

TO INJECT OR NOT TO INJECT NOT A QUESTION

A BLACK AND WHITE PAPER

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As a former Project Manager for a large Southeastern coatings and fireproofing company, the answer to the question of whether to inject or not, is quite simple; injection of low density commercial fireproofing is essential to the successful application, and more importantly, profitability on most fireproofing projects. Exceptions to this statement would include projects where A) frequent starting and stopping makes injection time consuming, B) patchwork, C) thicknesses and sizes of projects where any incremental gain in yield would be negligible, and D) the experience level makes the additional steps required to inject too overwhelming.

The cost benefit of injection

The injection of low density fireproofing causes the material to swell thus reducing its density. The difference between injected material and un-injected material is their weights, density, and coverage. Injected material is lighter and capable of covering 10-15% more than un-injected material. Additionally, injected material can “set” within minutes while un-injected material may not set until the next day. Imagine recoating a beam or column before removing a lift or scaffold. Furthermore, an application with 1”-2” thicknesses can be finished never having to return or clean-up again. Take for example thicknesses on bar-joists that are over 1”. Without injecting 1” is not possible without a second pass. The time, energy and effort required to return to an area to re-spray is expensive. By injecting, 1” thicknesses or greater, can be attained before relocating a sprayer, scaffold or lift.

Alum Systems

The system required for injection is a separate pump that introduces the aluminum sulfate, also known as alum, “inline” to the material. The alum is mixed with water per manufacturer’s specifications and “metered” into the material line. The system generally has a liquid metering, a high-pressure pump, a supply tank of about 50-60 gallons, and a mixer to mix water with powdered aluminum sulfate. Under pressure, the aluminum sulfate and water mix is conveyed through a small hose to a predetermined point in the material line. Here, a one-way valve allows the solution to be introduced to the material without allowing material to back into the injection system. This immediately causes the material to swell within the hose. Operators can hear this reaction because the volume increase within the hose rapidly increases the velocity of the material exiting the spray wand.

Injection complications

It is to be known that injection is not without risk or complication. One potential problem is over injecting and violating density. This could mean the removal of failed material. A problem of this nature could be catastrophic to an applicator but can be avoided by performing quality control practices.

Mixer and nozzle densities must be checked periodically during the day. If proper QC procedures are followed, the likelihood of violating density is very remote.

An additional risk is the “setting up” of material in the hose. If the injected material isn’t cleared from the line before stopping, a clog can develop potentially damaging the pump or the hoses. If not immediately addressed, clogged hoses can also pose safety risks for anyone in the vicinity.

Conclusion

The benefits of injecting can be summed up as follows: the increase in yield of material, the ability to apply thicker coats of material without having to return to an area, and the reduction of clean-up time, without having to return to an area to for re-cleaning purposes.

Most commercial fireproofing companies inject low density fireproofing. Injecting for the first time can be difficult; problems are to be expected. With practice and communication, the issues can be resolved making successful results attainable. Most importantly, profitability can be increase with sound injection practices. When asked whether or not to inject, 99% of the time I advise injecting.

NOTE: check with specific material manufacturer to see which products can be injected. Most low density materials allow injection. Always follow manufacturers written instructions regarding mixing and application procedures.