

## SECTION 03345

### CONCRETE FINISHING

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Application procedure for concrete surface finishes.

##### 1.02 PROJECT CONDITIONS

- A. Allow concrete to cure not more than 72 hours before commencing surface finish operations, unless otherwise acceptable to Engineer.
- B. Protect adjacent materials and finishes from dust, dirt and other surface or physical damage during finishing operations. Provide protections as required and remove from site at completion of Work.
- C. For surfaces to be blast finished, perform abrasive blasting within 24 to 72 hours after casting. Coordinate with form work construction, concrete placement schedule, and form work removal to ensure that surfaces are blasted at same age for uniform results.

#### PART 2 EXECUTION

##### 2.01 PATCH FINISHING

- A. Repair surface defects immediately after form removal.
- B. Make any patches in concrete to closely match color and texture of surrounding surfaces. Determine mix formula for patching mortar by trial and obtain a good color match with concrete when both patch and concrete are cured and dry.
  - 1. Mix white and gray Portland cement as required to match surrounding concrete to produce grout having consistency of thick paint.
  - 2. Use a minimum amount of mixing water.
  - 3. Mix patching mortar in advance and allow to stand without frequent manipulation, without addition of water, until it has reached stiffest placeable consistency.
  - 4. After initial set, dress surfaces of patches manually to obtain same texture as surrounding surfaces.
- C. Repair defective areas.
  - 1. Remove honeycomb and defective concrete down to sound concrete.
  - 2. Make edges perpendicular to surface or slightly undercut.
  - 3. Feathered edges are not permitted.
  - 4. Dampen area to be patched and at least 6" surrounding it to prevent absorption of

- patching mortar water.
5. Prepare bonding grout.
  6. Mix to consistency of thick cream.
  7. Brush into surface.
- D. After surface water has evaporated from patch area, brush bond coat into surface.
1. When bond coat begins to lose water sheen, apply patching mortar.
  2. Thoroughly consolidate mortar into place and strike-off to leave patch slightly higher than surrounding surface.
  3. Leave undisturbed for at least 1 hour before final finish.
  4. Keep patched area damp for 72 hours or apply curing compound.
  5. Do not use metal tools in finishing an exposed patch.
- E. Tie Holes: Unless indicated otherwise, after being cleaned and thoroughly dampened, fill the hole solid with patching mortar.
- F. Where as-cast finishes are indicated, total patched area may not exceed 1 in 500 of as-cast surface. This is in addition to form tie patches, if ties are permitted to fall within as-cast areas.
- G. In any finishing process which is intended to expose aggregate on surface, patched areas must show aggregate.
1. Outer 1" of patch shall contain same aggregates as surrounding concrete.
  2. For aggregate transfer finish, patching mixture shall contain same selected colored aggregates.
  3. After curing, expose aggregates together with aggregates of adjoining surfaces by same process.

## 2.02 SLAB FINISHING

- A. Broom or Belt Finish: After concrete has been placed, consolidated, struck-off, and leveled to the required tolerance, roughen surface transversely with stiff brushes, rakes, or burlap belt before final set.
- B. Float Finish: After concrete has been placed, consolidated, struck-off, and leveled, do not work further until ready for floating.
1. Begin floating when water sheen has disappeared and surface has stiffness sufficient to permit operation.
  2. During or after first floating, check planeness of entire surface with a 10 feet long straightedge applied at 2 or more different angles.
  3. Cut down high spots and fill low spots to the required tolerance.

4. Refloat slab immediately to a uniform sandy texture.
- C. Trowel Finish:
1. Float finish surface.
  2. Power trowel.
  3. Hand trowel as required to provide surface. Do not apply water to retemper concrete in finishing operations.
  4. First troweling after power floating shall produce smooth surface relatively free of defects but which may still show some trowel marks.
  5. Second trowel by hand after surfaces has hardened.
  6. Leave finished surface essentially free of trowel marks, uniform in texture and appearance.
  7. On surfaces intended to support floor coverings, grind off defects which would show through floor covering.

#### 2.03 AS-CAST FORMED FINISHING

- A. Rough: Patch defects, chip or rub off fins exceeding 1/4" height.
- B. Smooth: Patch tie holes and defects and remove fins completely:
1. When surface texture is impaired and form joints misaligned, grind, bushhammer, or correct affected concrete as directed by Engineer.
  2. Slurry grout areas evidencing minor mortar leakage to match adjacent concrete.
  3. Repair major mortar leakage as a defective area.
  4. When in opinion of Engineer, workmanship is less than acceptable standard, provide one of rubbed finishes at no additional cost to Owner.

#### 2.04 RUBBED FINISHING

- A. Produce following finishes on concrete with a smooth form finish.
1. Smooth Rubbed: Remove forms and perform necessary patching as soon after placement as possible.
  2. Finish newly hardened concrete no later than 24 hours following form removal.
  3. Wet surfaces and rub with carborundum brick or other abrasive until uniform color and texture are produced.
- B. Grout Cleaned: Undertake no cleaning operations until all contiguous surfaces are completed and accessible.

1. Wet surface of concrete sufficiently to prevent absorption of water from grout.
2. Apply grout uniformly.
3. Immediately after grouting, scrub surface with cork float or stone to coat surface and fill voids.
4. While grout is still plastic, remove excess grout by working surface with rubber float or sack.
5. After-surface whitens from drying, rub vigorously with clean burlap.
6. Keep damp for at least 36 hours after final rubbing.
7. Cork Floated: Remove forms within 2 to 3 days of placement where possible.
8. Remove ties.
9. Remove all burrs and fins.
10. Dampen wall surface.
11. Apply mortar with firm rubber float or with trowel, filling all surface voids.
12. Compress mortar into voids.
13. If mortar surface dries too rapidly to permit proper compaction and finishing, apply a small amount of water with fog sprayer.
14. Produce final texture with cork float using a swirling motion.

#### 2.05 UNFORMED FINISHING

- A. After concrete is placed, strike smooth, tops of walls or buttresses, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces.
- B. Float to texture which is reasonably consistent with formed surfaces.
- C. Continue final treatment on formed surfaces uniformly across unformed surfaces.

END OF SECTION