

Appendix B Glossary of Terms

Accelerator

A substance which, when added to concrete, mortar, or grout, increases the rate of hydration of a hydraulic cement; shortens the time of setting; or increases the rate of hardening or strength development, or both.

Admixture

A material other than water, aggregate, hydraulic cement, or fiber reinforcement used as an ingredient of concrete or mortar and added to the concrete immediately before or during its mixing.

Air Ring

Perforated manifold in the nozzle of wet-mix shotcrete equipment through which high-pressure air is introduced into the material flow.

Aspect Ratio

A term used to describe the geometry of an individual fiber; it is the ratio of the length of a fiber to the equivalent diameter; the equivalent diameter is that circular area that is equal in area to the cross-sectional area of the fiber.

Bench Gunning

When building up thick sections of vertical work, shotcrete is applied against the advancing top surface of the shotcrete rather than directly against the vertical surface, the top surface of the shotcrete is maintained at a 45-degree slope. (Also known as shelf gunning.)

Blowpipe

Air jet operated by the nozzleman's helper in shotcrete gunning to keep rebound or other loose material out of the work.

Build Up

Gunning of shotcrete in successive layers to form a thicker mass.

Bulking

Increase in the bulk volume of a quantity of sand in a moist condition over the volume of the same quantity dry or completely inundated.

Cutting Screed

Sharp-edged tool used to trim shotcrete to a finished outline.

Delivery Hose

Hose through which shotcrete passes; also known as a material or conveying hose.

Dry-Mix Shotcrete

Pneumatically conveyed shotcrete in which most of the mixing water is added at the nozzle. (See also Pneumatic Feed.)

Feed Wheel

Material distributor or regulator in certain types of shotcrete equipment.

Finish Coat

Final thin coat of shotcrete applied preparatory to hand finishing.

Flash Coat

A light coat of shotcrete used to cover minor blemishes on a concrete surface applied from a distance greater than normal.

Ground Wire

Small-gauge high-strength steel wire used to establish line and grade as in shotcrete work; also called alignment wire or screed wire.

Gun

(1) Shotcrete material delivery equipment used to receive materials and deliver them to the nozzle; the equipment often consists of double chambers under pressure (equipment with a single-pressure chamber is used to some extent). (2) A pressure cylinder used to pneumatically propel freshly mixed concrete.

Gun Finish

Undisturbed final layer of shotcrete as applied from the nozzle, without hand finishing.

Gunite (former trademark)

A method of applying dry-mix shotcrete; term sometimes used for dry-mix shotcrete.

Gunman

Workman on a shotcreting crew who operates the delivery equipment.

Gunning

The act of applying shotcrete; ejection of material from the nozzle and impingement on the surface to be gunned. (Sometimes called shooting.)

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Gunning Pattern

Conical outline of the material discharge stream in shotcrete operation.

Hamm Tip

A flared shotcrete nozzle having a larger diameter at midpoint than either inlet or outlet; also called a premixing tip.

Nozzle

A metal or rubber tip attached to the discharge end of a heavy, thick-wall rubber hose from which a continuous stream of shotcrete is ejected onto the placement.

Nozzle Velocity

The rate at which shotcrete is ejected from the nozzle, usually stated in feet per second or meters per second.

Nozzleman

The operator who manipulates the nozzle and controls placement of the shotcrete; in the case of dry-mix shotcrete, the nozzleman also controls the water content of the shotcrete.

Pneumatic Feed

Shotcrete delivery equipment in which material is conveyed by a pressurized air stream.

Positive Displacement Concrete Pump

Wet-mix shotcrete delivery equipment in which the material is pushed through the material hose in a solid mass by a piston, auger, or other displacement type equipment.

Rebound

Aggregate and cement or wet shotcrete which bounces away from a surface against which shotcrete is being projected.

Sand Lenses

A general term for areas in the shotcrete that are either voids or pockets of aggregate that have segregated from the cement, sand lenses are oriented in planes parallel to

the layering of the shotcrete, analogous to rock pockets or honeycomb in conventional concrete.

Sand Pocket

A zone in concrete or mortar containing sand without cement.

Shelf Gunning

When building up thick sections of vertical work, shotcrete is applied against the advancing top surface of the shotcrete rather than directly against the vertical surface; the top surface of the shotcrete is maintained at a 45-degree slope. (Same as bench gunning.)

Shooting

(See gunning.)

Shotcrete

Mortar or concrete pneumatically projected at high velocity onto a surface; also known as air-blown mortar, pneumatically applied mortar or concrete, sprayed mortar, or gunned concrete. (See also Dry-Mix Shotcrete, Pneumatic Feed, Positive Displacement Concrete Pump, and Wet-Mix Shotcrete.)

Sloughing

Subsidence of shotcrete, plaster, or the like, due generally to excessive water in the mixture; also called sagging.

Water Ring

A device in the nozzle body of dry-mix shotcrete equipment through which water is added to the materials.

Wet-Mix Shotcrete

Shotcrete wherein all ingredients, including mixing water, are mixed before introduction into the delivery hose; it may be pneumatically conveyed or moved by displacement. (See also Pneumatic Feed and Positive Displacement Concrete Pump.)