

Forming for Shotcrete

by Chris Zynda

Shotcrete can be used instead of cast-in-place concrete for a wide variety of construction applications. One of the major advantages of the shotcrete construction process is the relative

simplicity of the shotcrete forming systems compared with the cast-in-place concrete forming. These photos show examples of different shotcrete forming systems for a range of different structural shotcrete applications. Note that most of the jobs required relatively simple one-sided formwork, with open-edge forms where needed. The applied shotcrete is essentially self-supporting and so the formwork does not need to be designed to withstand loads from plastic concrete head. It simply has to be sufficiently braced and supported to resist wind and erection loads (for example, weight of steel fixers) and forces from the applied shotcrete without excessive movement or vibration.



Shooting concrete benches with color for a landscaped courtyard on a podium deck in San Francisco, CA. All forming was built free-standing and held in place with sand bags so no nails would penetrate the podium deck waterproofing



Completed shotcrete bench project with colored shotcrete installed with a smooth trowel finish



This photo illustrates how elevation changes can be installed in the wall. Wall forms are installed past full height, and a chamfer reveal is installed at the top of the wall



This photo shows how simply a back form for a wall can be installed; note how clean the stripped face of the installed shotcrete wall is



Note that even the pilaster forms are installed for construction with the shotcrete process with a simple form and chamfer used to establish line and grade



Elevator forms with door openings ready for construction using the shotcrete process



Completed high walls and the sand float finish



This photo illustrates tall wall forming. Forms are prebuilt in a fabrication yard off site and then shipped and set by crane using pipe shore bracing



This is a simple residential foundation. Back form, mud sill, and bolts are installed. Shotcrete will be installed on the face of the mud sill. When complete, it will be equivalent to a concrete foundation with sill and bolts installed, saving time and money



Reinforcing bar being installed after form is secured with chamfers on form for architectural design



Small concrete walls and planters are installed using a single form. Chamfer is installed for elevation change. Piano wire is set up at the face of the wall and shot using the wet-mix shotcrete process. It's simple and quick



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