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Forensic Engineering Analysis of a Contractor/Subcontractor Dispute

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Abstract

Construction defects and the resulting disputes between contractors and their various subcontractors are not a recent concept. However, with the proliferation of specialized licensing requirements, building codes, regulations, and national standards, threshold requirements for the built environment are now significantly better defined than in the past. Market forces have led most general contractors to contract out most of the actual work in lieu of self-performing. As a result, construction dispute claims have become more common and complex. The forensic engineer must consider not only the technical aspects of a claim but the contractual and regulatory requirements as well, when tasked with distributing culpability between the various parties. The purpose of this article is to examine the component of the dispute between the Contractor and Subcontractor with specific focus on the regulatory and contractual requirements.

Keywords

Forensic Engineering, Contractor, Subcontractor, Regulatory, Contract

Background

During construction of a five story, post-tensioned concrete residential condominium in North Carolina, a licensed general contractor (Contractor) subcontracted to unlicensed: concrete forming and placement subcontractor (Concrete Sub), masonry subcontractor (Mason), light gauge metal stud and drywall subcontractor (Wall Sub), and fenestration supplier and installer (Fenestration Sub). The Contractor also subcontracted with a licensed waterproofing subcontractor (Waterproofing Sub). The Contractor provided customary on-site project management and maintenance of a detailed schedule along with other typical construction management duties. The Contractor elected not to self-perform any of the building envelope or structural work. The Concrete Sub was responsible for all formwork design, post-tension design of the elevated slabs, and construction of all concrete elements. The Wall Sub provided and installed all of the light gauge metal framing: drywall, wall sheathing, weather resistive barrier (WRB), and masonry tie bases. The Mason provided and installed all of the brick and related accessories, including integration of specified through wall-flashings. The Fenestration Sub provided and installed all windows and doors, including related flashing elements. The Waterproofing Subcontractor provided and installed the balcony waterproofing and related flashing and termination elements. All of the various subcontractors were tasked with integration of their work with the work of others.

The project, as detailed in plans and specifications provided by a team of architects and engineers working on behalf of the developer, featured numerous private balconies which were specified to be waterproofed with a liquid applied traffic coating (traffic topping) or concealed sheet-applied waterproofing material (concealed waterproofing) integrated with the WRB and doors. During the course of the project, the Contractor not only failed to notify the Waterproofing Sub the balconies were ready to receive the waterproofing but failed to submit the necessary submittals to the architect in a timely manner. The Contractor directed the Fenestration Sub to install the sliding glass doors (SGD's) and directed the Mason to proceed with installation of the brick veneer. Once the Waterproofing Sub was ultimately called to the site, the façade was complete, with the exception of the waterproofing and surface sealants (see figure 1). The Waterproofing Sub notified the Contractor that the balcony waterproofing could not be installed in accordance with the contract documents, or manufacturer's recommendations without removal of the brick veneer and SGD's. After several heated exchanges between the Waterproofing Sub and the Superintendent, the Waterproofing Sub relented and agreed to install the traffic coating in a manner inconsistent with the contract documents but as directed by the Contractor. The traffic topping (see figure 2) and concealed waterproofing (see figure 3) was installed on top of the face of the SGD's and brick veneer, just below through-wall flashing installed by the Mason. The waterproofing traffic topping was applied over the exterior face of balcony SGD's and outswing doors. Neither the architect nor the developer was notified of this significant deviation from the requirements detailed in the contract documents.

After owner occupancy, significant water intrusion was suspected when deterioration of interior finishes was discovered. Further investigation identified corrosion of metal studs and numerous other deficiencies in the installation of building envelope components. Water intrusion at SGD's and exterior



Figure 1



Figure 2



Figure 3

walls was exacerbated by inadequate balcony slope, which resulted in surface water ponding against the building envelope. These conditions, along with other widely reported structural concerns, impacted the marketability of the condominium units and ultimately led to the suspension of condominium sales.

During the ensuing litigation, the various parties did not dispute the sequencing facts related to the construction of the building envelope at the balcony areas. The Contractors and Subcontractors asserted that, while not in compliance with referenced standards, code qualification reports, the plans and specifications, they fully anticipated the field-modified details would perform adequately. The subcontractors involved also claimed their work was performed as directed by the Contractor's Superintendent, that the Contractor was fully aware of deviations from the contract documents, and that these facts resolved them of any culpability related to the revised details. Questions were ultimately raised as to the qualifications of the Contractor's superintendent, who was released from employment soon after completion of the project.

Contractual Requirements

With the technical aspects of the case identified, the contractual and regulatory requirements were considered as a means of denying the basic premise of the subcontractors' defenses; essentially that they completed their work as directed by the Contractor and therefore complied with the terms of their subcontract. In this particular case, the Owner and Contractor executed AIA Document A111 -1997, *Standard Form of Agreement Between Owner and Contractor* (Prime Contract), which referenced AIA Document A201-1997, *General Conditions of the Contract for Construction* (General Conditions). Several General Conditions sections specifically address issues pertinent to this discussion.

3.7.2 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations, and lawful orders of public authorities applicable to the performance of the Work.

3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor and communications given to the superintendent shall be binding as if given to the Contractor.

3.10.1 The Contractor ...shall prepare and submit for the Owner's and Architect's information a Contract's construction schedule for the work...revised at appropriate intervals as required by conditions of the Work...

5.3.1 By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work performed by the Subcontractor, to be bound to the Contractor by terms of the contract documents, and to assume toward the Contractor all the obligations and responsibilities....which the Contractor, by these Documents, assumes toward the Owner and Architect.

AIA Document A401 Standard Form of Agreement Between Contractor and Subcontractor was not utilized by the contractor. The executed subcontract agreements did not include language referencing the Prime Contract. However, subcontract agreements executed by the Contractor and Subcontractors included the following language:

Provide all required labor, material, equipment, supervision, taxes and insurances to (perform work) in strict accordance with the plans and specifications...and this Subcontract.

The Prime Contract and subcontract agreements clearly mandate compliance with plans and specifications. As is customary in the industry, the project specifications further require compliance with building codes and regulatory requirements, and specifically incorporated the Prime Contract by reference. Therefore, although not directly stated, the contract between the Contractor and subcontractors clearly mandates the subcontractors comply with the plans and specifications.

Building Code Requirements

The North Carolina Building Code (NCBC) is a modified version of the International Building Code (IBC) which incorporates the North Carolina Administrative and Enforcement Code (NCAEC), a document unique to North Carolina. Both the NCBC and IBC specify the following:

102.4 Referenced codes and standards. The codes and standards referenced in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference. Where differences occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.

104.9 Approved materials and equipment. Materials, equipment and devices approved by the building official shall be constructed and installed in accordance with such approval.

104.11.1 Tests. Whenever there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, the building official shall have the authority to require tests as evidence of compliance to be made at no expense to the jurisdiction. Test methods shall be as specified in this code or by other recognized test standards. In the absence of recognized and accepted test methods, the building official shall approve the testing procedures. Tests shall be performed by an approved agency. Reports of such tests shall be retained by the building official for the period required for retention of public records.

This code section is the impetus for code qualification reports produced by various certified agencies such as the ICC Evaluation Services, as well as certification and labeling agencies such as the American Architectural Manufacturers Association. The certifications and code qualifications reports mandate that products be installed in accordance with manufacturer's installation instructions.

The NCAEC further specifies:

101.3.5 Referenced standards. Standards referenced in the technical codes shall be considered as an integral part of the codes...

301.3 Changes in Work. Work shall not deviate substantially from that described on the permit documents.

301.6 And 304.1 Contractors responsibilities. It shall be the duty of every person who contracts for the installation or repair of a building or services system to comply with state or local rules and regulations concerning relicensing. It shall be the contractor's responsibility to conform to this code and the technical codes for all installations or repairs of a building or service system.

The above sections of the NCAEC require that all parties involved in the construction of the facility not deviate substantially from the building official approved permit plans and specifications used to obtain permits.

Regulatory Requirements

The North Carolina Licensing Board for General Contractors (Board) regulates certain classifications of contractors and trades including: Building, Residential, and Specialty. Specialty classifications include: concrete, masonry and roofing/waterproofing. The Board defines a General Contractor as *any person firm or corporation who for a fixed price, commission, fee or wage undertakes to bid upon or to construct or who undertakes to superintend or manage, on his own behalf or for any person, firm or corporation that is not licensed as a general contractor....shall be deemed a "general contractor" engaged in the business of general contracting in the State of North Carolina.* Under this definition, the subcontractors discussed in this case were not required to be licensed by the Board since they were contracting with a licensed general contractor. Only the Waterproofing Subcontractor was licensed by the Board. However, the lack of a license does not relieve them of the requirement to perform in accordance with the laws of the state.

Case Summary

Contractual and regulatory requirements clearly cannot be used to vindicate any of the parties in this dispute. The General Contractor was required to complete the Work in accordance with the contract documents but failed to properly coordinate and sequence the work of the Subcontractors. When presented by the Waterproofing Subcontractor with a costly remedy to the problem, the Superintendent elected to modify the building envelope in a deficient manner not in compliance with the contract documents. The Subcontractors knowingly deviated from the approved details, a direct violation of not only the requirements listed in the project specifications, but also the NCAEC and the NCBC regulations. Neither the General Contractor nor the subcontractors submitted RFI's to the building owner or their representatives addressing the improper sequencing of the work.

Applicability

While this case is specific to North Carolina, similar requirements are embedded in well prepared contract documents and mandated by regulatory agencies in many states. While the administrative components included in the International Building Code may be less restrictive as a means of allowing the local jurisdiction latitude in this area of regulation, this aspect of the assignment of culpability should not be overlooked. In fact, the first step in the process should be determining what the agreements between the various parties were.

Licensing

Standardized contract forms such as those referenced herein contain clauses that bind the subcontractor to the Prime Contract as provided in the following examples. Similar language is included in the standardized Prime Contract, mandating that the Contractor bind the subcontractors to the Prime Agreement. Customized subcontract forms may or may not include similar clauses.

EJCDC C-523 Construction Contract

Article 1 - Prime Contract. The Prime Contract requires Contractor to perform and furnish construction labor, materials, equipment, and services in connection with the Project described therein. The Prime Contract (excluding compensation and other confidential information) is incorporated in this Subcontract by reference.

Article 2 - Incorporation of Prime Contract Obligations. The Subcontractor is bound to the Contractor under the Subcontract to the same extent that the Contractor is bound to the Owner under the Prime Contract, and Subcontractor shall comply with all requirements, terms, and conditions of the Prime Contract that relate in any way to the performance and completion of the Subcontract Work. The obligation of the Subcontractor to comply with the requirements, terms, and conditions of the Prime Contract shall not provide any rights, benefits, or third-party beneficiary standing to the Subcontractor with respect to the Prime Contract.

A401, Standard Form of Agreement Between Contractor and Subcontractor

Article 1.1 Subcontractor Documents. The Subcontract Documents consist of (1) this Agreement, (2) the Prime Agreement consisting of the Agreement between the Owner and Contractor and the other Contract Documents enumerated therein.... These form the Subcontract and are as fully a part of the Subcontract as if attached to this agreement or repeated herein.

ConsensusDocs 750 Standard Agreement Between Constructor and Subcontractor.

Article 2.4 Subcontractor Documents. The Subcontract Documents include this Agreement, the prime agreement, special conditions, general conditions, specifications, drawings, addenda issued...

AGC Document No. 655, Standard Form of Agreement Between Contractor and Subcontractor

Article 2.3 Subcontract Documents. The Subcontract Documents include this Agreement, the Owner-Contractor Agreement, special conditions, general conditions, specifications, drawings, addenda, Subcontract Change Orders, amendments and any pending and exercised alternates.

Conclusion

A thorough understanding of contract language as well as local regulatory requirements should be considered in the distribution of culpability in Contractor Subcontractor disputes. While Forensic Engineers cannot provide legal advice, they can provide knowledge and expertise in the interpretation of regulatory requirements specifically related to our area of expertise. Contract administration experience provides engineers with significant insight into the interpretation of construction related regulations. Most of our clients are surprisingly unfamiliar with the regulatory and licensing requirements that can and often do play a role in these types of cases. As a result, the Forensic Engineer can provide valuable advice to clients while assisting in the resolution of complex construction disputes.

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