



# Shotcrete Preconstruction Meeting Agenda

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Project	Date
Address	Permit Number
General Contractor	Job Phone
Project Superintendent	Concrete Supplier
Resteel Placer	Mix Number
Concrete Placing Sub	Approvals
Structural Engineer	Concrete Strength
Shotcrete Contractor	Cement Content
Mix Inspection Agency	COB Representative

## Scope of Work

### Walls

- Below grade exterior retaining walls
- Top down construction
- Interior/exterior shear walls added to an existing/new building
- Other \_\_\_\_\_

Typical thickness of walls \_\_\_\_\_

Single/double curtain \_\_\_\_\_

Single curtain located where in wall? \_\_\_\_\_

Worst case thickness of walls \_\_\_\_\_

Single/double curtain \_\_\_\_\_

Single curtain located where in wall? \_\_\_\_\_

Non-contact laps are specified. Laps should be a minimum of two inches and not more than six inches apart. Where bars must be tied together, they should be tied so that from the nozzleman's viewpoint only one bar is visible.

Wire chairs (spiders) or open-legged plastic chairs should be used. Do not use dobies or heavy plastic chairs (lawn furniture) with angled legs and cross braces.

Describe the reinforcing, including footing, floor, wall, column, ceiling, etc.

Clearances:    Inside face \_\_\_\_\_                      Outside face \_\_\_\_\_

Questions: \_\_\_\_\_

Where floor or ceiling dowels are projecting into the path of the nozzleman and crew, can the dowels be placed upside down and cast with the slab so the tails protrude into the wall above or can the tails of the dowels that protrude into the path of the nozzleman be tied together ("teepeed") so there are clear spaces for the nozzleman to access the wall? \_\_\_\_\_

**Columns/Pilasters, Beams/Corbels, Footings/Slabs**

Scope of work information is to include ties and stirrups, all embedded items such as weld plates, plumbing, mechanical, electrical, etc.

**Back Form**

Back form consists of:

- Earth       Lagging       Temporary Shotcrete       CMU       Clay Brick       Clay tile
- Wood       Other: \_\_\_\_\_

Is a mechanical bond required between the form and the shotcrete?  Yes  No  
If yes, does the form need to be wetted or saturated prior to placing the shotcrete?

\_\_\_\_\_

If no, how will the form be sealed off?

\_\_\_\_\_

NOTE: Non-contact laps are specified. Laps should be a minimum of two inches and not more than six inches apart. Where bars must be tied together they should be tied so that from the nozzle man's viewpoint only one bar is visible.

Wire chairs ("spiders") or open-legged plastic chairs should be used. Do not use dobies or heavy plastic chairs (lawn furniture) with angled legs and cross braces.

**Approximate Cubic Yardage of Shotcrete Work**

Walls\_\_\_\_\_ Columns\_\_\_\_\_ Beams\_\_\_\_\_

Corbels\_\_\_\_\_ Footings\_\_\_\_\_ Slabs\_\_\_\_\_

Maximum yardage per pump and placing crew per 8-hour shift\_\_\_\_\_

Estimated start date of work \_\_\_\_\_

The most difficult part of this work is \_\_\_\_\_

**Qualifications**

Structural engineer of record has designed or approved these members and areas for shotcrete:

Yes\_\_\_\_\_ No\_\_\_\_\_

Shotcrete contractor's recent completed project(s) acceptable to the structural engineer(s) of record and the building official:

**Nozzlemen and blow pipe operators proposed for this project**

Nozzlemen	Blow Pipe Operators

Preconstruction test panel required for nozzleman/blow pipe operator qualifications (number and size of panels, location of panels if other than jobsite):

When \_\_\_\_\_ Where \_\_\_\_\_

**Special Reinforcing Steel Requirements**

Items must be more securely fastened for shotcrete than for traditionally placed concrete. The shotcrete crew will refuse to place shotcrete in any area where loose rebar or embedded items are discovered. The special inspector will test every area to ensure no movement will occur during shotcrete placement. Forms must be tight and unyielding.

It is the general contractor’s responsibility to schedule so that

- 1. the ironworkers have finished placing and securing the reinforcing steel.
- 2. the shotcrete contractor has placed the guide wires.
- 3. the special inspector has approved it all, prior to the scheduled start of shotcreting.

**Note:** Overspray must be blown off steel while concrete is plastic where construction or cold joints occur. If overspray hardens, it must be removed before subsequent shotcrete placement.

Note: No one is permitted to climb on or otherwise disturb the reinforcing steel during or after shotcrete placement. If vibrations are detected in the rebar or forms, work will be stopped until the problem has been eliminated.

### Degree of Difficulty

- Overhead or above shoulder height shooting required? \_\_\_\_\_
- Shotcrete to be placed under up to existing floor? \_\_\_\_\_
- Birds mouth procedure to be used? \_\_\_\_\_
- Water migrating in or around shotcrete placement must be diverted until shotcrete has achieved its final set? \_\_\_\_\_
- Accessibility/Conditions – The nozzleman must have a reasonably smooth flat surface to stand on. The area in front of the wall should not be used to store materials or equipment. Scaffolding should allow for interim levels of planking. Conditions for this job:

### Curing Procedures

### Tests Required

**Cores from in-place shotcrete.** A minimum of three sacrificial steel locations for each day shotcrete is placed. More locations may be required if additional nozzle men are utilized.

The contractor must be able to locate sacrificial steel intersections precisely after the shotcrete is placed. Cores shall be four-inch diameter and pass through all steel but not through the cover concrete, waterproof membrane or form. Cores should not be cut until the shotcrete has been in place for 48 hours.

1. Is work stopped until in-place cores are evaluated? \_\_\_\_\_

**Note:** Where cores are required from in-place work as part of the shotcrete qualification procedure, no additional shotcrete shall be placed until approval is given by the structural engineer of record and the building official.

2. Engineer's approval is required for areas where sacrificial steel can be located and cores taken. Is middle of the wall horizontally and three feet from any return or opening acceptable? \_\_\_\_\_

3. Compression strength tests are required for each 50 cubic yards of shotcrete or portion thereof placed each day from each shotcrete mix. These tests may be from the in-place work or from strength test panels (not the same as the preconstruction panels for the nozzleman's qualification). Panel size shall be nominal 12 inches x 12 inches x 6 inches.

### Other Issues

### Top Down Shotcrete Issues

- Open cut restrictions \_\_\_\_\_
- Horizontal construction joints must be sloped so that the back (earth) side is lower than the front (inside) face of the wall.
- Only clean, sandy, free draining soils may be used to form horizontal construction joints. If the naturally occurring soils are not clean sandy soils, then clean damp sand will be imported and placed a minimum of one-inch thick on top of the existing soil at the joint.
- Final configuration of the earth surface at the horizontal construction joint will be checked and repaired by hand approximately 10 feet in front of the nozzleman as he works down the wall. This will be done by \_\_\_\_\_
- Under no circumstance will shotcrete be placed on a muddy or dusty soil base or a soil or sand base that has not been hand tamped to a tight, uniform consistency. This soil must support fresh shotcrete without moving and breaking the bond between the shotcrete and the resteel.

- A horizontal, impervious joint backing material such a drainage fabric or tar paper must be located at the horizontal construction joints and must extend about one foot above and below the joints. This allows power washing of the joint without displacing the soil behind the joint.
- After excavation, horizontal construction joints (soffits) will be cleaned of all dirt, mud, rocks (more than 1.5 inches in diameter), roots or other organic material by power washing and/or air pressure and/or hand scraping and brushing.
- Any soffit area which does not slope down with the lowest part in the back (earth face) will be chipped and contoured by hand to the proper configuration.
- Blow pipe operators will keep the air stream away from unprotected earth surfaces and make every effort not to blow dirt into the shotcrete as it is being placed. Any area known or suspected of including dirt will be removed and reshot.
- The excavator, special inspector and shotcrete crew will pay special attention to the spacing of the reinforcing steel to assure the horizontal construction joints occur between the grid pattern so every horizontal bar is completely encapsulated in concrete in one lift.
- The minimum length of wall that will be complete prior to the shotcrete contractor starting work is\_\_\_\_\_. The special inspector will notify the City of Bellevue if there is not compliance with this minimum.
- An adequate work bench is necessary for proper footing for nozzleman. Flat, firm work area extending six feet from the wall is best. Loose soil and/or a sloped or cluttered work surface can prevent the nozzleman from maintaining proper nozzling techniques.
- Shotcrete works best where the pump can be situated within 200 feet of the application area. Pumping shotcrete over 300 feet is not recommended since it can adversely affect the consistency of the shotcrete.