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SELF COMPACTING CONCRETE



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REGULAR HPC BEAM POOR CONSOLIDATION



CORROSION



Poor consolidation



SCC

Self-Consolidating Concrete — fresh concrete that can flow around reinforcement and consolidate within formwork under its own weight without vibration and that exhibits no defect due to segregation or bleeding.

ACI ConcreteTerminology



THE IMPORTANT PROPERTIES

- Self-compactability
- Avoidance of bleeding and segregation
- Low shrinkage
- Low permeability
- × Strength as needed

BENEFITS OF SELF CONSOLIDATING CONCRETE

- Improved constructability
- × Virtually flawless finish
- Homogenous and uniform concrete
- × Better reinforcement bonding



- Flows easily into complex shapes and through congested reinforcement
- Superior strength and durability
- Allows for innovative architectural features, Less dependent on skill on site



BENEFITS OF SCC

× Wall with Normal and SCC Concrete





SMOOTH SURFACE FINISH

SELF CONSOLIDATING CONCRETE

- The use of self-consolidating concrete (SCC) has grown tremendously since its inception in the 1980s.
- Because of the material performance in its fresh state, the existing testing methods for conventional concrete are no longer suitable for SCC.



WHAT'S DIFFERENT?

 Segregation resistance from mortar viscosity, not aggregate grading

 Workability through admixtures, not water content

WHAT'S THE SNAG?

Higher cost – especially if high strength not needed

× Plant control has to be better

WHY DOES IT LOOK BETTER?

× Perfect compaction

× No bleeding

MIX DESIGNS FOR SCC

 SCC mixtures can be designed to provide the required hardened concrete properties for an application, similar to regular concrete.

Regular Mix





High Segregation Resistance of the mortar and the concrete Reduction of the Water-Powder-Ratio (w/p)

HOW TO CHECK SUITABILITY?

There are many new tests:

- & V-funnel,
- ✤ L-box, U-box,
- ✤ Fill-box,
- Orimet and
- J-ring

CONCLUSIONS

- SCC with high workability, proper strength, and adequate durability can be produced using locally available materials.
- Attention must be paid to formwork, segregation, the air-void system, and shrinkage.

THANK YOU