institute (ACI) Grade 1 technicians as third party inspectors. This takes the pressure off of the town building inspector, and the cost of this would likely be just a few hundred dollars charged to the home builder. An ACI Grade 1 is an individual who has been certified as demonstrating the knowledge and ability to properly perform and record the results of seven basic field tests on freshly mixed concrete.

The ACI Grade 1 technician would be hired by the builder or the homeowner **to witness the concrete placement and measure and record the slump and temperature of the concrete just prior to it being placed. The ACI Grade 1 technician should also record batch and placement times, batch ticket numbers, compressive strength design, water added, air temperature, and weather conditions.** All of these are factors in the ultimate strength of the foundation.

Additionally, the building inspector should approve when the foundation wall can be backfilled and he/she must approve the soils used for backfill. **The results of these inspections should be noted in the permanent record of the home with town records and provided to the lender.**

- **Document the foundation installation to ensure that the concrete mixture is appropriate.** We recommend that the concrete batch ticket be retained and documented with the following information: time batched, time discharged, water added, and compressive strength design of concrete with any options such as air entrainment. A statement should be signed by the installer attesting to the information and should accompany a copy of the batch tickets and given to the building inspector.

Documentation on the water content of concrete is critical, as too much water means weaker concrete. Water is a critical part of producing concrete as it is an integral part of the chemical process. Water also provides “workability” to concrete during placement. More water makes it easier for concrete to flow. However, too much water weakens the bonds of the concrete, causes excessive shrinkage and creates voids for reactants to enter hardened concrete. It should be noted in the record of the home whether the installer requested additional water beyond the requirement of the mix design be added to the batch of concrete.

The Joseph J. Mottes Company takes the issue of deteriorating foundations very seriously, and we share the desire of this committee and others to find solutions to the problems at hand. By implementing standards like those we’ve recommended above, **the legislature will add a layer of accountability into the homebuilding process that does not currently exist. The Connecticut Department of Transportation is also adding quality control requirements for concrete aggregate producers to help in this respect.** Documenting and inspecting the process of installing a foundation will give peace of mind to future homeowners that their homes’ foundations were installed properly.

Thank you for your consideration of these recommendations and we would be happy to speak with the committee further about any of the topics outlined in our testimony.

Respectfully,

John Patton

The Joseph J. Mottes Company- Stafford Springs

Raised Bill No. 5180 LCO No. 1058
Referred to Committee on PLANNING AND DEVELOPMENT

Introduced by: (PD)

AN ACT CONCERNING THE DOCUMENTATION OF CONCRETE FOUNDATION APPLICATIONS.

Be it enacted by the Senate and House of Representatives in General Assembly convened:

Section 1. (NEW) (Effective October 1, 2016) Prior to the issuance of a certificate of occupancy for a new residential or commercial building for which a concrete foundation was **installed** [poured], the applicant shall provide the building official with documentation of the name of the individual(s) or entity(s) that **provided the ready mix concrete, installed** [poured] the foundation **and the floors, backfilled the foundation and waterproofed the foundation as well as the** date or dates **of such** events [upon which the foundation was poured]. On and after October 1, 2016, no certificate of occupancy may be issued for a new residential or commercial building for which a concrete foundation was installed [poured] unless such documentation has been provided in accordance with this section.

This act shall take effect as follows and shall amend the following sections:
Section 1. October 1, 2016

Statement of Purpose:

To require documentation of the name of the individual or entity that provided the concrete, installed [poured] a concrete foundation and walls, backfilled and waterproofed such foundation at a new residential or commercial building and the date upon which the events took place [foundation was poured] prior to the issuance of a certificate of occupancy.